EWMA 2023 Conference abstracts

https://doi.org/10.35279/jowm2023.24.02.02

CONTENTS

E-POSTERS

E-POSTER SESSION: DEVICES & INTERVENTION

EP001 SURGICAL CORRECTION OF PECTUS EXAVATUM BY USING VIDEO THORACOSCOPIC ASSISTANCE

Arman Batpen[1], Kairat Tazhin[1], Kairat Dzharkeev[2], Ablaikhan Kazbekov[1]

[1]National Scientific Center of Traumatology and Orthopedics named after Academician N.D. Batpenov, Astana, Kazakhstan; *[2]Nacional Scientific Medical center, Astana, Kazakhstan*

Aim: Our aim was to compare follow up in patients underwent a traditional pectus repair with the Nuss procedure.

Method: There were 10 patients in Nuss group, and 20 patients treated with Ravitch procedure. Patients were compared for operating time, complications; duration of hospitalization, cosmetic result and degree of deformation was calculated using the Park classification and Gizicki indexes.

Results / Discussion: The age of the patients ranged from 12 years to 24 years in both groups. The preliminary long-term result was evaluated during the first 6 months from the moment of discharge. In both group the parameters of the chest were within the normal range, according to clinical data, X-ray and CT indices. Operating time was significantly shorter and less blood loss than with Ravitch procedure. Duration of hospitalization and complications were similar in both groups. Cosmetic results were better in Nuss group due to smaller incisions.

Conclusion: thus, our experience demonstrates that thoracoplasty according to the method of D. Nuss is minimally invasive, timesaving and blood loss, as well as aesthetically beneficial for patients with pectus excavatum.

EP002 THE DEVELOPMENT OF GRANULATION TISSUE IN ULCERS, TREATED WITH A COMBINATION OF A TOPICAL DEHYDRATION AGENT AND NEGATIVE PRESSURE WOUND THERAPY

Michel Hermans[1], Alberto Cogo[2]

[1]Hermans Medical Consulting, Hoorn, Netherlands; *[2]Villa Berica Hospital, Vicenza, Italy*

Aim: An acid-based debriding gel (TDA◆) works through a strong hygroscopic action. When applied onto biofilm and/or necrosis, rapid desiccation and denaturation of microorganisms and tissues occurs. Typically, quick sloughing follows. In a previous study, TDA was shown to assist in the rapid development of granulation tissue, a necessary step in healing by secondary intention. Negative pressure wound therapy (NPWT) also supports the development of granulation tissue. The aim of our study was to assess the combination of TDA and NPWT on efficacy of the development of granulation tissue.

Method: TDA was applied for 60 seconds and rinsed off, after which NPWT (at -125 mmHg) was applied for up to one week. The percentage of granulation was assessed on a 3-daily basis.

Results / Discussion: 12 ulcers (in 12 patients) of the lower leg participated. Ulcers were venous (N=5), arterial (N=2), and mixed venous/arterial (N=1). One lesion was post-trauma (etiology unknown: N=3). Average size was 308 cm2 and average wound-age was 13 months. Each patient had at least one serious comorbidity. Average time to complete granulation was 13,2 days (range: 7-21). There were no side effects to NPWT or TDA treatment.

Conclusion: In this study, combining TDA therapy with NPWT was shown to assist in the rapid development of granulation tissue. This indicates that healing by secondary intention is supported by this treatment routine. The use of TDA was also shown to be cost-effective in a separate study.

◆ Debrichem, DEBx, the Netherlands

EP004 AN UNDERRATED METHOD FOR CHRONIC WOUNDS: MAGGOT THERAPY

Perçin Karakol[1], Sabri Ozturk, Zeki Celik[1]

[1]Sisli Hamidiye Etfal Training and Research Hospital, University of Health Sciences, Plastic, Reconstructive and Aesthetic Surgery, Istanbul, Turkey

Aim: Debridement is crucial for facilitating healing in a problematic wound. There are various debridement methods available. The most common way is surgical debridement; however, it cannot be applied to patients with comorbidities or poor general condition. Maggot therapy (MT) is one of the non-surgical treatments that have been applied to a variety of wounds. This study aims to assess the efficacy of maggot therapy.

Method: Ten chronic wound patients who applied to our outpatient clinic between 2019 and 2022 received MT. These patients were retrospectively evaluated according to wound type, age, gender, comorbidities, second procedures, recovery, pain level and complications.

Results / Discussion: There were three female and seven male cases. The average age was 61. Six patients were diagnosed with diabetic foot and four with sacral decubitus. Seven patients were found to be at risk for an operation due to additional comorbidities. MT provided appropriate area debridement and infection control in this high-risk group. Clean wound tissues were left for secondary healing. In the remaining three cases, MT was used to prepare for an operation. A clean wound bed and optimal granulation tissue were observed (Fig. 1. B,D). Patients with osteomyelitis did not have any negative effects. In 60% of cases, complaints such as disgust and irritation called 'Yuk' factor from the applied larvae were observed.

Figure 1.

Conclusion: MT decreases time to healing as well as in surgical contraindications. Moreover, this therapy may decrease the risk of major amputations and reduces the need for systemic antibiotics. In spite of lacking clinical evidence, it may be a valuable alternative to surgical debridement according to our clinical experiences.

EP005 THE EFFECTIVENESS OF MAINTENANCE ULTRASONIC DEBRIDEMENT

Fabio Beghin[1], Gloria Dorigo[1], Lucia Luise[1], Donatella Cecchetti Verderi[1], Toninello Barbara[1], Matteo Martinato[2]

[1]Ulss 6 Euganea - Distretto 1, CSS Colli Poliambulatori, Padova, Italy; [2]Università di Padova, Dipartimento di Scienze Cardio-Toraco-Vascolari e Sanità Pubblica, Padova, Italy

Purpose: This study aim was to assess effectiveness of ultrasonic maintenance debridement on biofilm removal process and consequently on chronic wounds healing, by implementing a standardized wound care procedure.

Methods: The procedure consists of:

- TIME evaluation
- evaluation with Push Tool Scale 3.0 (PTS);
- application of anaesthetic cream (lidocaine 5%) for 15/20 minutes;
- cleansing with surfactant;
- mechanical ultrasonic debridement at 15-day intervals
- dressing
- Wound re-assessment at regular intervals of 7 days using the Push Tool Scale 3.0.

Results: This standardized procedure was performed on 10 patients with chronic vascular ulcers:

- Average age 78.6 years
- 5 females
- 4 with co-morbidities (diabetes and/or arteriopathy)
- 6 in the perimalleolar site
- 4 on the leg
- 6 recurrent wound (onset on average 492 days before the start of treatment, in a range from 120 to 1080) - details in table 1.

All 10 subjects show improvement with an average reduction of 7.6 PTS points (range 1-15) over an average treatment period of 120 days (range 30-150). The average PTS score at intake was 13.2 (range 16-8), at re-evaluation 5.6 (range 14-0). In 4 subjects full recovery was achieved within an average of 134 days (range 150-120).

Conclusions: although cautiousness is required when analysing the data, due to the number of cases observed being too small to be statistically meaningful, the results show the effectiveness of the procedure and encourage undertaking a more extensive study, examining a greater variety and number of difficult ulcers and possibly testing different interval between the debridement sessions.

anagrafici Biographical			comorbilità Co-morbidity			Posizione dell'ulcera Ulcer position *Perimalleolar			Ulcera recidiva Relapsed wound		Tempo di insorgenza in giorni Time of onset	Giorni di trattamento Days of treatment	Push tool inizio percorso operativo Initial PUSH tool	Push tool fine percorso operativo Final PUSH tool	guarita Healed	
									si Y	no N					si Y	no N
utente patient	età age	sesso sex	IVC VCI	diabete Diabetes	arteriopatia arthereopathy	Peri ★ malleolare	Piede Foot	gamba Leg								
1	74	m		x				x		x	180	42	15	3		x
2	83	f	x					x	x		360	145	12	0	x	
3	93	m	x			x				x	720	120	8	0	x	
4	81	m			x	x			x		450	145	15	12		x
5	81	f	x			x			x		1080	150	15	0	x	
6	79	f	x			x				x	240	30	16	14		x
7	78	f	x			x				x	330	145	13	12		x
8	46	m	x	x				x	x		120	120	14	0	x	
9	87	f	x			x			x		720	150	11	7		x
10	84	m		x	x			x	x		720	150	13	8		x

EP006 A COMPELLING PERSPECTIVE ULTRASOUND-ASSISTED WOUND DEBRIDEMENT FOR COMPLICATED DIABETIC FOOT ULCERS

Bianca Criselda Carilo[1], Charles Richard Cabuquit[2]

[1]Hilom Wound Care Clinic, Mandaluyong City, Philippines; *[1]Hilom Wound Care Clinic, Mandaluyong City, Philippines*

Aim: To present 10 patients with diabetic foot ulcers who underwent ultrasound-assisted wound debridement in an out-patient setting, as either an adjunct versus stand-alone treatment procedure.

Method: Using the Sonoca185 with an appropriate sonotrode to conform to the wound bed, UAWD was performed in contact mode. The intensity of the ultrasound is set between 40-60% depending on the patient's pain tolerance. A solution containing polyhexamethylene biguanide (PHMB or polyhexanide) and betaine was used for irrigation. Whenever applicable, conservative

sharp debridement was done. The frequency and duration of treatment with UAWD was at the discretion of the health care professional. A wound gel of similar ingredients was applied to the wound prior to the a dressing. The procedure was well tolerated by the patients without anesthesia, however, in some cases, topical anesthesia was applied 30 minutes prior to the procedure. Adjunct therapies such as negative pressure wound therapy or 2-layer compression therapy were performed on a case by case basis. Instructions for home care were given. The patient was discharged from treatment when the wound has healed.

Results / Discussion: All ten patients had favorable outcomes despite different rates of healing. Two out of ten patients are currently continuing wound care, and one was considered a drop-out due to death from covid infection. Nine patients are independent ambulators and in their activities of daily living as well.

Conclusion: Ultrasound-assisted wound debridement is a relatively new method of debridement that has not been extensively used internationally and in the Philippines. However, there is sufficient evidence to support that its use is highly effective and highly tolerable in the management of chronic wounds.

EP007 NEW POLYLACTIDE DERMAL SUBSTITUTE*: PRELIMINARY STUDY

Stefania Chiarenza[1 2], Cecilia Muscarà[1], Loris Pelosi[1 2]

[1]Istituti Clinici Zucchi , Centro di Vulnologia , Monza, Italy; [2]Istituto Clinico Villa Aprica, Ambulatorio di Vulnologia , Como, Italy

Aim: This study investigates the efficiency of a polylactide/trimethylene carbonate/caprolactone copolymer porous foam* as a dermal substitute for the treatment of chronic ulcers.

Method: 20 patients (57-87 years old), affected by traumatic and vascular lower limbs chronic ulcers with an extension from 1 to 100 cm2, were recruited.

In all cases the wound bed presented necrosis/biofilm without showing any tendency to repair.

Surgical debridement was performed in the operating room followed by application of the dermal substitute covered with fat gauze or microperforated silicone and leg bandage.

Patients were followed up in outpatient clinic with medications and medical checks twice a week for 6 weeks after surgery.

Results / Discussion: We observed a stable permanence of the dermal substitute on wound for about 2 weeks in 52% of cases. In the remaining 48%, the dermal substitute was removed after one week due to early degradation or perilesional maceration/ inflammation.

In 2 cases at the moment of removal of the dermal substitute after 3 weeks, the wound was healed.

In all cases the wound bed improvement was evident.

Appearance of re-epithelization at the borders and the size reduction of the ulcers were observed in approximately 80% of cases.

Conclusion: The dermal substitute under study, associated with surgical debridement, proved to be effective in promoting the repair of chronic ulcers.

Moreover, characteristics of good conformability, handling and safety of use in operating room were observed.

It therefore, due to excellent results poses itself to future uses on a larger scale.

*SUPRA-SDRM

EP008 EVALUATION OF IN- SITU ELECTROSPUN NANOFIBERS SCAFFOLDS IN HARD TO HEAL WOUNDS

Charalambos Agathangelou[1], Sofoulis Achilleos[1]

[1]Dhali Community Geriatric, Rehabilitation and wound Centre, Wound Care, DHALI, Cyprus

Aim: Evaluate an in-situ electrospun nanofiber scaffold in terms of wound healing, reduction of exudate, odour, wound size, infection and pain.

Method: 12 patients with hard-to-heal wounds, average duration 32 months were included.

3 recurring VLU, 1 DFU and 8 PU.

A thorough medical and social assessment of the patient's history, concerns, and a detailed wound assessment based on the TIMERS principle was performed. Education of both the patient, patients' family and nurses was part of the treatment plan.

An electrospun nanofibrous scaffold was in-situ printed on the wounds and covered with non-adherent absorbent dressing in conjunction with supporting therapies (offloading, compression, etc.), changes according to need.

Results / Discussion: All hard-to-heal wounds included in the study were previously treated unsuccessfully with other wound care products such as collagen, silver, and silicon-foams. All patients were in the past treated with i.v. antibiotics due to recurrent infections.

All patients showed a gradual reduction of wound size with no re-infection. VLU patients showed no re-occurrence after 3 months.

Depending on wound size, healing was achieved between 3 to 12 weeks.

Both odour and exudate levels reduced almost immediately. Peri-wound skin improved by 75% in 2 weeks.

Patient pain reduced significantly from 6 to 3 after a week, to 0 after 3 weeks (VAS scale).

Conclusion: Very promising findings in our small study indicates that in-situ electrospun nanofiber scaffolds may be an important tool for accelerating healing of hard-to-heal wounds, while also decreasing the risk of infection. More research is needed to statistically confirm findings.

EP009 COLD PLASMA TREATMENT IN A LOW-INCOME COUNTRY; A CASE SERIES

Lian Stoeldraaijers[1]

[1]*Podotherapie Valkenswaard, Valkenswaard, Netherlands*

Aim: In low-income countries providing a good standard of wound care can be a challenge, especially in the Caribbean. Lack of funds, resources and materials, capacity of qualified wound care providers and limited health education to the population are the reason that chronic wounds presented at a local wound care clinic are far worse compared to wounds in the US or Western Europe. While the need for advanced therapies is high, these are hardly available due to financial restrictions. This case series describes the results of offering an innovative advanced wound therapy using cold atmospheric plasma to this population.

Method: Cold plasma has proven to have a positive impact on wound healing by stimulation of cell migration and cell proliferation, improvement of microcirculation and inactivation of a broad spectrum of microorganisms, even if antibiotic resistant or in a biofilm.

15 Patients with non-healing wounds existing for a long time (> 1 year) participated in the study. Cultures were taken after debridement; most wounds were moderate to severe infected. Cold plasma treatment was added to the regular standard of care that was given. Patients were treated twice a week for max. 12 weeks.

Results / Discussion: All wounds showed a significant reduction in wound surface, and some wounds even closed despite the long existence.

Conclusion: Adding innovative advanced technology can make a difference, even in a non-best practice environment. Especially when resources are limited, it is worth to go the extra mile.

EP011 APPLICATION OF DECELLULARIZED INTACT FISH SKIN TO SPLIT-THICKNESS SKIN GRAFT DONOR-SITES YIELDS RAPID RE-EPITHELIALIZATION

Salvatore Pacella[1]

[1]*SCRIPPS MD Anderson Cancer Center, Plastic & Reconstructive Survery, San Diego, United States*

Aim: Wounds from harvested split-thickness skin graft donor-sites can result in delayed wound healing. Extensive time in post-operative recovery can result in higher potential for infection, hypergranulation and increased patient discomfort. Traditional modalities for wound care of donor-sites involve extended dressings, excess fluid accumulation or topical wound treatment. We evaluated the utility of application of a decellularized, intact fish skin xenograft* for improved wound healing at skin graft donor sites.

Method: From 2021 to 2022, Decellularized fish skin was sutured to the thigh donor site of split-thickness skin graft donor-sites in 5 patients. The graft was compressed with a bolster dressing which was removed after 7 days. Wound healing dimensions, time, and percentage of re-epithelization were evaluated at daily intervals.

Results / Discussion: Table 1 demonstrates full patient data. Average donor site defect was 26.7 cm^2 (5.5-93 cm^2). At 7 days, average epithelialization was approximately 58%. Full epithelization was achieved in an average of 20.6 days (10-33 days). Figure 1 illustrates sample case photographs.

Conclusion: When applied to split-thickness skin graft donor sites, decellularized fish skin can be a successful treatment to achieve rapid re-epithelization.

TABLE 1: PATIENT DATA/OUTCOMES IN APPLICATION OF DECELLULARIZED FISH SKIN TO SPLIT-THICKNESS SKIN GRAFT DONOR-SITES					
	DONOR SITE DIMENSIONS ON THIGH			PERCENTAGE OF FULL EPITHELIZATION	TIME TO FULL EPITHELIZATION
PATIENT	LENGTH (CM)	WIDTH (CM)	AREA (CM^2)	AT 7 DAYS	(DAYS)
1	15.5	6.0	93.0	85	20
2	4.2	2.5	10.5	65	16
3	6.5	2.5	16.3	45	31
4	5.4	1.5	8.1	55	17
5	2.2	2.5	5.5	40	19
MEAN:	6.8	3.0	26.7	58.0	20.6

FIGURE 1: APPLICATION OF DECELLULARIZED INTACT FISH SKIN TO THIGH SPLIT-THICKNESS SKIN GRAFT DONOR-SITE

*Kerecis Omega3 Wound is a decellularized intact fish skin (Keracis LLC, Arlington, Va.)

EP012 EFFECTS OF CONCURRENT OPTICAL AND MAGNETIC STIMULATION IN HARD-TO-HEAL WOUNDS OF VARIOUS ETIOLOGIES IN COMMUNITY-DWELLING PEOPLE, A REAL-WORLD-EVIDENCE CASE SERIES

Jacques Neyens[1], Wilma van Heusden2, Jos M.G.A. Schols3

[1]Maastricht University, UM, Department of Health Services Research; [2]ECW; [3]Maastricht University

Aim: Fastened by the COVID-19 pandemic, more wounds with complex pathologies are being treated at home. Innovative and easy-to-use treatment solutions are needed to support community nurses during phase-adapted wound-healing efforts at patient's home. This case series focused on assessing the wound healing effect of COMS therapy in addition to standard wound care, as well as the feasibility and the confidence of application in the community health and home care sector.

Method: Four exemplary patients were chosen to be presented as an excerpt of a case series of 22 community-dwelling patients. Patients received COMS therapy as an adjunctive to standard wound care at home. The therapy was performed for up to 12 weeks or until complete wound closure. Feasibility and confidence of COMS application was assessed using a standardized questionnaire.

Results: The ratings of the feasibility and confidence of COMS application were high with averages of 9.75 and 9.25 on a scale from 1 to 10.

COMS showed positive effects on wound healing, i.c. reduction in wound surface area (WSA), in all different etiologies of the wounds being treated.

Since COMS is an adjunct to standard wound care, it was consuming extra overall treatment time in the setting applied.

Conclusion: This case series adds to a growing body of evidence confirming that COMS therapy is an effective treatment option in the different wound etiologies investigated.

The device's simple, user-friendly design allows for use in both ambulatory and home care settings and can be applied with minimal training efforts by health care professionals involved in wound treatment policies depending on the point of care, such as nurses and community care takers.

EP013 EVALUATION OF ULTRASOUND ASSISTED WOUND DEBRIDEMENT: A CASE SERIES EVALUATION TO IDENTIFY PARAMETERS THAT INFLUENCE DEBRIDEMENT OUTCOMES AND THE PATIENT EXPERIENCE

Terry Swanson[1]

[1]*South West Healthcare, Wound Management , Warrnambool, Australia*

Aim: The aim of the study was to evaluate if using three different types of sonotrodes or different techniques influenced the wound debridement outcome or the patient´s experience

Method: An observational case-series was conducted using a convenience sampling to recruit participants to volunteer who were either being treated in the wound clinic or being admitted into the service and required single or serial debridement. The Minimum Data Set captured data of the wound condition pre and post debridement, pain levels, technique, equipment, and demographic information.

Results / Discussion: 115 procedures were analyzed with a variety of aetiologies. A reduction in fibrin deposition of 80% was observed after debridement and increase of 36.9% of granulation tissue. The procedure was well tolerated regarding pain. The study did not find any difference in type of technique or type of sonotrode use in outcomes.

Conclusion: Patients in this study tolerated UAW well and showed an increase in granulation tissue post treatment and assisted with the removal of non-viable tissue and fibrin within minutes.

EP014 EFFECTIVENESS OF ULTRASOUND DEBRIDMENT IN THE TREATMENT OF VENOUS LEG ULCER

Tanja Planinšek Ručigaj[1], Anita Jelen[1], Claudia Levičar[1], Mira Oražem[1], VID BAJUK[1]

[1]*University Medical Centre Ljubljana, DERMATOVENEREOLOGICAL CLINIC, LJUBLJANA, Slovenia*

Aim: To evaluate the effectiveness of ultrasonic debridement with the Curasonic* ultrasonic brush in patients with leg ulcers at the Dermatovenereology Clinic, University Medical Centre Ljubljana.

Method: 5 patients (2 M and 3 F) (average age 71.2 years) with 10 venous leg ulcers were included in the study, one patient also had lymphedema at the same time. Average duration of ulcers were 36.6 months. The total size of all ulcers before therapy was 506.25 cm2. Ulcers bed were initially classified according Falanga's classification as: four C3, one C2, two B3, two B2, and one A2. In the study, we performed ultrasound debridement of one half of each wound after toileting the ulcers. During ultrasound debridement, pain averaged VAS 3.6. Alginat dressings were applied to all ulcers and compression therapy was applied.

Results: After one week after debridement, all ulcers showed progress in healing on both halves. The ulcers measured a total of 416 cm2. The half of the ulcer bed treated with an ultrasonic brush for debridement was evaluated according to Falanga's classification with: one B3, three B2, five A2, one A1; half of ulcers, where debridement was not performed: one C2, one B3, four B2, one B 1, three A2. In three ulcers, mature islands of skin were present in the half where debridement was performed.

Conclusion: In our opinion, the ultrasonic debridement brush has a dual effect: it is not only effective in removing debris, but also accelerates the healing of ulcers through ultrasonic action.

EP015 SKIN TEARS IN AN AGING POPULATION: WORKFORCE EMPOWERMENT - EVALUATION OF A FIRST RESPONDER SKIN TEAR WOUND MANAGEMENT PACK

Chloe Jansz[1], Sonja Cleary[2], Annette Ross[3]

[1]Healthcare United, Melbourne Victoria, Australia; [2]RMIT Bundoora, Bundoora, Australia; [3]Heritage Care, Armadale, Australia

Aim: Skin tears are defined as a break in the skin (1). Sussman and Ryan (2019, p. 11) statement to the Royal Commission into Aged Care Quality and Safety Royal Commission on behalf Wounds Australia (2019) identified "The major risks of the use of inappropriate dressings are delayed healing, wound deterioration, potential infection, pain and stress to the consumer. The impact on cost of treatment of using inappropriate products is significant".

Currently, skin tear management requires the skilled nurse to use an aseptic technique and a combination of various products, as well as, a dressing pack to address the complexity of the aging skin.

The primary aim of the eight week project, across four sites was to evaluate implementation of a Skin Tear Wound Management Pack (STWMP) in which any health care worker could apply the correct regime, decreasing the risk of progression of a skin tear to a chronic or complex wound.

Method: Each STWMP had two sides to its packaging, one side to advise the "user" registered/enrolled nurse or non-regulated worker the steps on how to use the content. The other side will be a pictorial diagram of the International Skin Tear Advisory Panel (ISTAP) classification.

Results / Discussion: The results showed a reduction in skin tear healing time, reduction in costings, reduction in staff time and a more accurate classification of the correct type of wound.

Conclusion: The overall outcome of the study demonstrated that STWMP was used in preference to regular practice, saving nurses time and empowering the unregulated healthcare workers to maintain resident's safety, and prevent infection.

EP016 RECONSTRUCTIVE MANAGEMENT OF DEVICE-RELATED WOUND COMPLICATIONS IN DEEP BRAIN STIMULATION SURGERY

Hyokyung Yoo[1], Jung Gyo Seo[1], Hak Chang[1], Seok Won Park[1]

[1]Seoul National University Hospital, Department of Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South

Aim: Deep brain stimulation (DBS) has become a widely recognized technique for modulation of brain function that is adjunctive to medical management of movement disorders. The risk of wound complications related to DBS device insertion varies from 0% to more than 15% per patient in the previous literatures. This study aimed to evaluate the incidence and management of perioperative wound complications related to DBS hardware implantation, including infection, dehiscence, and erosion, in a series of consecutive patients treated by a single experienced surgeon.

Method: Patients who underwent DBS hardware implantation surgery between 2013 and 2022 by a single surgeon were retrospectively reviewed. All hardware-related complications such as wound infection, dehiscence, erosion, displacement, were identified, and the success of revision surgeries to salvage the problematic devices was assessed.

Results / Discussion: Four hundred forty-three patients received DBS insertion. Twelve patients (2.71%) presented with device-related infection, 15 (3.39%) with dehiscence, 5 (1.13%) with erosion, and 2 (0.45%) with device displacement during the average follow-up of 5.3 years. Among the total of 34 patients with complications, the wound complications occurred in the scalp in 22 patients, and in the chest area in 12 patients. Twenty-nine patients (85.29%) underwent revision surgeries, including debridement, rotational or advancement local flaps, and replacement of the device in different planes, of whom the devices were salvaged in 23 patients.

Conclusion: This study offers the surgical regimen for device-related complications, designed to spare complete hardware removal.

EP017 DERMATOTENDODESIS COMBINED WITH BLOODPATCH TREATMENT; 4 CASES WITH TISSUE LOSS INCLUDING EXPOSED TENDONS ON THE FOOT/ANKLE

Annette Langager Høgh[1], Kjeld Skafdrup[1], Birgit Dashnaw[1]

[1]*Wound Center Viborg, Central Region Hospital, Viborg, Department og Vascular Surgery, Viborg, Denmark*

Aim: Focus on dermatotenodesis combined with autologous bloodpatch (1) as an alternative additional treatment to standard wound care in 4 complex cases after trauma and/or ischaemic wounds including exposed tendons on the foot/ankle.

(1) 3Cpatch®(https://3cpatch.com)

Method: With a multidisciplinary wound team engaging a patient-centred approach it becomes possible to seek innovative solutions in patients with complex wounds, high level of comorbidities combined with high risk of losing functional ability. We introduce an additive to standard wound care (control of infection, off-loading, ischaemia and oedema) in 4 cases to regain vital functional tendons.

The dermatotendodesis technique immobilises the wound area by fixating the exposed tendon to surrounding healthy skin/subcutaneous tissue along with removable off-loading (securing immobilisation of the ankle joint). The bloodpatch acts by accelerating the natural wound healing process (featuring growth factors, cytokines and interleukins etc. from the included blood-cells).

Results / Discussion: The technique was used on 4 non-diabetic with to-pressure >40mmhg in between May 2019 and Aug. 2022. 1 female and 3 males, 61-74 years of age, WIFI score 2-6. The sutures in the dermatotendodesis were replaced 2-3 time over a period of 4-8 weeks. 3 of 4 achieved 100% wound healing, 1 are still under treatment. All 4 cases have maintained function of the involved tendons without site-infections.

Conclusion: These 4 cases illustrate the potential of the dermatotenodesis combined with autologous bloodpatch technique; Offering a metod to secure optimal function and mobilisation after complex wound treatment.

Recognition of the technique and further investigation can assist in the implementation of this new tool in the multidisciplinary approach to complex and persistent wounds with exposed tendons on the foot/ankle.

EP018 FLUORESCENCE LIGHT ENERGY AND WOUND HEALING: A NEW ERA?

Carlotta Scarpa[1], Franco Bassetto[1]

[1]*UOC Chirurgia Plastica e Ricostruttiva, Neuroscienze, Padova, Italy*

Aim: In order to study safety and efficacy of the Fluorescence Light Energy in the treatment of chronic and acute wounds.

Method: We enrolled 30 patients affected by chronic or acute wounds as vascular and pressure ulcers, burns, post traumatic lesions, post oncological wounds. After obtained informed consent we performed pictures and we started to treat the lesions with Fluorescence Light Energy for 5 minutes twice a week. After debridement, a gel containing chromophores has been applied on wound bed and activated by a multi LED blu lamp The median number of sessions has been 8 All the patients have been treated in hospital as recovery or as outpatient. None was treated at home.

Results / Discussion: In our experience fluorescent light energy has been an unpainful treatment with a high compliance of the patients. The study confirmed its efficacy in inducing healing or preparing the wound bed to surgery. Only one adverse event has been reported.

Conclusion: Based on our experience Fluorescence Light Energy can be very useful in the treatment both for acute and chronic wounds.

EP019 THE EFFECTIVENESS OF THE NEGATIVE PRESSURE THERAPY FOR THE MANAGEMENT OF COMPLEX WOUNDS IN A HOSPITAL CARE SETTING. A CASE SERIES

Gaetano de Angelis[1]

[1]*San Raffaele Hospital, Wound Care Unit, Milano, Italy*

Aim: European centre for disease prevention and control states that surgical site infections account for about a quarter of infections associated with hospital care procedures. the prevalence is 6%, ranging from 2.3% to 10.8% depending on the country. negative pressure wound therapy is a commonly used treatment option for managing a wide range of selected complex wounds, including dehiscences of surgical wounds, traumatic wounds, leg ulcers, diabetic foot ulcer.

Method: In period from January to December 2021, 411 patients were treated with negative pressure therapy of these, 80 cases have been managed with negative therapy with instillation a wide variety of acute and chronic wounds. treatments lasted on average 4 weeks. our experience has allowed to evaluate the effectiveness of this therapy which has guaranteed an important reduction in inflammation, and infection control. wound healing rate was assessed using a wound bed score, numering rating scale, and volume.

Results: The use of negative pressure therapy in addition to the standard of care, and in selected cases, has led to better clinical results (up to 50% more) than the choice to adopt another dressing algorithm according to scientific evidence.

Conclusion: We observed a positive impact on volume reduction, inflammation and infection control during the weeks of treatment. patients were compliant. it would be interesting to implement this new technology and provide educational support to healthcare professionals approaching this device.

EP020 ACCELERATING THE CHRONIC WOUND HEALING PROCESS WITH A TREATMENT COMBINATION OF 100% CHITOSAN WOUND DRESSING AND INELASTIC COMPRESSION THERAPY

Chausha Weitman Cernica[1]

[1]*Hadassah University Hospital, Jerusalem, Israel*

Aim: Description of positive results in the treatment of chronic venous ulcers through use of 100% Chitosan (generic name- brand name is Maxiocel) wound dressing in combination with inelastic compression therapy by a wound specialist nurse in a complex wound clinic.

Method: Case study series of ten patients with long standing chronic venous leg ulcers treated with combination therapy of 100% Chitosan dressing and inelastic compression where previous treatment methods had proved unsuccessful. Following specialist clinical referral a weekly review and dressing changes performed and the following observations recorded: progression through the wound healing stages, level of oedema and pain alongside the impact of the ulcers on the patient's quality of life and mobility.

Results / Discussion: This case study series demonstrates weekly improvements until full healing in most of the cases, two patients still in progress, together with reduction in bacterial colonization, wound area reduction, reduced oedema as well as general amelioration. Both clinical and patient feedback reflected an improvement of the wounds from week to week, which also included less pain and much improved mobility.

Conclusion: The 100% Chitosan dressing has properties of exudate absorption, antimicrobial and biofilm management and hemostatic properties. The inelastic compression is a compressive dressing used in the treatment of chronic venous ulcers and this combined therapy supported successful outcomes for this patient group alongside speed of healing and improved quality of life.

The author also notes that treatments of complicated wounds should be performed by a specialist nurse with multidisciplinary team support. With knowledge of new dressings and combination therapies enabling this information and best practice to be shared. This practice not only supports the clinicians practice but may also bring enhancement and improvement of wound healing.

EP021 EVALUATION OF AN AUTO-FLUORESCENT SPECTOMETRY ANALYZING DEVICE FOR WOUND INFECTION DIAGNOSTIC

Aharon Wanszelbaum[1], Marina Karasik[1], Rachel Malakh[1], Nahum Greenberg[2], Yoav Kamkaji[1], Tsvi Levy[3]

[1]Jerusalem, Community Multidisciplinary Wound Clinic, Jerusalem, Israel; [2]Jerusalem , Community Multidisciplinary Wound Clinic, Jerusalem, Israel; [3]Jerusalem, Mehuhedet Community Multidisciplinary Wound Clinic, Jerusalem, Israel

Background and Aim: Wound infection detection, accurate assertion of the infected tissues extension and correct qualification of the bacteria responsible of the infection are challenging matters in hard to heal wounds (HWW).

Wound cultures should be performed through tissue sample needing expertise, potentially painful requiring experience, with delayed results.

Enter a device* analyzing through autofluorescence spectrometry the bacteria catabolism giving real time infection data: diagnostic (10,000 bacteria per ml load) and tissue extension: width and depth (till 2 mm under skin surface), taking 5 minutes for total analysis, without invasive procedure.

Seems too good to be real so we wanted to evaluate the device impact on day-to day practice in HWW management.

Method: 30 patients recruited,19 men,11 women, age range 45-97 (mean76.4) with HWW.

We recorded the a priori decision for antibiotics (ATB), the results of the ATB and if we changed our decision. Through follow up we appreciated if the decision was correct and to what extent.

We divided the results in 3 arms:

-1: no decision change and antibiotic provided

-2: decision change and antibiotic not provided

-3: decision change and antibiotic provided

Special arm: wound cleansing with a chloride solution and efficiency assessment.

Results / Discussion:

71% of the patients rightfully did not get antibiotics that we thought giving

14%s should have antibiotics and wrongly did not get

15% got antibiotics with decision versus device correlation

The chloride cleansing was doomed failure.

Conclusion: The results of this study are encouraging and push for introducing the device* in wound teams. Larger studies should be performed to better evaluate medical and economic outcomes.

*Moleculight

EP022 THE EFFECTIVENESS OF CARDIAC IMPLANTABLE ELECTRONIC DEVICE (CIED) INDUCED POCKET HEMATOME TREATMENT BY ASPIRATION

Eun Suk Heo[1], Young Cheon Na[2], Hye Mi Lee[2], Se Oul Lee[3]

[1]Wonkwang University Hospital, Plastic & Reconstructive Surgery, Iksan-si, Korea, Rep. of South; [2]Wonkwang University Hospital, Plastic and Reconstructive Surgery, Iksan, Korea, Rep. of South; [3]Wonkwang University Hospital, Pharmacology, Iksan, Korea, Rep. of South

Aim: Pocket hematoma is the most common complication after CIED procedures, which is associated with infection. It was usually managed conservatively unless it became severe condition, because there wasn't specific treatment when it happen. And Aspiration is not recommended, because it can cause infection. We wondered if it would be possible to lower the risk of infection, by removing the hematoma aseptically at an early stage through aspiration. This study aim was to research the effectiveness of pocket hematoma treatment by aspiration.

Method: We retrospectively analyzed 570 consecutive patients via chart review, who underwent CIED implantation or replacement, between January 2011 and January 2021. We performed aspiration, only on hematomas corresponding to grade 2 and 3. (Figure 1)

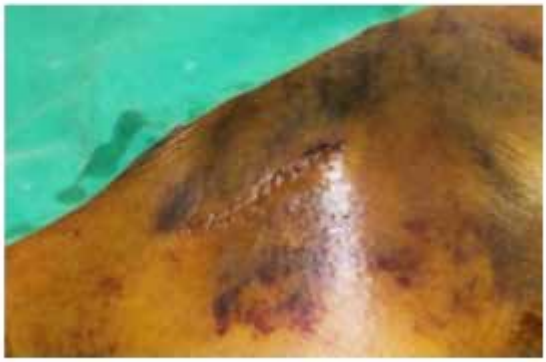
Results / Discussion: Pocket hematoma happened in 80 patients (14%). In these 80 patients, according to treatment way, Aspiration only group were 52(65%), Aspiration with surgical procedure group were 6(7.5%), Surgical procedure only group were 5(6.25%), and Conservative group were 17(21.25%). In these 58 patients (aspiration only & aspiration with surgical procedure), 52 patient were dearly treated only by aspiration (89.65%) and the other 6 patients (10.34%) needed more procedure, such as hematoma evacuation, barovac insertion and device reposition with flap surgery. But in these 6 patients, nobody had an infection symptom, which could be caused by aspiration.

Conclusion: In the 80 patients with hematoma, 58 were treated by aspiration and nobody had an infection symptom which could be caused by aspiration. This means that aspiration can be used as an effective treatment way, if we do aseptically.

Hematoma Grade	Definition
Grade 1	Ecchymosis or mild effusion in the pocket, no swelling or pain to device-pocket (watchful waiting)
Grade 2	Large effusion in the pocket leading to swelling and causing functional impairment or pain to device-pocket
Grade 3	Any pocket hematoma requiring: Reoperation and/or resulting in Prolongation of hospitalization (defined as extended hospitalization or rehospitalization for >24 hours, postindex surgery, primarily due to hematoma) and/or requiring interruption of OAC (defined as reversal or intentional withholding, in response to pocket hematoma, resulting in subtherapeutic anticoagulation for > 24 hours)

OAC= oral anticoagulation

3-level grading system of pocket hematoma, according to recent opinion article.



Pocket hematoma formation

Ultra sosnographic finding of pocket hematoma

EP023 LIGHTING THE WAY IN CHRONIC WOUND MANAGEMENT – A PILOT STUDY USING BLUE LIGHT PHOTOBIOMODULATION

Tabatha Rando[1], Rebecca Munt[2]

[1]Royal Adelaide Hospital, Plastics and Reconstructive Surgery, Adelaide, Australia; [2]Royal Adelaide Hospital, Adelaide, Australia

Aim: Internationally, chronic wounds are a serious medical concern that have a financial burden on health and a significant impact on patients' quality of life (1). The chronic wound is challenged by persisting inflammation that prevents the wound from progressing to normal wound healing. Blue Light is known to reduce signs of inflammation, reduces wound associated pain and produces faster tissue regeneration than standard wound care via photobiomodualtion (PBM). (2-4). This pilot study explored whether the use of a blue light emitting device (400-430nm) on chronic non healing wounds led to alterations in wound metrics and patient reported pain.

Method: All patients with a chronic wound (> than 8 weeks), meeting specific inclusion criteria, were treated weekly with the device for 60-seconds per 20cm2 (120mW/cm2) following standard care protocols in the outpatient setting, for up to 10 weeks.

Results / Discussion: Two patients were excluded from analysis (unrelated death & palliation) with 10 patients completing the treatment period with improvements in wound bed tissue, exudate, wound size reduction and reduction of patient reported pain. Overall 4 wounds had completely healed, 3 each had size reduction between 50-99% and 32.8-50% respectively. All treated

patients had a significant reduction in wound related pain. Patient cases, super-user information and wound characteristic trends will be presented.

Conclusion: The blue light emitting device has now been incorporated into care for complex and slow to heal wounds. A larger clinical trial to measure effects on bacterial loads in Pressure Injuries is being planned.

1. Martinengo L et al. Prevalence of chronic wounds in the general population: systematic review and meta-analysis of observational studies. Annalsof Epidemiology, Volume 29, January 2019, Pages 8-15.
2. Dini V et al. Blue Light emission in the management of hard-to-heal wounds. Giornale Italiano di Dermatologia e Venereologia 2020; 1 55
3. Marchelli M et al. Photobiomodulation with Blue Light in non-healing wounds: case series evaluation. Wounds International 2019, Volume 10 Issue 3, 63-67.
4. Fraccalvieri M et al. Blue Light for Ulcers Reduction (B.L.U.R) Study 2019 ClinicalTrials.gov Identifier NCT 04018924.

EP024 ADVANTAGES OF USING A SPLIT THICKNESS SKIN GRAFT WITH ADM (ACELLUAR DERMAL MATRIX) FOR DONOR SITE OF SUPRAFASCIAL RADIAL FOREARM FLAP

Sae Hwi Ki[1]

[1]*Inha University hospital, plastic and reconstructive surgery, Incheon, Korea, Rep. of South*

Aim: Radial forearm flap (RFF), which is useful for tissue reconstruction, covered with split thickness skin graft (STSG). In case, flexor carpi radialis tendon exposure due to skin graft loss induce increasing period of dressing, rehabilitation, and need more procedure. We performed to harvest with RFF and cover with STSG with ADM simultaneously and try to find the effectiveness and usefulness of our methods.

Method: The retrospective study was that underwent RFF from 2006 to 2021. 32 patients were classified to Group A (subfascial dissection) or Group B (suprafascial dissection) according to the flap elevation method. The donor was covered with STSG. And we use the ADM in group B simultaneously, but not use ADM in group A. Data were collected with patient information, size of donor site, healing time, additional procedure, and donor complications.

Results / Discussion: Group A was 13 patients of mean age 56.15 years, group B was 19 patients of mean age 59.11 years. In Group A, mean defect of donor was 42.83 cm^2. In Group B, mean defect of donor was 33.32 cm^2. There were 13 donor site complications, 8(62%) in Group A and 5(26%) in Group B. Flexor tendon exposure occurred in 3 patients in Group A and none in Group B. mean treatment of donor was 41 days (group A) and 26 days (group B). Delayed healing in 13 patients: 8 patients in group A (62 %) and 5 patients in group B(26 %).

Conclusion: Group B has less tendon exposure and shorter treatment period than group A. Suprafascial RFF and cover with STSG using ADM simultaneous is helpful method for donor complication.

EP025 THE DEVELOPMENT OF THE USE OF FISH SKIN GRAFT TO PROMOTE HEALING OF POST-OPERATIVE PILONIDAL SINUS WOUNDS

Anna Sverrisdóttir[1]

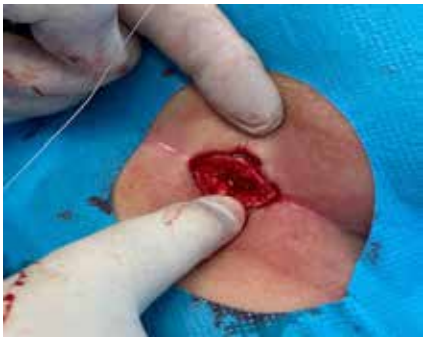
[1]Læknastöðin, Department of Surgery, Reykjavík, Iceland

Aim: Pilonidal sinus is a chronic skin condition in the sacrococcygeal area. Patients suffer with recurrent infections and abscesses due to collection of hair and debris in the soft tissue. This eventually leads to formal surgery. There is a high risk of recurrence after surgery leading to an even larger infected area.

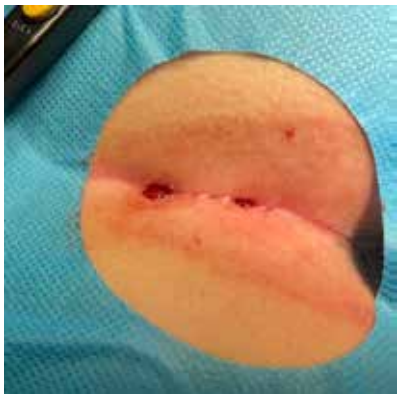
Method: Over the past 16 months, six patients underwent surgery for pilonidal sinus. All patients had excision of infected and scar tissue to achieve healthy granulating wound then fish skin graft (FSG) used to fill the wound and a dressing applied on top.

Results / Discussion: Follow up was initially 1-2 weekly until fully healed with multiple applications of fish skin (first three patients). The last three patients had significantly fewer applications, merely superficial dressing changes at follow up visits every 10-14 days:

Patient	Sex	Age	No. applications	Healed (time, days)
1	Female	21	14	56
2	Female	18	8	29
3	Male	35	6	60
4	Male	29	1	30
5	Male	62	2	28
6	Male	24	2	36

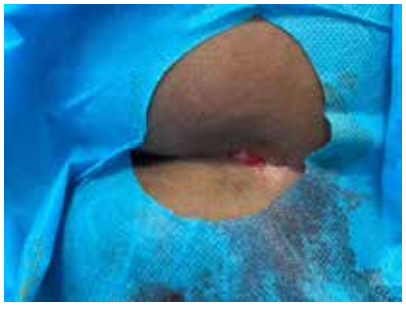

Patient 1

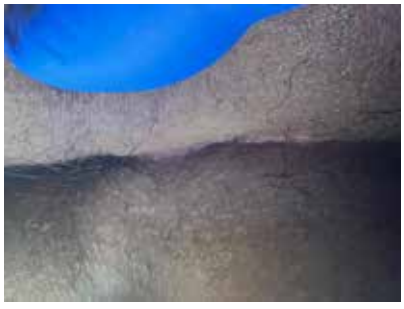


Patient 2



Patient 3





Patient 4



Patient 5

Patient 6

Having observed how FSG works in burns and chronic leg wounds, the practice was changed in management of pilonidal sinus patients post operatively. It is now clear that the FSG is working for a longer period in the wound than first expected, therefore, FSG does not need to be reapplied as often as previously thought.

Conclusion: FSG is well tolerated by patients and easy to apply, and results in successful healed wounds in patients with pilonidal sinus.

EP026 ACELLULAR FISH SKIN GRAFT: VERSATILITY OF USE IN TISSUE REGENERATION

Alessandro Corsi[1], Ornella Forma[1], Giulia Vidotto[1], Lina Ognibene[1], anna aloise[1], Sara Maria Lupi[1], Umberto Cazzaro[1], Gaetano de Angelis[1], bertulli gianluca[1], Gaetano Pitoia[1]

[1]Ospedale San Raffaele, U. O. Vulnologia, Milan, Italy

Aim: The recent introduction amongst the scaffolds used in wound care, of acellular fish skin graft, has marked a significant step forward in regenerative medicine and surgery, by offering the possibility of an effective and quick recovery of the healing process, and regeneration of tissues with similar, if not identical characteristics to the damaged native ones.

Drawing on the clinical experience of our Vulnology Operative Unit we analysed the clical cases we treated and the results obtained, in order to define which are the actual indications to applying these biomaterials.

Method: Retrospective analysis of the over 100 cases we treat with this method, highlighting the results obtained in terms of time (improvement/healing of the lesion) and of quality of the regenerated tissue (functional and aesthetic results), in wounds of different aetiology.

Results: All wounds, both acute and chronic, of any aetiology, showed significant re-start of the healing process, with quicker responses in more recent wounds. In over 75% of cases complete healing was achieved, with the formation of a stable tissue, with characteristics totally akin to the native one.

Conclusions: Bio-stimulation with acellular fish skin grafts is effective in the treatment of any tissue loss, be it acute or chronic, with response timings which vary according to the wound itself, but always with optimal regenerative outcomes, both from a functional and an aesthetic point of view.

EP027 A PILOT STUDY TO ASSESS THE EFFECTIVENESS OF IPC FOR VENOUS LEG ULCERATION ACROSS MULTIPLE UK CARE HOME SETTINGS WITHIN BARCHESTER HEALTHCARE GROUP

Ross Joannides[1], Julia Atherton[1]

[1]Barchester Healthcare and Renray Healthcare, London, United Kingdom

Aim: To evaluate the effectiveness of an IPC device in participants with VLU.

Method: This is a mixed methods pilot study. The primary objective is to assess the effectiveness of the device on wound healing, measured by percentage wound area reduction. The secondary objective is to evaluate the effect on quality of life through semi-structured interviews with a selection of participants at the end of the intervention.

Participants were eligible if they had a lower limb wound of venous origin and currently receiving standard care in the form of compression bandaging. Participants were required to have the capacity to consent and to have an ABPI of 0.8 or above.

Participants were enrolled for a twelve-week period and in addition to their standard care, were required to use the IPC device for two hours per day. Wound measurements were recorded at two-week intervals. Thematic analysis will be adopted to assess the interview data.

Results / Discussion: Twelve participants were recruited across ten nursing/care home settings, ranging in age from 69 to 100 (4 Male, 8 female). No safety issues or related SAE's were reported. Ten data sets will be analysed (one participant was treated

sequentially for wounds on both legs). Three participants have withdrawn from the study (two withdrew consent and one was hospitalized and unable to continue IPC). Five wounds healed within the twelve-week intervention period, with all wounds reducing in size. Where data was not available at the fortnightly assessments, a 'last measurement forward' approach was adopted. Interview analysis is currently underway; notably evident is the recurrence of pain reduction, which will warrant further discussion alongside qualitative data.

Conclusion: Early results indicate the benefits of IPC for this patient population. Participant interviews will add quality of life and individual experience as necessary components when planning future treatment pathways. The enhanced benefits will enable a validated process for the management and treatment of VLU across all Barchester Healthcare sites circa 12,500 residents.

E-POSTER SESSION: DIABETIC FOOT 1

EP029 AN IMMERSION TECHNIQUE FOR TREATING DIABETIC FOOT ULCERS USING ELECTROACTIVATED SUPEROXIDIZED WATER

Sreedharan Muniandy[1], Palany Muniandy[2], Nur Lailatul Abdul Karim[1], Rohini Jayaraman[3], Ranjeni Krishnen[3]

[1]H Medical Centre @ Setia SPICE, Wound Care, Bayan Lepas, Malaysia; [2]Mypeace Wellness Centre, Clinical Wound Care Centre, Bukit Mertajam, Malaysia; [3]Bactiguard (South East Asia), Research and Development, Bukit Mertajam, Malaysia

Aim: To evaluate the efficacy of a novel method for treating chronic diabetic foot ulcers (DFU) that involves immersion in electroactivated superoxidized water (EASW)[1]. This method has been found to reduce microbial burden, facilitate debridement, and promote wound healing.

Method: Five patients between the ages of 45 and 65 who had failed previous treatments for chronic non-healing DFU with a history of Type 2 Diabetes Mellitus (DM), were evaluated for immersion procedure. The ulcerated foot was placed for 30 minutes in a sterile bag with 500ml of EASW[1] before being debrided with gauze soaked in EASW[1]. The appropriate secondary dressing was then applied in accordance with the condition of the wound. When granulation was noticed at the wound bed, bacteriostatic gel[2] was applied. The procedure was repeated every other day until the wound healed completely.

Results / Discussion: All five patients with DFU ranging from Grade 1 to 3 showed complete wound healing using the immersion technique with EASW[1]. Out of the 5, 3 of them had secondary infections caused by toe disarticulation, while the other 2 had infected non-healing wounds. Healthy progressive granulation was observed, and the wound healed completely between 6 and 24 weeks, depending on the initial wound condition. Notably, no oral or topical antibiotics were prescribed during the course of the treatment.

Conclusion: In conclusion, the EASW[1] immersion approach seems to be effective in treating chronic diabetic foot ulcers among other, improving the debridement procedure. It may also have the potential to reduce the use of antibiotics.

1. HYDROCYN aqua® Solution, Bactiguard Wound Care Solution

2. HYDROCYN aqua® Gel, Bactiguard Wound Care Gel

E-POSTER SESSION: DIABETIC FOOT 2

EP030 PATIENTS' PERCEPTIONS AND PERSPECTIVES ON THE QUALITY OF DIABETIC FOOT ULCERS CARE DELIVERED BY AN INTERDISCIPLINARY TEAM: PRELIMINARY RESULTS OF A SEQUENTIAL MIXED METHODS EXPLORATORY STUDY

Annabel Bourgault[1], Virginie Blanchette[1], Jérôme Patry[1 2]

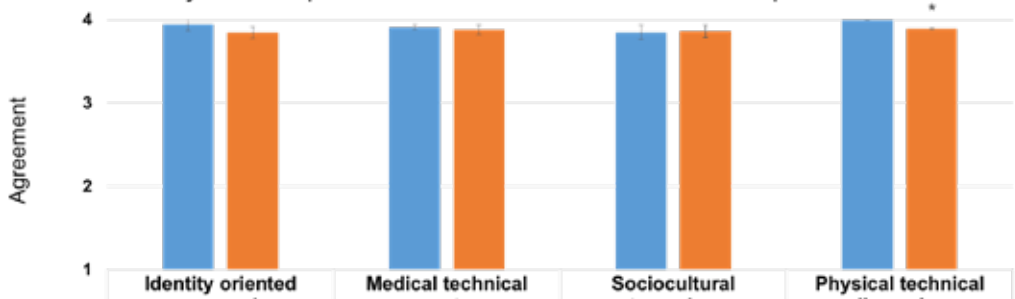
[1]Université du Québec à Trois-Rivières, Canada; [2]Laval University, Family Medicine and Emergency Medicine Department, Canada

Aim: Quality of care based on patient and care provider-related (users) experience measures had been insufficiently studied, especially with patients having a diabetic foot ulcer (DFU) treated by an interdisciplinary team. Therefore, this study aims to determine these measures and to compare perceptions of patients having either a recurrence or a remission.

Method: An exploratory sequential mixed methods study was conducted including 20 patients with a healed DFU (T0). Demographic data was collected and a validated questionnaire (Quality from the Patient's Perspective) was used to evaluate quality of care dimensions. Three months after wound healing (T1), we will assess whether the patient has a recurrence of DFU and users' perception on the quality of care. We will compare the responses, and this will inform the subsequent qualitative phase exploring recurrence factors for DFU and quality of care.

Results / Discussion: Patients recruited at T0 had a mean age of 64 years, were mainly men (75%), with type 2 diabetes (90%), and 45% had an osteomyelitis in the last year. Based on an agreement scale, indicators of patient-perceived quality of care delivered were superior related to their subjective importance, except for one dimension (Figure 1). To date, data collected at T1 indicates that about half of the patients had a recurrence. Patients' perceptions remained to be compared in both groups.

Figure 1: Comparison between the quality of care perceived and the subjective importance on 4 dimensions of care for patients



	Identity oriented approach	Medical technical competence	Sociocultural atmosphere	Physical technical dimension
Perceived reality	3,94	3,91	3,85	4
Subjective importance	3,85	3,88	3,86	3,89

* statistically significant

Conclusion: According to patients, the quality of care delivered in our setting was high. The relation between patients' perceived quality of care and recurrences is a new area to explore for DFU secondary prevention.

EP031 DIABETIC FOOT ULCER TREATMENT USING 3D-PRINTED PATIENT-CUSTOMIZED AUTOLOGOUS ADIPOSE EXTRACELLULAR MATRIX PATCH

Jongweon Shin[1], Haejin Seo[1]

[1]*Eunpyeong St. Mary hospital, Department of Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South*

Aim: Diabetic foot ulcer is a typical intractable wound, and there is no established treatment yet. In this study, the effect of the patient-customized autologous adipose tissue patch manufactured using 3D bioprinter was investigated. **Method:** Only patients with normal blood flow were included. After debridement, an appropriate amount of adipose tissue was collected by suction from the lower abdomen and the autologous fat patch was produced using 3D bioprinter. The follow-up was performed at weekly intervals, and if there was no reduction of more than 70% in 3 weeks, it was applied again. The Wagner grade and wound size were investigated.

Results / Discussion: A total of 4 patients were included. The mean initial Wagner grades was 2.25 (range 2-3), and the mean wound size was 13.5 cm2. In all patients, the second application was performed. At 6 weeks after the first application, the mean Wagner grade was 1.75 (range 1-2) and the mean wound size was 3.6 cm2. Two of the subjects achieved complete healing with dressing alone, and one completed treatment through skin grafting. However, in one patient, the infection recurred after 6 weeks, and additional amputation was required.

Conclusion: The patient-customized autologous fat patch using a 3D printer showed the positive effect on chronic diabetic foot ulcers. If the treatment went well, natural healing could be induced without surgical treatment, and the scale of surgery could be reduced. However, due to the long treatment period, there is a risk of re-infection, so caution is required.

The 3D bioprinter used in this study was DR. INVIVO manufactured by Rokit Healthcare (Seoul, Korea, Republic of).

EP032 COMPARISON OF THE EFFECT OF ALGIPAD COMBINED BIOPOLYMER DRESSING (CHITOSAN, CALCIUM ALGINATE, AND CELLULOSE FIBERS WITH ALGINATE DRESSING IN THE MANAGEMENT OF DIABETIC WOUNDS

Amir Hossein Abdi Dorbashi[1]

[1]*Alborz Hospital, Wound care clinic, Karaj, Iran*

Aim: In treating diabetic foot ulcers, using effective wound dressings is one of the most critical challenges for therapists. So far, a dressing that meets all the requirements for treating diabetic foot ulcers alone has not been produced.

Method: This study is a single-blind clinical trial on 80 diabetic patients; 40 patients with diabetic foot ulcers were treated with algipad dressing, and 40 patients with alginate dressing and compared. The collected data were analyzed using Chi-Square and t-statistical tests.

Results / Discussion: There were no significant differences between the two groups regarding gender, education level, marital status, underlying disease, wound location, wound duration, wound size, wound discharge, and body mass index. In the evaluation of the wound treatment outcome, the improvement percentage in the algipad group was significantly better than in the alginate group. Also, the number of visits per patient in the algipad group was substantially less than in the alginate group. In reviewing the PUSH scoring process, we evaluated the condition of the wound up to the fifth dressing session. Because in both groups, most of the people were referred until the fifth session. We used repeated measures analysis. The results showed that the healing process was good in the two groups ($P<0.001$), but the healing in the algipad group was significantly faster than in the alginate group.

Conclusion: Algipad dressing is a simple and practical method that is preferable to alginate dressing in terms of treatment cost and duration.

EP034 A CASE OF EXTREME LIMB SALVAGE FOR DIABETIC FOOT INFECTION

Li Zhang[1], Sadhana Chandrasekar[2], Wei Leong, Glenn Tan[3], Enming Yong[1]

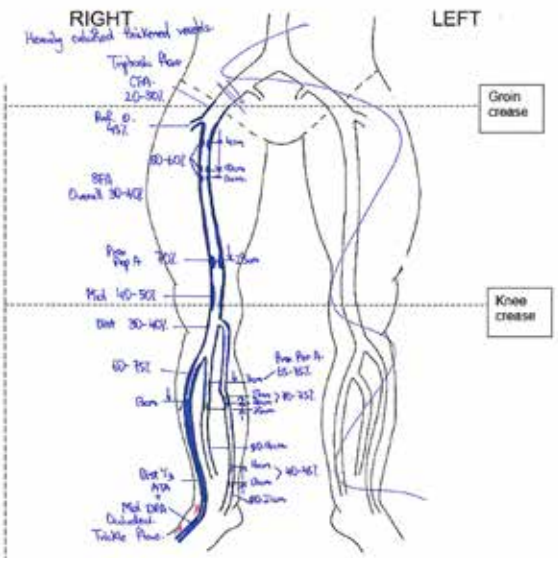
[1]*Tan Tock Seng Hospital, Vascular*; [2]*, United Kingdom*; [3]*Tan Tock Seng Hospital, Vascular*

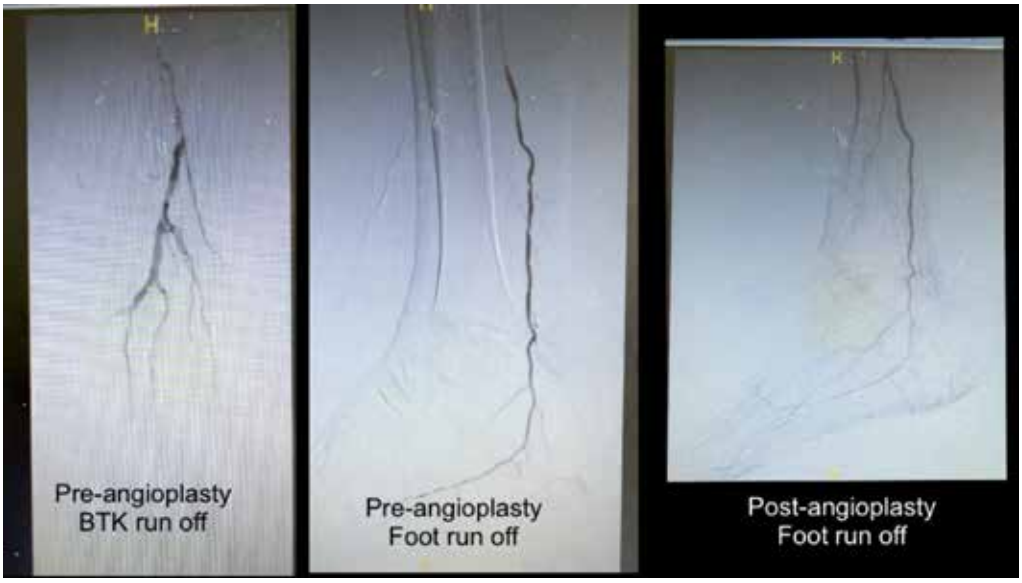
Aim: Case report on extreme limb salvage.

Method: A 84 years old male with a background history of type 2 diabetes mellitus, hyperlipidemia, chronic kidney disease and metastatic prostate cancer presented with right big toe wet gangrene (WIfI score 2-1-2). Lower limb duplex showed peripheral arterial disease. Right big toe amputation was performed followed by right lower limb tibial angioplasty which achieved inline flow to the foot. Nevertheless, the infection continued to spread along the extensor hallucis longus and dorsum foot extensively; this required right foot transmetatarsal amputation with partial closure. Negative pressure wound therapy with instillation (NPWT-i) was applied using sodium hypochlorous solution following each debridement. The patient was treated intravenous meropenem and vancomycin. Biodegradable Temporizing Matrix (BTM) was applied to support the wound bed on week 3 and patient was planned for Split-thickness Skin Graft (SSG) when matrix layer was fully taken. However, he developed Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) syndrome. His condition was not fit for SSG. The wound was left open for secondary healing intention. The wound fully healed in 6 months from first presentation.

Results / Discussion: This is a challenge limb salvage case in elderly patient with multiple pre-morbidities and complications. The process of infected diabetic foot wound management involving infection control, revascularization, tissue management, wound bed support and wound coverage.

Conclusion: Diabetic foot limb salvage is a challenging task that requires a multi-disciplinary approach for successful case management. Biodegradable temporising matrix is a good option for wound bed and multiple modalities are often required to achieve successful wound closure.




Pre-angioplasty
BTK run off
Pre-angioplasty
Foot run off
Post-angioplasty
Foot run off


W1


W1


W2


W3


W4


W6


W10


W18

EP035 DEBRIDEMENT WITH TOPICAL DESICCATION AGENT IN THE TREATMENT OF ULCERATIVE (WAGNER III AND IV) LESIONS OF THE DIABETIC FOOT: A CASE SERIES OF TWENTY PATIENTS

Michel Hermans[1], A. Bruttocao[2]

[1]Hermans Medical Consulting, Hoorn, Netherlands; *[2]Hospital University of Padua, Metabolic Diseases, Padua, Italy*

Aim: Diabetic foot ulcers, particularly those with high Wagner scores, are difficult to heal. They are, per definition, infected and patients in this category typically also suffer from serious comorbidities.

TDA◆ is an innovative debriding agent that works via topical desiccation of necrosis and biofilm through a hygroscopic action. This results in the denaturing of their proteins and, typically, a rapid sloughing off.

Efficacy of TDA was evaluated in patients with Wagner III and IV diabetic foot ulcers with culture-confirmed colonization of multidrug-resistant *Pseudomonas Aeruginosa*.

Method: TDA was applied for 60 second and rinsed of, followed by the application of standard dressings. Study participation was limited to 40 days.

Results / Discussion: The average age of patients was 74±12.2 years. Average ulcer (N=20) size was 9.1+7.6 cm^2. 16 of 20 patients (75%) were revascularized prior to the initiation of TDA. Five patients (25%) were on hemodialysis, and all were on anticoagulant or antiplatelet therapy. Within the maximum observation period of 40 days, improvement of the wound occurred in 17 of 20 (85%) cases. Size reduction was noted in 16 of 20 patients (80%) and six of the 20 ulcers (30%) healed completely. Two ulcers (10%) were unchanged at 40 days and one ulcer (5%) worsened, probably due to poor compliance.

Conclusion: Wagner III and IV diabetic ulcers were treated with TDA as the primary debridement agent. In spite of the complexity and seriousness of the lesions, all but three showed considerable improvement or complete healing within the study period of 49 days.

◆ Debrichem, DEBx, the Netherlands

EP036 EFFECTIVENESS OF SUCROSE OCTASULFATE DRESSING IN THE TREATMENT OF NEURO- ISCHAEMIC DIABETIC FOOT HEEL ULCERS: A RETROSPECTIVE SINGLE ARM STUDY

Marco Meloni[1], Serge Bohbot[2], Laura Giurato[3], Andreaa Panunzi[3], Alfonso Bellia[3], Davide Lauro[3], Luigi Uccioli[3]

[1]University of Rome Tor Vergata,, Diabetic Foot Unit,, Rome, Italy; *[2]Laboratoires Urgo, Medical Affairs, Paris, France*; *[3]University of Rome Tor Vergata, Department of Systems Medicine, Rome, Italy*

Aim: In the respect of the benefits of TLC-NOSF in forefoot and midfoot neuro-ischaemic DFUs[1], this current study aimed to evaluate the effectiveness of TLC-NOSF in the management of neuro-ischaemic heel DFUs.

Method: This study is a retrospective single arm non-comparative study including consecutive patients with a non-infected neuro-ischaemic heel DFU (Grade IC or IIC of Texas University Classification, TUC). All patients were managed according to IWGDF Guidance[2]. After the revascularization of affected limb and the surgical removal of non-viable tissues, the local treatment with TLC-NOSF was regularly performed. After 24 weeks of follow-up, the following outcomes were evaluated: wound healing, healing time (days), wound area regression (>50%), re-ulceration, and safety.

Results / Discussion: Thirty patients were included. The mean age was 67±11 years, 17 (56.7%) were male, 30 (100%) were affected by type 2 diabetes with a mean duration of 18±7 years. Twenty patients (66.7%) had deep ulcers (TUC grade 2), the mean TcPO2 value after revascularization procedure was 42 ±7 mmHg.

Twenty-two patients (73.3%) healed in a mean time of 84±32 days. Twenty-eight patients (93.3%) had wound regression, 2 (6.7%) had ulcer relapse after healing, 2 (6.7%) had mild infection, and 1 (3.3%) reported major amputation due to severe infection. No serious adverse events related to TLC-NOSF or local reactions were reported during the course of the study.

Conclusion: The current study highlighted the potential benefit of TLC-NOSF also in the management of neuro-ischemic heel DFUs as a part of the integrated standard of care.

EP037 EFFECTS OF A CATECHOL-FUNCTIONALIZED HYALURONIC ACID PATCH COMBINED WITH HUMAN ADIPOSE-DERIVED STEM CELLS IN DIABETIC WOUND HEALING

Jeongmok Cho[1], Chan Young Heo[2], Chang Sik Pak[1]

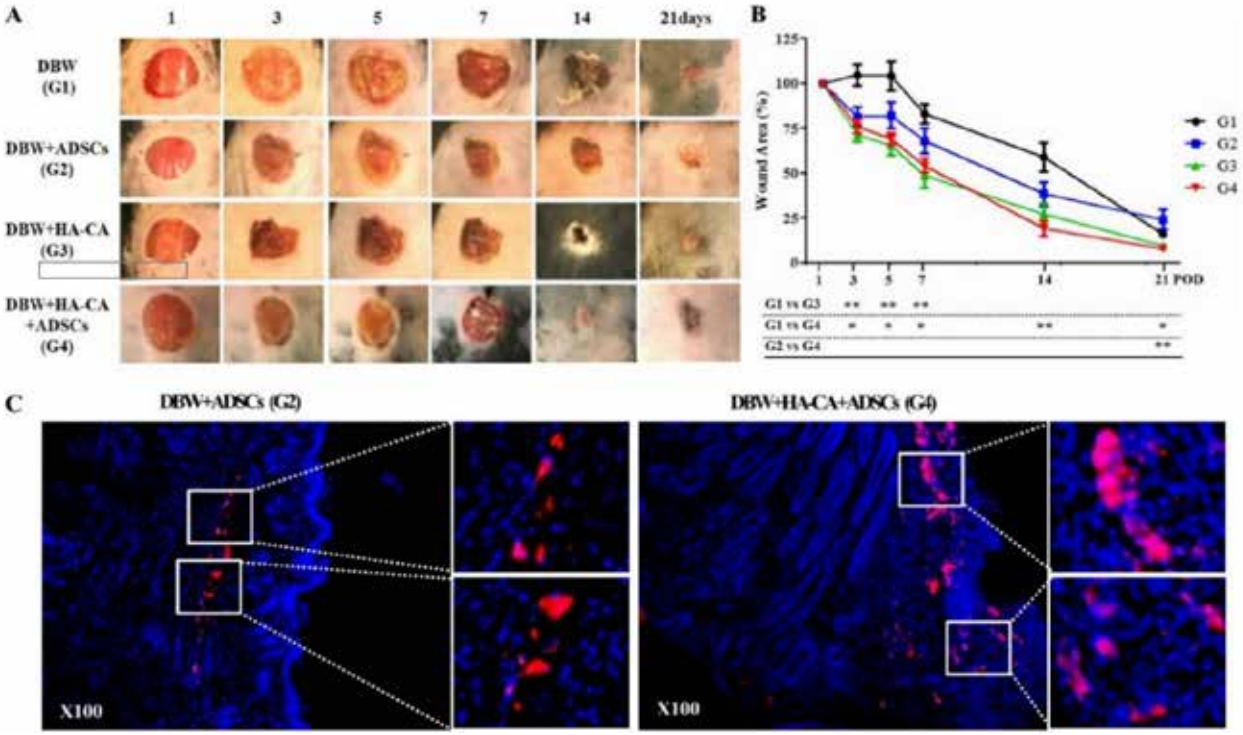
[1]Asan Medical Center, Department of Plastic Surgery, Seoul, Korea, Rep. of South; [2]Seoul National University Bundang Hospital, Department of Plastic Surgery, Seongnam-si, Korea, Rep. of South

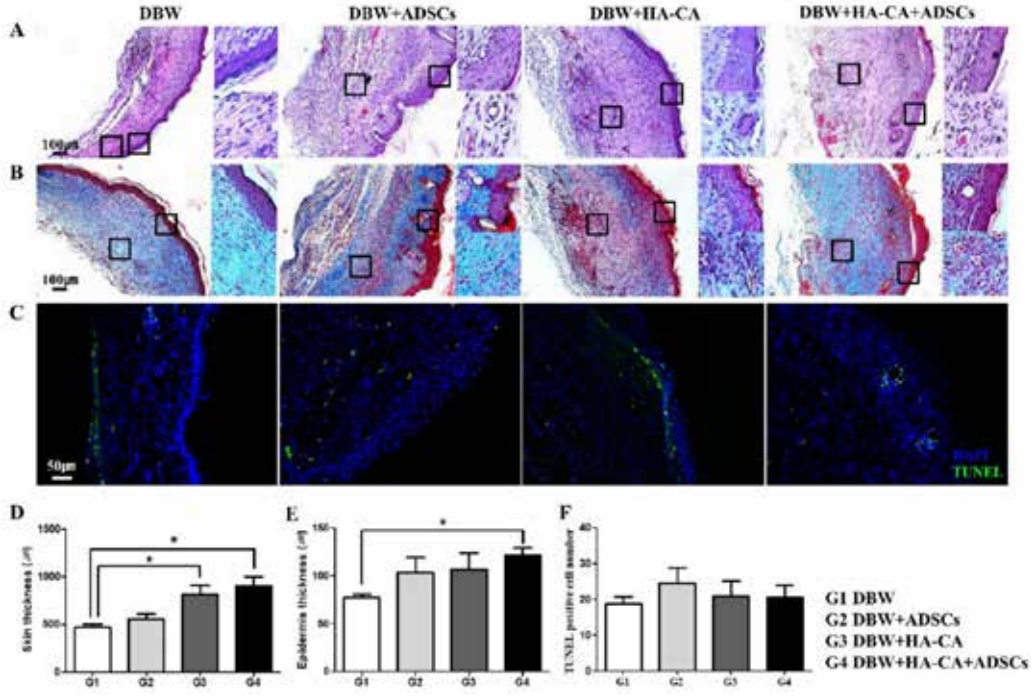
Aim: Chronic inflammation and impaired neovascularization play critical roles in delayed wound healing in diabetic patients. To overcome the limitations of current diabetic wound (DBW) management interventions, we investigated the effects of a catechol-functionalized hyaluronic acid (HA-CA) patch combined with adipose-derived mesenchymal stem cells (ADSCs) in DBW mouse models.

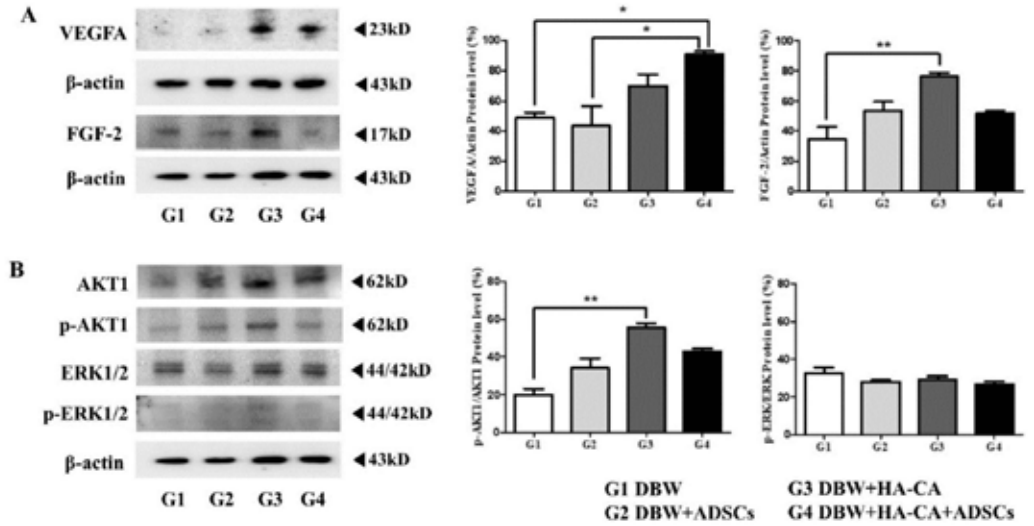
Method: Diabetes in mice was induced by streptozotocin. Mice were divided into four groups: control group, ADSCs group, HA-CA group, and HA-CA + ADSCs group. Fluorescently labeled ADSCs were transplanted into healthy tissues at the wound boundary or deposited at the HA-CA patch at the wound site. The wound area was visually examined. Collagen content, granulation tissue thickness and vascularity, cell apoptosis, and re-epithelialization were assessed. Angiogenesis was evaluated by immunohistochemistry, quantitative real-time polymerase chain reaction, and Western blot.

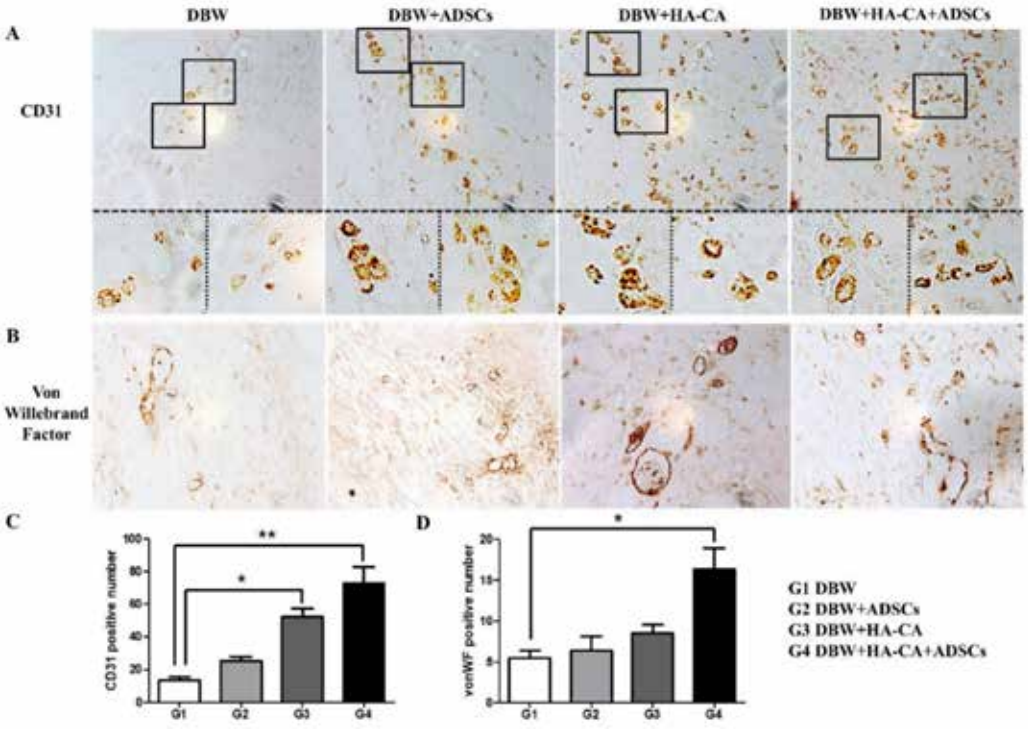
Results / Discussion: DBW size was significantly smaller in the HA-CA + ADSCs group (8% ± 2%) compared with the control (16% ± 5%, $p < 0.01$) and ADSCs (24% ± 17%, $p < 0.05$) groups. In mice treated with HA-CA + ADSCs, the epidermis was regenerated, and skin thickness was restored. CD31 and vWF-positive vessels were detected in mice treated with HA-CA + ADSCs. The mRNA and protein levels of VEGF, IGF-1, FGF-2, ANG-1, PIK, and AKT in the HA-CA + ADSCs group were the highest among all groups, although the Spred1 and ERK expression levels remained unchanged.

Conclusion: The combination of HA-CA and ADSCs provided synergistic wound healing effects by maximizing paracrine signaling and angiogenesis via the PI3K/AKT pathway. Therefore, ADSC-loaded HA-CA might represent a novel strategy for the treatment of DBW.




DBW
DBW+ADSCs
DBW+HA-CA
DBW+HA-CA+ADSCs
A
B
C
D
E
F
TUNEL
G1 DBW
G2 DBW+ADSCs
G3 DBW+HA-CA
G4 DBW+HA-CA+ADSCs


A
VEGFA
β-actin
FGF-2
β-actin
23kD
43kD
17kD
43kD
G1 G2 G3 G4
B
AKT1
p-AKT1
ERK1/2
p-ERK1/2
β-actin
62kD
62kD
44/42kD
44/42kD
43kD
G1 DBW
G2 DBW+ADSCs
G3 DBW+HA-CA
G4 DBW+HA-CA+ADSCs


DBW
DBW+ADSCs
DBW+HA-CA
DBW+HA-CA+ADSCs
A
CD31
B
Von Willebrand Factor
C
D
G1 DBW
G2 DBW+ADSCs
G3 DBW+HA-CA
G4 DBW+HA-CA+ADSCs

EP038 FLAP MONITORING WITH INCISIONAL NEGATIVE PRESSURE WOUND THERAPY (NPWT) IN DIABETIC FOOT PATIENTS

Jun Ho Park[1], Dae Hyun Kwon[1]

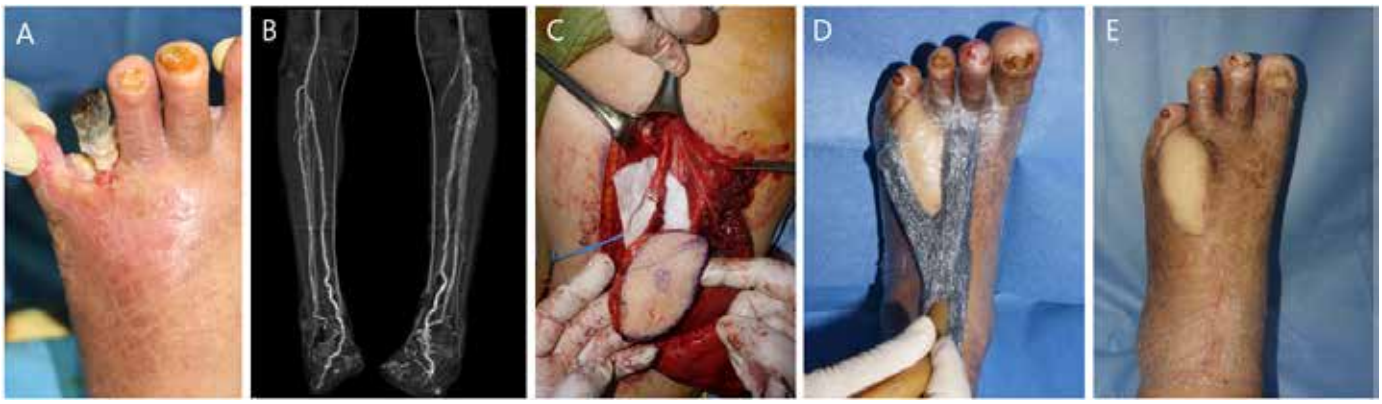
[1]SMG-SNU Boramae Medical Center, Plastic and Reconstructive Surgery

Aim: Various types of flaps are considered as reconstructive options for patients with diabetic foot ulcer. However, flap reconstruction for diabetic foot ulcer treatment is particularly challenging because of the relatively limited collateral perfusion in the distal lower extremity. This study evaluated the efficacy and safety of a novel postoperative monitoring procedure implemented in conjunction with negative pressure wound therapy immediately after flap operations for treating diabetic foot.

Method: A retrospective analysis was performed on diabetic foot patients who underwent free flaps and perforator flaps from March 2019 through August 2021. The surgical outcomes of interest were the rates of survival and complications. On the third postoperative day, patients underwent computed tomography angiography to check for pedicle compression or fluid collection in the sub-flap plane. Monitoring time, as well as comparisons between NPWT and conventional methods, were analyzed. Statistical analysis was performed between the two groups.

Results / Discussion: This study included 26 patients. There was no significant intergroup difference in flap survival rate ($p = 0.83$). In addition, there was no significant intergroup difference in the diameters of perforators or anastomosed vessels before and after negative pressure wound therapy ($p = 0.97$). Compared with conventional monitoring, flap monitoring with incisional negative pressure wound therapy was associated with a significantly lower mean monitoring time per flap up to postoperative day 5.

Conclusion: The novel incisional negative pressure wound therapy investigated in this study enabled effortless serial flap monitoring without increasing complication risks. The novel flap monitoring technique is efficient and safe for diabetic foot patients and is a promising candidate for future recognition as the gold standard for flap monitoring.



EP039 RETROSPECTIVE REAL WORLD COMPARATIVE EFFECTIVENESS OF OVINE FORESTOMACH MATRIX* AND COLLAGEN/OXIDIZED REGENERATED CELLULOSE^ IN THE MANAGEMENT OF DIABETIC FOOT ULCERS

Brandon Bosque[1], Shane Dowling[2], Mark Melin[3], Abigail Chaffin[4], Brian Lepow[5], Gregory Bohn[6], Kevin Woo[7], Barnaby May[2], Candace DeLeonardis[8], Tobe Madu[9], Chris Frampton[10]

[1]Aroa Biosurgery, Medical Affairs, Auckland, New Zealand; *[1]Aroa Biosurgery, Medical Affairs, Auckland, New Zealand*; *[3]M Health Fairview Southdale Hospital, Edina, United States*; *[4]Tulane University School of Medicine, New Orleans, United States*; *[5]Baylor College of Medicine, Houston, United States*; *[6]Lourdes Medical Center, Pasco, United States*; *[7]Queen's University, Kingston, Canada*; *[8]DSA Health, United States*; *[9]Net Health, Pittsburgh, United States*; *[10]Otago, New Zealand*

Aim: The purpose of this large, retrospective, pragmatic real-world evidence (RWE) study was to directly compare the healing outcomes of diabetic foot ulcers (DFU) treated with either ovine forestomach matrix (OFM) or collagen/oxidized regenerated cellulose (collagen/ORC).

Method: The two cohorts consisted of DFU treated with OFM (n=1150) and collagen/ORC (n=1072). Data was extracted from a wound database from 2014 to 2020, representing 449 wound care centers across the United States. Data was extracted from a pool of 31,883 wounds and filtered based on the inclusion and exclusion criteria. The median time to wound closure and the percentage of wounds closed standard intervals were estimated using the Kaplan-Meier method. The percentage of DFUs closed were statistically compared between treatment groups using Greenwood's standard error estimates.

Results / Discussion: A sub-analysis was performed to understand the relative efficacy in DFUs requiring longer periods of treatment and showed that OFM-treated DFUs healed up to ~5 weeks faster in this subgroup of more challenging wounds. The percentage of wounds closed at 12-, 24- and 36-weeks was improved in OFM-treated DFUs relative to the collagen/ORC cohort.

Conclusion: The results of this large RWE study support the clinical efficacy of OFM in the treatment of challenging DFUs. Further, real-world data studies should be considered an impactful study design in wound healing as RWE studies can more accurately reflect the actual patient population suffering from complex wounds compared to randomized controlled trials.

EP041 PERIPHERAL BLOOD MONONUCLEAR CELL THERAPY FOR UNTREATABLE BELOW-THE-ANKLE ARTERIAL DISEASE: A NEW FRONTIER FOR PATIENTS WITH NEURO-ISCHAEMIC DIABETIC FOOT ULCERS

Marco Meloni[1], Laura Giurato[2], Alfonso Bellia[3], Davide Lauro[3], Luigi Uccioli[4]

[1]University of Tor Vergata, Italy; [2]Centro Traumatologico Ortopedico A.Alesini Roma, Italy; [3]University of Tor Vergata; [4]Centro Traumatologico Ortopedico A.Alesini Roma

Aim: Up to 30% of patients with diabetic foot ulcers (DFUs) and no-option critical limb ischaemia (NO-CLI) had major amputation. The current study aimed to evaluate the effectiveness of peripheral blood mononuclear cell (PB-MNCs) therapy as adjuvant treatment for patients with DFUs and NO-CLI who had unsuccessful lower limb revascularization.

Method: This study is a prospective non-controlled observational study including patients with neuro-ischaemic DFUs and NO-CLI who had unsuccessful revascularization below-the-ankle (BTA) and persistence of foot ischaemia defined by TcPO2 values less than 30 mmHg. After unsuccessful revascularization, all patients received PB-MNCs therapy which was administered in the affected foot along the wound related artery according to the angiosome theory. The treatment was repeated for three times 21-42 days apart. The primary outcomes measures were healing, major amputation, survival after 1-year of follow-up. The secondary outcomes measures were the evaluation of tissue perfusion by TcPO2 and foot pain defined by the visual analogic scale (VAS).

Results / Discussion: Twenty-eight patients were included. The mean age was 75±7yrs, 24(86.7%) were male, all of them were affected by type 2 diabetes with a mean duration of 22±7yrs. Twenty-two (78.6%) patients healed, 2 (7.14%) deceased with wound healing, 2 (7.14%) reported non-healing ulcer, 2 (7.14%) had major amputation. TcPo2 valued increased after PB-MNCs therapy (14±9 vs 42±10 mmHg,p<.0001) and pain was significantly reduced (6/10±2/10 vs 2/10±1/10,p<0.002)

Conclusion: The current study highlights the potential benefit of PB-MNC in patients with NO-CLI neuro-ischaemic DFUs and unsuccessful BTA revascularization by promoting wound healing and reducing major amputation.

EP042 DIAGNOSTIC ACCURACY OF THE FLUORESCENCE IMAGING DEVICE IN DIABETIC WOUNDS

Seung-Kyu Han[1], Saesbyeor Kim[2], Sik Namgoong[1], Ji Won Son[2], Do-Yoon Koo[1]

[1]Korea University Guro Hospital, Department of Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South; [2]Korea University Guro Hospital, Department of Nursing Service/Department of Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South

Aim: This study aimed to investigate the diagnostic accuracy of a fluorescence imaging device using a tissue culture system adopted by most hospitals.

Method: Patients who visited or were admitted to the diabetic wound center of the hospital between April 2022 and July 2022 were enrolled. Thirty-five patients with diabetes with 48 wounds were included in this study. Wounds were sampled using tissue culture methods and photographed using a fluorescence imaging device[1]. Culture outcomes were categorized into non-Pseudomonas bacterial, Pseudomonas bacterial, both bacterial, and no-growth groups. Image outcomes were categorized into red, cyan, both color, and negative groups.

Results / Discussion: Eighty-one percent(n=39) of the tissue cultures were positive for bacterial growth and 19% were negative. Among the culture-positive results, the non-Pseudomonas bacteria accounted for 77%, followed by Pseudomonas bacteria (18%) and both bacteria types (5%).

For bacterial presence as detected using fluorescence imaging, 60% were image-positive and 40% were image-negative wounds. Among the image-positive wounds, 62% showed red fluorescence, 31% cyan, and 7% both colors.

The imaging device had a sensitivity of 64.1% and specificity of 55.6% for identifying bacterial presence. The positive predictive value (PPV) and negative predictive value(NPV) were 86.2% and 26.3%, respectively. The results indicated an accuracy of 62.5%.

The device had a sensitivity of 66.7% and specificity of 87.2% for P.aeruginosa. The PPV and NPV were 54.6% and 91.9%, respectively. For non-Pseudomonas bacterial identification, the sensitivity, specificity, PPV, and NPV were 43.8%, 62.5%, 70.0%, and 35.7%, respectively.

Conclusion: Although the accuracy of the fluorescence imaging device may not be as high as that reported in previous studies on various wounds, this device helps detect the bacterial bioburden even in diabetic wounds where deep tissue infections are very common.

[1] MolecuLight i:X

EP043 USE OF OLEIC MATRIX – BASED GEL RELEASING REACTIVE OXYGEN SPECIES (ROS) IN POST-SURGICAL TUNNELING DIABETIC FOOT WOUNDS

Alessia Scatena[1], Silvia Magi[1], Matteo Apicella[1], Michele Mantuano[1], Anna Ranchelli[1], Emanuele Bartolini[1]

[1]Azienda USL Toscana Sud Est, Diabetology and Diabetic Foot Unit, Cardiovascular, Thoracic and Neurologic Dep.t, Arezzo, Italy

Aim: Postoperative wounds may arise from several etiologies including open partial pedal amputation, postoperative infection, and dehiscence of surgical sites from wound failure or patient compliance issues. If negative pressure wound therapy is the gold standard, its application in the toes area could be challenging as a consequence standard care is most likely used. Reactive oxygen species are a key part of the normal wound-healing process and we evaluate the use of a new oxygen-enriched oil-based product (gROS) in this kind of ulcers.

Method: A total of 22 diabetic patients with tunnelling post-surgical dehiscence of the foot (TUC IIA or IIIA) comprised the study population. Patients were randomised in two groups as follows: group 1 patients were treated with (gROS) and group 2 patients were treated with standard therapy. Primary outcome is healing rate. Secondary outcomes are new infections and side effects.

Results / Discussion: After 16 weeks wound closure occurred in 9 patients (75%) in group 1 and 4 (33%) in group 2 (p=0,04). New infections affected 2 patients (17%) in group 1 and 7 patients (58%) in group 2 (p=0,05) and, of these, six patients (50%) needed a new surgical debridement. No severe side effects were reported in group 1 and only in 1 patient (8%) perilesional maceration was observed. In standard therapy frequency of dressing was twice a week and in gROS once a week, reducing costs related to nursing time and hospital visits, responsible of 80-85% of the total cost.

Conclusion: Oleic matrix – based gel releasing Reactive Oxygen Species promising to be effective, safe and efficient in tunnelling post-surgical dehiscence in diabetic foot.

EP044 BELOW-KNEE AMPUTATION WITH AN ENERGY DEVICE: EVALUATION OF IMPROVEMENTS IN EARLY POSTOPERATIVE CLINICAL OUTCOMES

Hyeju Han[1], Hyung-Sup Shim[1]

[1]The Catholic University of Korea, St. Vincent`s Hospital, Department of Plastic and Reconstructive Surgery, Suwon, Korea, Rep. of South

Aim: Despite the development of microscopic reconstructive techniques for lower limb salvage, major limb amputation is still required for critical unsalvageable lower leg wounds, with steadily increasing estimates of major limb amputations. In this study, we highlight a surgical technique for below-knee (BK) amputation using an ultrasonic scalpel and evaluate its safety and effectiveness compared with the conventional method.

Method: A retrospective chart review was conducted on 41 patients who underwent BK amputation in our department between October 2012 and January 2021 by a single senior surgeon at a single medical center. Patients were assigned to two groups; classical method using surgical blades and electrocautery (group A) and an ultrasonic scalpel (group B). Numerous perioperative factors such as operation time, intraoperative blood loss, postoperative complications and recovery time were examined. The present study is adhered to the STROBE guidelines for cohort studies.

Results / Discussion: 41 patients, 16 in group A and 25 in group B, were included in this study.

Operation time was significantly shorter in group B (P = 0.001) and intraoperative blood loss was less in group B (P = 0.011). Wound healing time time did not vary between groups.

Conclusion: The usage of an ultrasonic scalpel for lower limb amputation is effective in reducing operation time and blood loss which might be helpful in comorbid patients.

	Group A	Group B	*P* value
Operation time, min	120.5 ± 26.31	99.21 ± 18.81	0.0245 (*)
Post operative complication			
Wound disruption	4 (33.33 %)	3 (21.43 %)	0.4951 (ns)
Wound infection	3 (25.00 %)	1 (7.14 %)	_
Hematoma formation	1 (8.33 %)	0	_
Intra-operative Blood loss, cc	183.33 ± 110.15	101.42 ± 57.25	0.0229 (*)
Healing time, day	24.00 ± 3.13	22.36 ± 2.09	0.1245 (ns)

EP045 USE OF TOE BANDAGE IN THE TREATMENT OF DIABETIC FOOT OSTEOMYELITIS

Levent Demir[1]

[1]*Kayseri, Kayseri City Hospital, Kayseri, Turkey*

Aim: Although toe edema is common in lymphedema, it is also common in toe osteomyelitis. In this study, it was aimed to demonstrate the effectiveness of bandage application with the technique used in the treatment of lymphedema, which can also help in the treatment of diabetic foot osteomyelitis in the toes.

Method: The patients were divided into two groups (11 study, 11 control) and while best care treatments such as culture based antibiotics, blood glucose regulation, wound care and debridement, vascular assessment, off-loading were continued in both groups, toe bandage was applied to the osteomyelitis toe in the study group twice a week. Clinical remission was evaluated as the complete absence of clinical and radiological signs of infection at two-months follow-up. Failure was defined as recurrent, persistent and progressive infection, ischemia, necrosis, and amputation in the area.

Results / Discussion: There was no difference between the groups according to the sex, median age, hight and weight. Remission was found in 8 patients in the study group, and in 3 patients in the control group. Patients in the study group improved significantly more than the control group (P=0,010).

Conclusion: Diabetic foot osteomyelitis of the toes is a common, long-lasting, difficult and costly disease to treat. Carefully applied toe bandage increases pressure in subcutaneous tissues, increases lymph flow and venous return, thereby reducing edema, increasing microcirculation, which can help treating osteomyelitis. In our study, we found statistically significant improvement in the study group. We think that toe bandage is an effective method that supports standard treatments for toe osteomyelitis in diabetic patients. Further studies are needed.

EP046 EVALUATION OF EFFICACY OF TRANSCUTANEOUS CO2 THERAPY IN DIABETIC FOOT PATIENTS WITH POSTOPERATIVE WOUNDS

Ajdin Alisic[1], Slađana Đokić[1], Igor Frangež[1]

[1]*University Medical Center Ljubljana, Slovenia*

Aim: Assessment of efficacy of transcutaneous CO2 therapy[2] in management of non-healing post-operative wounds after minor amputations in neuroischemic diabetic foot.

Method: 10 patients were observed with diabetes mellitus type II., after the toe amputation, with whom the post-operative wound showed no progress in healing at two weeks after the amputation with the characteristic formation of non-vital fibrin layers. All patients had an ABI < 0.90 and a diagnosis of distal sensorimotor polyneuropathy. All patients received the optimal standard of care according to international guidelines, and 5 patients received an additional 20 treatments with transcutaneous CO2 application.

Results / Discussion: In five patients who received adjuvant CO2 therapy, at 4-week mark 3 wounds completely healed, and the remaining two wounds were reduced in size by 96%.

In patients who received standard postoperative care, no wounds healed at 4 weeks, the healing was not complete even at 12 weeks. In 4 patients without adjuvant therapy, surgical debridement of the post-operative wound was necessary, and two patients required addition of antibiotic treatment.

The neuroischemic condition in the diabetic foot often triggers pain when resting. The patients who received CO2 adjuvant therapy reported significant reduction of pain.

Conclusion: Despite the limited number of patients included in the observation, addition of adjuvant transcutaneous treatment with CO2 demonstrated significantly better results compared to SOC group: significantly shorter healing time, reduction of complications and improvement of quality of life.

EP047 AN EPIDEMIOLOGICAL PROFILE OF PEOPLE AT RISK FOR DIABETIC FOOT ULCERATION

Pauline Wilson[1], Declan Patton[1], Fiona Boland[1], Zena Moore[1], Niamh Phelan[2]

[1]*Royal College of Surgeons in Ireland, Nursing and Midwifery, Dublin, Ireland;* [2]*St James's Hospital, Endocrinology, Dublin, Ireland*

Aim: The aim of this study was to prospectively identify risk factors for the development of diabetic foot disease in patients attending specialist diabetes clinics in a large urban teaching hospital in Ireland.

Method: This observational non-interventional study opportunistically recruited 216 individuals attending for specialist diabetes review during 2021 in order to record the presence of risk factors for foot disease utilising the recommended screening protocol of the international working group on the diabetic foot. Following foot assessment patients were stratified using the Scottish risk stratification tool. Analysis was performed using chi squared testing and ANOVA with significance determined when p-values were greater than 5%.

Results / Discussion: Of the 216 participants the following risk factors were associated with statistically significant increase in risk status.

Male gender, increased age, remission status, peripheral arterial disease, loss of protective sensation, previous examination, skin pathology, abnormal pressure, deformity and reduced joint function. The association between barefoot walking and accessing professional footcare services were associated with increased risk status in that those at high risk were not engaging in barefoot walking and were engaging with professional foot care services. The development of DFU was significantly associated with loss of protective sensation, a history of disease and the presence of deformity only.

Conclusion: This is the first reported epidemiological risk profile in Ireland of those attending for diabetes management in specialist centres. Those at high risk are greater than in other published studies. The findings of this study may help inform resource allocation and preventative care.

EP048 DIABETIC FOOT RESURFACING USING MICROVASCULAR TISSUE TRANSFER FROM LATERAL THORACIC REGION

Youn Hwan Kim[1], Sang Wha Kim[2]

[1]Hanyang University, Department of Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South; [2]Seoul National University, Department of Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South

Aim: Diabetic foot ulcer is a major complication of diabetes mellitus and amputation is often needed. Due to mortality rate after amputation is comparatively high, so saving diabetic foot is not only for preserving function and life quality, but also for decreasing mortality rate. This study is designed to analyze experience of limb salvage in diabetic foot patients using free flaps from the lateral thoracic region over 10-year.

Method: Between 2009 and 2018, 297 cases of diabetic foot underwent surgical procedures, we analyzed the 83 cases who underwent free flap from lateral thoracic region. Patient data were reviewed retrospectively.

Results / Discussion: A total of 83 patients, 56 of them male, were included in this study. Patient ages ranged from 27 to 80 years. Twenty patients underwent percutaneous transluminal angioplasty procedures. The latissimus dorsi muscle sparing technique was used in 7 cases. A thoracodorsal artery perforator flap was used in 68 cases. A thoracodorsal artery perforator chimeric flap was performed in 8 cases. The flap survival rate was 98.8% and the limb salvage rate was 96.4%. The mean follow-up was 6.5 years. During follow-up 14 patients suffered recurrence of foot ulcers.

Conclusion: 10-year experience of using flaps from the lateral thoracic region revealed superior outcomes in terms of flap survival and limb saving compared to those in a recent meta-analysis and reports. Long vascular pedicle technique and the chimeric technique might be the alternative techniques for multiple or vascular insufficient diabetic foot defects.

EP049 THE IPSWICH TOUCH TEST AND THE 10G MONOFILAMENT - HOW CONSISTENT ARE THEY ARE IDENTIFYING LOSS OF PROTECTIVE SENSATION IN CLINICAL PRACTICE?

Pauline Wilson[1 2], Declan Patton[2], Zena Moore[2], Fiona Boland[2], Niamh Phelan[1]

[1]St James's Hospital, Endocrinology, Dublin, Ireland; [2]Royal College of Surgeons in Ireland, Ireland

Aim: Loss of protective sensation (LOPS) is associated with the presence of neuropathy and an increased risk of diabetic foot disease. Two such tests for identifying LOPS are the 10g monofilament (10g) and the Ipswich touch test (IpTT). This study considered the consistency of both tests in clinical practice.

Method: 216 participants were assessed for LOPS utilising both IpTT and 10g. The 10g test was performed at 10 sites and the IpTT at 6 sites across both feet as recommended by IWGDF.

Those identified as high risk also had repeat testing with both tests on 2 further occasions within one week. The consistencies of both tests were compared on all three occasions using interclass correlation testing.

Results / Discussion: Across all time points both tests had good consistency both at baseline and at follow up as detailed below.

	Baseline (n=216)	**Follow-up 1 (n=54)**	**Follow-up 2 (n=47)**
LOPS on both	47 (22%)	30 (56%)	23 (49%)
No LOPS on both	148(69%)	23(43%)	19(40%)
Inconsistency	21(10%)	1(2%)	5 (11%)
ICC (95% CI)	0.86 (081 to 0.90)	0.96 (0.94 to 0.99)	0.79 (0.65 to 0.88)
Interpretation of Reliability	Good	Excellent	Moderate to good

Conclusion: There is much discussion in the literature about which test to use to assess for LOPS. In this study it has been shown that neither test has superiority in identifying LOPS. Either test can be used with confidence in clinical practice.

EP050 PATIENT KNOWLEDGE AND HABITS AS PREDICTORS OF FOOT COMPLICATIONS IN DIABETES: AN OBSERVATIONAL STUDY

Khaled Edrees[1], Mansoor Radwi[2], Alanood Alqahtani[3]

[1]Dr. Edrees Medical Center, Jeddah, Saudi Arabia; [2]University of Jeddah, Jeddah, Saudi Arabia; [3]Dr. Edrees Medical Center, Jeddah, Saudi Arabia

Aim: Previous studies identified predictors for diabetic foot complications (DFC) e.g., glycosylated hemoglobin (HbA1c). This cross-sectional study aims to identify patients awareness about predictors of DFC mainly knowledge of HbA1c, monitoring home fasting blood glucose (FBG), and footwear type and exploring its association with DFC.

Method: We included 4656 diabetic patients, seen 2006-2021 at Dr. Edrees Medical Center. A questionnaire was completed by podiatric physicians or trained nurses at patients initial visit that collected patients mere knowledge of HbA1c, monitoring home FBG, footwear type at visit time, current foot ulceration (CU), history foot ulcers (HFU), and history lower limb amputation (LLA).

Results / Discussion: Majority of our cohort were males (60%), their mean age was 60 years (SD 17.5). Nearly all patients had type 2 diabetes (96%), and two-third diagnosed with diabetes for at least 11 years. More than half (56%) had no knowledge of HbA1c, (32%) not monitoring home FBG, and (62%) using traditional footwear (TFW). More than half had CU (52%), (35%) had HFU, and (13%) had LLA. We found significant association between CU and knowledge of HbA1C, monitoring home FBG, and type footwear ($p<0.001$). Similarly, LLA was significantly associated with above variables ($p<0.001$). HFU was strongly associated only with knowledge of HbA1c and type of footwear ($p<0.01$).

Conclusion: High proportion of patients in our cohort have no knowledge about a test called HbA1c, and are using TFW. We found strong association between CU and LLA and knowledge of HbA1C and use of TFW. This highlights importance of patient education regarding the basics of diabetes and use of appropriate footwear in preventing DFC.

EP051 EFFECT OF A COMBINATION OF PROBIOTICS AND KOREA RED GINSENG ON WOUND HEALING IN A DIABETIC RAT MODEL EXPOSED TO FIND DUST

Young Koo Lee[1]

[1]Soonchunhyang University Bucheon Hospital, Department of Orthopedics, Bucheon-si, Korea, Rep. of South

Aim: we evaluate the wound healing effect of probiotics and Korean red ginseng on diabetic wounds exposed to fine dust.

Method: We create a MRSA infection diabetic rat wound model. The rats that caused the wound were divided into normal control group, group 1 and group 2, and in the normal control group, DEPs inhalation at a concentration of 0 μg/m^3 and the first, second groups inhalated at a concentration of 80 μg/m^3. Since then, second-group rats have been oral administration every day by combination of Probiotics and korea red ginseng. Each rat was killed on the 1, 4, 7, 10 and 14 days to measure the size of the wound. Expression of TNF-α, NF-kB p65, MMP-9 and TIMP-1 was confirmed by Western blot. In addition, hematoxylin and eosin(H&E) staining and Immunohistochemistry (IHC) staining were performed using wound tissue collected during each period, confirming expression levels of for granulation tissue formation and inflammatory cell infiltration, TNF-α, NF-kB p65, and MMP-9 expression levels.

Results / Discussion: The wound size measurement showed that the wound tended to decrease in all groups, and the wound healed slower than the normal control and group 1 but it was very similar to the wound size of the normal control at 14 days. Molecular biological experiments showed that infectious cytokines decreased and anti-inflammatory cytokines increased compared to the first group. As a result of conducting histological experiments, more nurturing tissue was formed in the second group, and fewer inflammatory cells were observed.

Conclusion: Applying combination of Probiotics and korea red ginseng to diabetic wounds exposed to fine dust can promote diabetic wound to exposed DEPs healing.

EP052 CLINICAL OUTCOMES IN DIABETIC FOOT PATIENTS WITH AND WITHOUT CANCER ADMITTED FOR INTERVENTIONAL PROCEDURES

Chiara Goretti[1], Alessandro Prete[1], Alex Brocchi[1], Francesco Giangreco[2 3], Alberto Piaggesi[1]

[1]Diabetic Foot Section, Department of Medicine-University Hospital of Pisa, pisa, Italy; [2]Diabetic Foot Section, Department of Medicine-University Hospital of Pisa, Pisa; [3]Diabetic Foot Section, Department of Medicine-University Hospital of Pisa, Pisa, Italy

Aim: Diabetic Foot Syndrome (DFS) is associated with a high risk of cardiovascular morbidity and major amputation (MA). Likewise, cancer is a well-established risk for cardiovascular disease. Our aim was to assess if DFS patients with cancer have a worse cardiovascular profile and surgical outcomes compared to DFS patients without cancer.

Method: We retrospectively analyzed the charts data of 223 consecutive DFS patients [M:166/F:57, age: 69.6±10.4,T2DM 94.66%/T1DM 5.4%] admitted between January 2019 and December 2021 in our Department for interventional procedures (Revascularization and/or foot surgery). Prevalence of cancer, cardiovascular pathologies, MA and re-intervention were derivated.

Results / Discussion: Cancer was observed in 47 (21.1%) DFS patients. Patients with cancer were older (71.5 vs 68 yrs, $p<0.01$) and with a longer history of diabetes (24.5 vs 19 yrs,$p<0.05$). Major cardiovascular events, atrial fibrillation and renal failure prevalence didn't differ between patients with and without cancer. After a median time of 5 months, reoperation was performed in 35.4% of patients, without any difference between cancer+ and cancer- DFS. Globally, MA prevalence was 9.6%. Although, MA prevalence did not differ between patients with and without cancer, patients with blood cancer (n=9) showed a higher prevalence of MA than those with solid tumors (33.3% vs 5.1%, $p<0.05$) and those without cancer (9.7%, $p<0.05$).

Conclusion: Cardiovascular profile, surgical outcome and reoperation rate didn't differ between DFS patients with and without cancer. More studies are needed to confirm that DFS patients with blood tumors could present higher risk of MA.

EP053 USAGE OF ACTIVATED CARBON CLOTH DRESSING FOR DIABETIC FOOT ULCERS IN MALAYSIA

Mohd Yazid Bajuri[1], Muhammad Shazwan Shahul Hameed[1]

[1]Universiti Kebangsaan Malaysia Medical Centre, Department Of Orthopaedics & Traumatology, Cheras, Malaysia

Aim: Diabetes mellitus is a major non-communicable illness which can cause wide range of issues, including diabetic foot ulcers (DFU). The management requires the use of a multidisciplinary strategy and the right wound care dressing. This study focuses on usage of an activated carbon cloth dressing in managing diabetic foot ulcer. This activated carbon cloth dressing helps to trap and kill microorganisms such as MRSA and pseudomonas aeruginosa.

Method: A total of ten wounds were measured weekly for 8 weeks duration with the primary endpoint was the improved wound healing in diabetic foot ulcer patients. The secondary end points were wound size reduction, time to healing, and adverse events.

Results / Discussion: Two out of ten wounds showed 100% wound healing within 8 weeks, three achieved more than 90%, two achieved more than 80% while the other three achieved more than 60%. The wound size reduction rate was significant and progressively reduced over time. No adverse events were observed.

Conclusion: Diabetic foot ulcers can be effectively treated with activated carbon cloth dressing. To improve the accuracy of the data, further validation with a larger sample size is necessary in later stages of the clinical trial.

EP054 PROVEN RESULTS USING OXYGEN TO SAVE LIMBS AND REDUCE COSTS

Matthew Garoufalis[1]

[1]Professional Foot Care Specialists, PC, Chicago, United States

Aim: Internationally, chronic wounds are a serious medical concern that have a financial burden on health and a significant impact on patients' quality of life (1). The chronic wound is challenged by persisting inflammation that prevents the wound from progressing to normal wound healing. Blue Light is known to reduce signs of inflammation, reduces wound associated pain and produces faster tissue regeneration than standard wound care via photobiomodualtion (PBM). (2-4). This pilot study explored whether the use of a blue light emitting device (400-430nm) on chronic non healing wounds led to alterations in wound metrics and patient reported pain.

Method: All patients with a chronic wound (> than 8 weeks), meeting specific inclusion criteria, were treated weekly with the device for 60-seconds per 20cm2 (120mW/cm2) following standard care protocols in the outpatient setting, for up to 10 weeks

Results / Discussion: Two patients were excluded from analysis (unrelated death & palliation) with 10 patients completing the treatment period with improvements in wound bed tissue, exudate, wound size reduction and reduction of patient reported pain. Overall 4 wounds had completely healed, 3 each had size reduction between 50-99% and 32.8-50% respectively. All treated patients had a significant reduction in wound related pain. Patient cases, super-user information and wound characteristic trends will be presented.

Conclusion: The blue light emitting device has now been incorporated into care for complex and slow to heal wounds. A larger clinical trial to measure effects on bacterial loads in Pressure Injuries is being planned.

1. Martinengo L et al. Prevalence of chronic wounds in the general population: systematic review and meta-analysis of observational studies. Annalsof Epidemiology, Volume 29, January 2019, Pages 8-15.
2. Dini V et al. Blue Light emission in the management of hard-to-heal wounds. Giornale Italiano di Dermatologia e Venereologia 2020; 1 55
3. Marchelli M et al. Photobiomodulation with Blue Light in non-healing wounds: case series evaluation. Wounds International 2019, Volume 10 Issue 3, 63-67.
4. Fraccalvieri M et al. Blue Light for Ulcers Reduction (B.L.U.R) Study 2019 ClinicalTrials.gov Identifier NCT 04018924.

E-POSTER SESSION: LEG ULCER 1

EP055 COLD ATMOSPHERIC PLASMA REVOLUTIONIZES THE TREATMENT OF CHRONIC LEG ULCERS

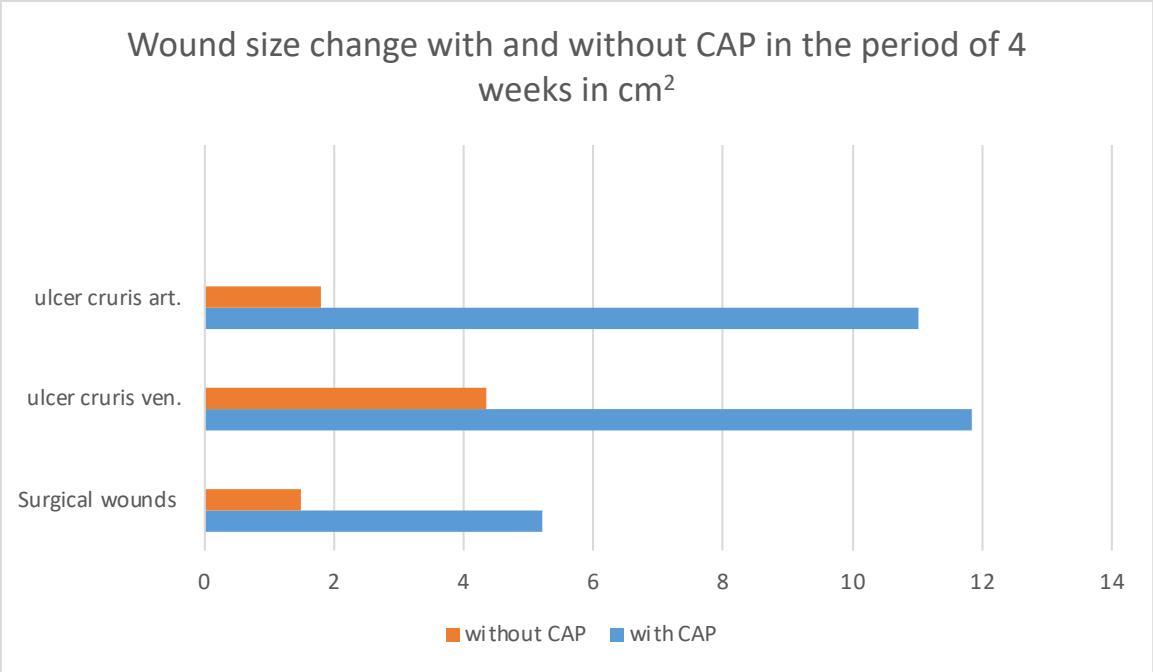
Veronika Thiel[1]

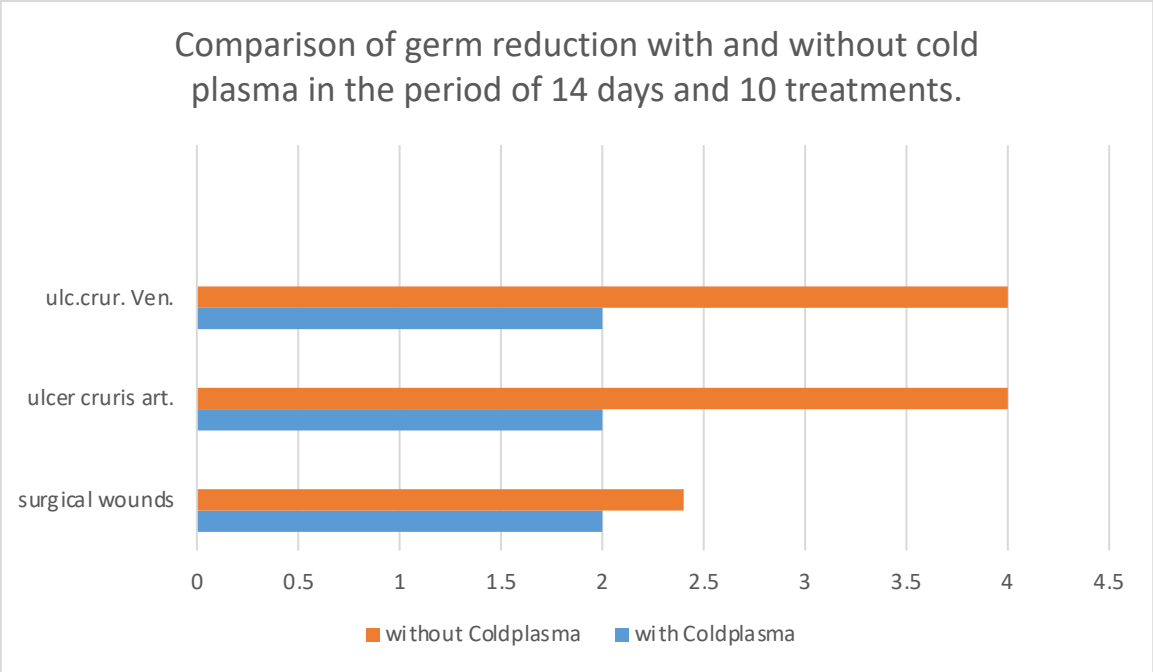
[1]*Draßburg, Nursing, WM - Wound Manager, Draßburg, Austria*

Aim: The aims in in this study was to evaluate the effectiveness of using cold plasma in the treatment of chronic wounds with a conservative Therapie in term of Wound- and Germ-reduction.

Method: There were 60 patients monitored for a period of 8 Weeks. The wounds were treated 4 weeks without and 4 weeks with cold plasma. Treatment was with cold plasma three times a week for 3 minutes per area. All the participating Patients did not take oral Antibiotics during this time. A microbiological culture was taken at the start of the treatment and after ten treatments.

Results / Discussion: There was a significant improvement in wounds during the first two treatments. The results showed that wound reduction of at least 10% and a maximum of 60% after one treatment session and an interval of two days under cold plasma treatment with simultaneous germ reduction, which took place without the additional oral intake of antibiotics and / or cortisone-containing preparations, decreased by up to 50% after ten treatments. The greatest reduction was observed in moist wounds during treatment.





Patient: female

Age: 87

Diagnosis: ulc.cur.ven.

Conclusion: The results demonstrate the efficacy of cold plasma in healing chronic wounds while reducing germs. It should be emphasized that the effective cost reduction for patients and health insurers is based on shorter treatment duration.

EP056 EFFECTIVITY AND ACCEPTABILITY OF A NEW MULTICOMPONENT COMPRESSION SYSTEM BANDAGE IN REAL-LIFE PRACTICE

Mariapaz Beaskoetxea Gomez[1], Julia Fernández Morata[2]

[1]Hospital de Galdakao, Wound Multidisciplinar Unit , Spain; [2]Urgo Medical, Clinical, Spain

Aim: Multicomponent bandage is the gold-standard of venous leg ulcer (VLU) etiological treatment due to its ability of maintain pressure and stiffness.[1] An innovative multicomponent monolayer compression system has demonstrated to promote healing of VLU, reduce oedema and improve quality of life.[2] This study aims to determine whether the clinical trials' results are translated into real-life practice and if it is well accepted by patients.

Method: A monocenter, open, non-controlled trial was conducted on 12 ambulatory patients with VLU confirmed by palpation of distal pulses and Ankle Brachial Pressure Index of 0,8-1,3. The main objective of the study is to assess the acceptability of a multicomponent monolayer bandage for patients and healthcare professionals over the previous treatment with a bilayer multicomponent system.

Results / Discussion: The multicomponent monolayer compression system reduces wound area after 6 weeks of treatment and resolves oedema. The new system was considered more comfortable for patients than previous compression system. Patients

experienced a lower heat and itching sensation. Furthermore, patients could wear their shoes and moved their ankle with more ease, promoting their mobility. For the healthcare professional, the application time was reduced to less than 2 minutes, and it was found to be easy, reliable and safe thanks to clear visual guidelines that achieve the correct stretch and overlap.

Conclusion: This new multicomponent monolayer compression system was found to be effective, comfortable, easy and quick to apply for the treatment of VLU. It should be considered as an alternative to existing compression systems.

EP057 A NEW MULTICOMPONENT COMPRESSION SYSTEM IN ONE BANDAGE WITH SUCROSE OCTASULFATE DRESSING AS LOCAL TREATMENT FOR VENOUS LEG ULCERS: A PROSPECTIVE, SINGLE-ARM, CLINICAL TRIAL

Elena Conde Montero[1], Nuria Conde Navarro[2], Alicia Peral Vazquez[2]

[1]Hospital Universitario Infanta Leonor, , Dermatology, Madrid , Spain; [2]Hospital Universitario Infanta Leonor, Madrid, Spain

Aim: The recommended etiological treatment of venous leg ulcers (VLUs) is compression therapy, so it was decided to combine a new multicomponent compression system in one bandage with sucrose octasulfate dressing as local treatment.

We evaluate efficacy, tolerance and acceptability of this new compression system for patients with VLUs.

Method: Monocentric, prospective, non-comparative clinical trial. Eligible participants had a recalcitrant VLU, including grafted ulcers. For a period of 12 weeks, patients wore the multicomponent compression system day and night, providing high working pressure and moderate resting pressure. Clinical assessments, wound measurement and photographs were planned at weeks 0, 2, 4, 8 and 12. The primary endpoint was complete epithelialisation after 12 weeks of treatment. Secondary endpoints included wound area reduction, frequency of dressing changes, global performance score, tolerance, and physician's overall satisfaction with the evaluated compression system.

Results / Discussion: A cohort of 20 patients were recruited. After 12 weeks of treatment, wound closure was reported in most patients. Compared to previous compression systems, most patients reported more ease in wearing shoes, and greater satisfaction and comfort with this new system. No serious adverse events related to the device occurred. At the final visit, the majority of the physicians were 'very satisfied' or 'satisfied' with the new compression system.

Conclusion: The combination of the new multicomponent compression system in one bandage and sucrose octasulfate dressings has been shown to promote rapid healing of VLUs and to be well tolerated and accepted. It appears to be a viable alternative to existing compression systems.

EP058 OVERVIEW OF PLATELET-RICH PLASMA APPLICATION METHODS IN THE TREATMENT OF VENOUS ULCERS

Yunnan Lin[1]

[1]Kaohsiung Medical University Hospital, Division of Plastic and Reconstructive Surgery, Department of Surgery, Kaohsiung, Taiwan

Aim: Platelet-rich plasma (PRP) has demonstrated efficacy in the treatment of chronic wounds such as venous ulcers. However, the way PRP is applied varies from one doctor to another. In this study, we were interested in comparing the results of different PRP application methods in venous ulcer healing.

Method: In September 2022, we searched databases, including Cochrane Library, Ovid Medline, Embase, and EBSCO CINAHL. We did not restrict search limitations to language, and date. We included all randomized controlled studies (RCT) that use PRP on chronic venous ulcers and with the outcome of wound healing rate or area reduced after PRP application. The records were collected and analysed. Data such as sample size, types of PRP application, and wound healing rate were grouped and calculated with Microsoft Excel.

Results / Discussion: 74 records were identified after the search of the databases, which included 426 patients (32.41% were female). 7 RCTs were included for final review. 5 RCTs compared the efficacy of PRP gel to standard care, whereas 3 RCTs compared PRP injection to conventional treatment. Except for the study presented by Burgos-Alonso et al., all PRP groups, despite differences in PRP application, showed statically significant differences compared to controls.

Conclusion: In this literature review, both topical PRP application and PRP injection showed advantages over conventional therapy. We favour topical PRP application because the patient experiences less pain.

EP059 COMPRESSION THERAPY WITH A NEW MULTICOMPONENT SYSTEM USING ONLY ONE BANDAGE IN 20 PATIENTS WITH LEG ULCERS AND EDEMA

Maurice Moelleken[1], Frederik Krefting[1], monika kleinhans[1], Joachim Dissemond[1]

[1]*Universitätsklinikum Essen Klinik und Poliklinik , Dermatologie, Venerologie und Allergologie , Essen, Germany*

Aim: Compression therapy is a very important part of conservative therapy for patients with leg ulcers and edema. Today, a variety of different compression systems are available for this purpose. New is a multicomponent compression system with only one bandage. Therefore, the aim of this clinical study was to investigate this new multicomponent system in clinical practice in patients with leg ulcers and edema.

Method: After exclusion of contraindications, the compression system was applied in patients with leg ulcers of different causes and edema in the decongestion phase. Clinical examinations and measurement of wound sizes were performed at weeks 0, 2, and 4. In addition, the time required to prepare, apply, and clean up compression therapy was measured.

Results / Discussion: In total, the results of 20 patients with an average age of 75 years with leg ulcers and edema were evaluated. The total time required for preparation, follow-up and application was 4:09 minutes for two legs. After two weeks, there was an average reduction in wound area of 18.05%, and after four weeks, 26.07%. The system was worn regularly by patients without any objectifiable problems or undesirable side effects and was rated as very good by both users and patients.

Conclusion: In this clinical study, the new multicomponent system with one bandage was able to convince both patients and users in the investigated, practice-relevant aspects. It thus has all the advantages of the established multicomponent systems with several bandages and additional advantages through the use of only one bandage.

EP060 PROSPECTIVE RANDOMISED CONTROLLED TRIAL OF LOW FREQUENCY ULTRASOUND DEBRIDEMENT (LFUD), IN MANAGEMENT OF LOWER LIMB WOUNDS

Emil Schmidt[1]

[1]*Te Whatu Ora , Surgery, dunedin , New Zealand*

Aim: This prospective, randomized study assessed the benefit of low-frequency ultrasound debridement (LFUD) as an adjunct in the management of acute and chronic lower limb wounds by comparing time to complete wound healing and relative rate of wound healing at 12, 24, and 52 weeks

Method: Patients (108) with lower-extremity wounds of mixed aetiologies were randomised to receive LFUD plus standard care (n=53) or standard care (SC) (n=51), and were assessed at week 4, 8, 24 and 52. The time and relative rate to complete wound healing length of hospital stay, operative time, and number of treatments were compared between treatment groups

Results / Discussion: In intention to treat analysis, healing occurred in 59% of patients in the LFUD group (n=37) and 64% in SC (n=40). There was no statistically significant difference in the change in the rate of wound healing between treatments (1.43, 95% CI 0.81–2.51, p=.214). Wound size changed significantly over time (p<.001), however this was not significantly different between the treatments (p=.470).

A significant proportion of the patients in per protocol analysis were excluded because of other confounding factors. The proportion of excluded patients was highest in the ischaemic cohort (88%) and lowest in the venous group (37%). PP analysis showed a non-significant trend in faster healing rates in the treatment group, especially in the venous subgroup.

Conclusion: PP analysis shows a trend in improved healing rates in the treatment group and that a significant proportion of patients with ischemia and neuropathy have underlying conditions requiring exclusion from the final analysis. We plan to continue the study with a focus on a venous cohort.

EP061 CLINICAL EFFECTIVENESS OF OVINE FORESTOMACH MATRIX GRAFT IN COMPLEX LOWER LIMB RECONSTRUCTION AND LIMB SALVAGE

Brandon Bosque[1], Richard Kaufman[2], Mark Melin[3], Igor Zilberman[4], Nooshin Zolfaghari[4], James Geiger[5], James Longobardi[6], Howie Que[6], Joseph Skurka[7], Shane Dowling[1], Barnaby May[1]

[1]Aroa Biosurgery Ltd, Auckland, New Zealand; *[2]Ankle & Foot Centers of America, Roswell, United States*; *[3]M Health Fairview Southdale Hospital, Edina, United States*; *[4]South Florida Lower Extremity Center, Davie, United States*; *[5]Northwestern Medicine Palos Hospital, Palos Heights, United States*; *[6]Absolute Foot Care: James Longobardi, DPM, Chula Vista, United States*; *[7]Ephraim McDowell Regional Medical Center, Danville, United States*

Aim: The aim of this study was to evaluate the safety and efficacy of ovine forestomach matrix scaffold (OFM) in the management of complex, contaminated lower limb wounds by facilitating rapid build tissue and provide cover to exposed structures with viable granulation, ultimately shortening the time to definitive closure.

Method: This retrospective, institutional review board (IRB)-approved study of 50 case records were evaluated (n=50) across seven (7) healthcare centers across the United States to identify patient co-morbidities, defect etiology, defect size, presence of exposed structures, CDC contamination score, Wagner grade, OFM graft usage, time to 100% granulation tissue, split-thickness skin graft (STSG) usage, overall time to heal and any post-operative complications. Patient demographics, baseline wound characteristics, and healing outcomes were analysed with descriptive statistics.

Results / Discussion: 90% of patients had >1 significant co-morbidity (e.g. DM, PVD, PAD, cancer). Mean defect area was 84.2cm2 (+/-106.0). 54% of defects had concurrent osteomyelitis and 100% of defects were CDC Grade IV. The median number of applications to achieve 100% granulation tissue over exposed bone and tendon was 1 (one). Wounds surgically managed with OFM achieved viable granulation tissue covering exposed vital structures effectively shortening overall treatment times. Mean time to 100% granulation tissue over exposed bone and tendon was 26.0 days (+/-22.2 days). Of the patients who received a STSG, mean % STSG take at 1 week was 74.6%+/-18%. All patients went on to heal, with no surgical complications reported.

Conclusion: This IRB-approved retrospective case series demonstrated OFM as a clinically effective treatment modality in the surgical management of complex lower extremity soft tissue defects with exposed structures and multi-morbid patients.

EP062 OZONETHERAPY IN CHRONIC WOUND: CLINICAL CASE SERIES

Camila Moraes[1], Antonio Teixeira[2]

[1]Associação Brasileira de Ozonioterapia, Nursing, Brazil; *[2]Associação Brasileira de Ozonioterapia, Medicine, Brazil*

Aim: This study aims to describe the effects of Ozonetherapy as an adjuvant in the healing process of chronic leg ulcers in adult patients.

Method: The population of this study comprises adult patient, seen in clinical nursing assistance, with leg ulcer for more than one year, and submitted previously to treatment without evolution. The selected patients were submitted to Ozonetherapy. The leg ulcer of each patient was submitted three times a week in an external bag with Ozone gas for 20 minutes in a concentration of 60mcg. The patients were followed up and the details of their cases were described from the first day until the complete healing of the wounds.

Results / Discussion: In all cases healing process was concluded in a maximum of 3 months. Leg ulcers have different characteristics, as well as the particularity and comorbidities of each patient, but, in all cases, the professional who conducted the treatment was able to perceive the visible reduction of the biofilm, the decrease in the report of pain and improvement of leg ulcer's characteristics, favoring tissue oxygenation, granulation and epithelialization. There were no reports of pain or discomfort, or any other intercurrence during the treatment. International systematic reviews have pointed significant improvement in wound closure with the advent of Ozonetherapy compared to conventional care, improving the proportion of chronic wounds healed in a shorter amount of time as in cases described.

Conclusion: Ozonetherapy in the described patients favored the healing process in cronic leg ulcers. The result of this study can serve as a basis for conducting studies with a more robust design.

EP063 LEG ULCER: PROGNOSTIC FACTORS FOR DELAY HEALING – A SCOPING REVIEW

Raquel Silva[1], Marcos Lopes[2], Paulo Ramos[1 3], João Neves-Amado[1 4], Paulo Alves[1 4]

[1]Universidade Católica Portuguesa, Centre for Interdisciplinary Research in Health, Porto, Portugal; *[2]Universidade Federal Ceará, School of Nursing Department, Brazil*; *[3]Unidade de Saúde Familiar Corino de Andrade, Porto, Portugal*; *[4]Universidade Católica Portuguesa, School of Nursing Department, Porto, Portugal*

Aim: To identify prognostic factors for delayed healing of leg ulcers in adults.

Method: A scoping review according to JBI methodology and guided by the Checklist of PRISMA for Scoping Reviews. Five data bases and grey literature sources were used to research adults with leg ulcers (LU) and report the prognostic factors (PFs) for delayed healing in any care setting. Quantitative and mixed studies published in the last five years were considered. For independent reading by two reviewers, we use EndNoteWeb and Rayyan.

Results/Discussion: Sixteen original peer review articles were included. 2019(n=4) and 2021(n=4) and Japan(n=8) and the USA(n=2) were the years and countries with the highest number of publications. The included study designs were retrospective (n=10) and prospective (n=6) cohort studies. The hospital (n=11) was the main context of care. The LU was divided into venous leg ulcers (VLU)(n=4) and lower extremity arterial disease with critical limb-threatening ischemia (CLTI)(n=12). The PFs were divided by characteristics of the person and ulcer and complementary diagnostic tests. The most cited PFs and with statistical significance in the VLU were: male, deep venous disease, history of deep venous thrombosis, depression, nonwhite, wound duration and area, wound location (anckle), previous ulcer duration not-reduction in MMP-1 and MMP-2 in the first 4 weeks; CLTI were: chronic kidney disease and dialysis, coronary artery disease, diabetes mellitus, high stage WIfI classification, infection, albumin level <3g/dL, high C-reactive protein, poor of below-the-ankle runoff and low ABI and TBI.

Conclusion: Through the PFs, is possible to warn of imminent delays and adopt more invasive strategies and make referrals. It can also help the healthcare professional to manage the person's expectations regarding wound healing.

EP064 FRACTIONAL EPIDERMAL SKIN GRAFTS IN HARD TO HEAL WOUNDS

Agata Janowska[1], Valentina Dini[1], Alessandra Michelucci[1], Giammarco Granieri[1], Marco Romanelli[1]

[1]University of Pisa, Dermatology, Pisa, Italy

Aim: Cellutome™ is a non invasive, automated system for harvesting fractional epidermal micrografts without the use of anesthesia. This therapy is indicated for granulating, small size, poor exuding acute and chronic wounds. The aim of our study was to evaluate the healing rate of 15 typical and atypical chronic lower leg ulcers using this treatment.

Methods: We enrolled 15 patients with 9 venous leg ulcers and 6 atypical ulcers. We scheduled 3 weekly visits for the change of the secondary dressings and multilayer bandage and for clinical assessment (Wound Bed Score, pain assessment and healing rate). The lesions were measured with the Silhouette Star™ system, a software that allows to measure perimeter and area from a digital image.

Results: The only symptom during the procedure was a sensation of warmth. The donor area healed in 2 weeks in all patients (n=15). We reported an area reduction of 24.30% in typical ulcers and 38.82% in atypical ulcers after 3 weeks. The average Wound Bed Score improved in all ulcers from 13.06 to 14.93. The average healing rate was 0.19 mm/day both in typical and atypical ulcers.

Conclusion: Consequently, in our small case series fractionated epidermal graft treatment significantly promoted healing rate in all chronic ulcer regardless of etiology.

EP065 KNEE RECONSTRUCTION USING FREE TISSUE TRANSFER WITH ANTERIOR TIBIAL VESSEL TURN-OVER AS A PROPER RECIPIENT VESSEL

WooYoung Choi[1], Young Jun Kim[1], Ji Seon Cheon[1], Nara Yun[2]

[1]Chosun University College of Medicine, Departement of Plastic and Reconstructive Surgery, Gwangju, Korea, Rep. of South; *[2]Chosun University College of Medicine, Department of Internal medicine, Gwangju, Korea, Rep. of South*

Aim: Reconstruction of the knee remains a challenge. Because of the limited choice of local cutaneous and muscle flap options in this area, free flap coverage is often required. However, the choice of recipient vessels around the knee area is limited due to chronic infection, scars and injury from trauma and multiple operations. In this study, we introduce cases that reconstruction of wound around knee with anterolateral thigh free flap using anterior tibial vessel turn-over pattern as reliable choice of recipient vessel.

Method: Three patients were included in the study. They got the two and more surgeries to recover wound. All wounds had infection and scar tissues. It was hard to select a proper recipient vessel around wound. We performed anterolateral thigh free flap with anterior tibial vessel turn-over pattern as recipient vessel.

Results / Discussion: After evaluating and confirming that both posterior tibial artery and anterior tibial artery were intact, anterior tibial vessel was harvested from the ankle. Anastomosis with flap pedicle and anterior tibial vessel was performed with a turnover pattern. Anterior tibial vessel can be easily found at the ankle and sufficient length of recipient blood vessels can be secured. Despite being older patients, they recovered well without any complications and showed satisfactory results both aesthetically and functionally six months after surgery.

Conclusion: When there is anatomical damage to the structures around the knee due to trauma or chronic inflammation, it is difficult to select a proper recipient vessel. We introduced that using anterior tibial vessel with turn-over pattern can be a one of good options as reliable recipient vessels in the reconstruction around the knee.

EP066 THE EFFECT OF A BIO-ENGINEERED ELECTRICAL STIMULATION DEVICE, ON HARD TO HEAL CHRONIC WOUNDS

Ram Avrahami[1]

[1]*T.L.M Medical Center , Vasclar Surgery, Tel Aviv, Israel*

Aim: Electric Stimulation (ES) is a known therapy for the treatment of chronic wounds. The authors evaluate the safety, healing efficacy and pain reduction results of a bio-engineered micro-current ES treatment on Venous-Leg Ulcers and Diabetic-Foot Ulcers in a home setting.

Method: During March - September 2018, 26 patients having 32 recalcitrant chronic wounds were enrolled and treated with ES plus Standard of Care for up to 20 weeks Per Protocol (PP).

4 other patients dropped for non-compliance.

Wounds' duration was 3-20 months, average 8 months.

The regimen was 3X30 minutes daily ES treatments.

Results / Discussion:

Healing: Out of the 32 wounds PP, the incidence of fully healed wounds was: in 12 weeks 59% (19 wounds), in 16 weeks 66% (21) and in 20 weeks 78% (25).

Intend to Treat (ITT) healing incidence was 53% at week 12, 58% at week 16 and 69% at week 20.

Out of 7 wounds PP that were not fully healed in 20 weeks, 5 wounds' area was reduced by more than 75%.

Average treatment duration for full healing was 73 days in 20 weeks.

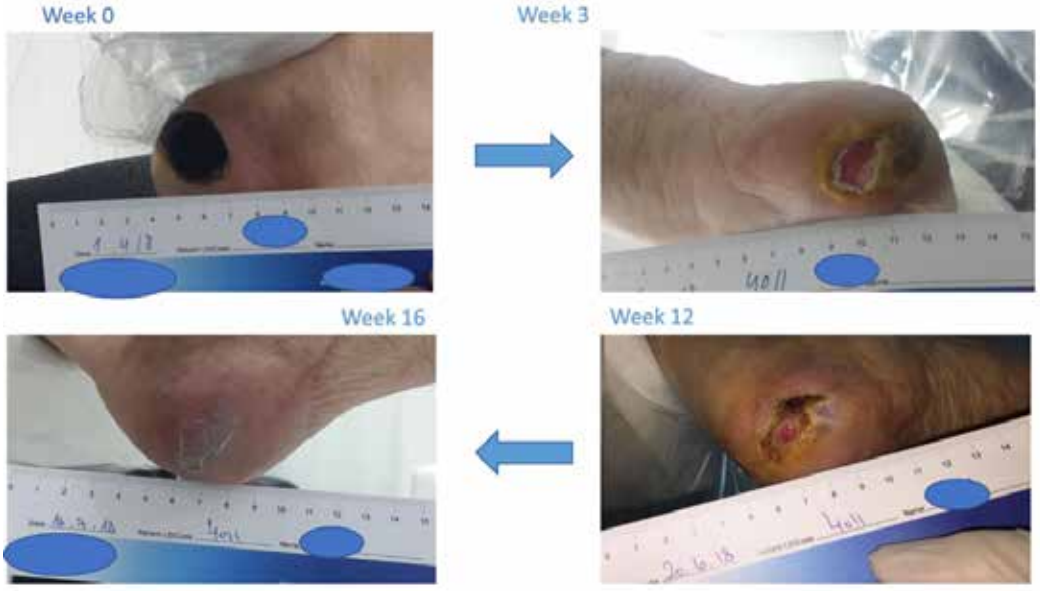
The average area reduction in 20 weeks was 90.8%, and the average weekly area reduction was 10.7%.

Pain reduction: 7 patients reported baseline pain of average 8.2 in Visual Analog Score (VAS). In two weeks of ES treatment, pain was reduced to average VAS 2.5.

Conclusion: The studied ES therapy was shown to be a very effective adjunct therapy for wound treatment and pain reduction tool, with good home-patients' compliance.

92 years old female with pressure ulcer.

Ulcer area reduced from 6.14 to 0 cm^2 in 16 weeks.



EP067 A META-REVIEW OF THE IMPACT OF COMPRESSION THERAPY ON THE QUALITY OF LIFE OF PEOPLE WITH A VENOUS LEG ULCER

Declan Patton[1], Pinar Avsar[1], Aicha Sayah[1], Aglécia Budri[1], Tom O'Connor[1], Simone Walsh[1], Linda Nugent[1], Denis Harkin[1], Niall O`Brien[1], Jonathan Cayce[2], Michael Corcoran[2], Mario Gaztambide[2], Zena Moore[1]

[1]Royal College of Surgeons in Ireland, Ireland; [2]DeRoyal Industries, New Tazewell, United States

Aim: To appraise existing systematic reviews (SR) measuring the impact of compression therapy on the health quality of life of (HRQoL) of people with venous leg ulcers (VLU).

Method: Five databases were searched, AMSTAR-2 tool was used for quality appraisal. Narrative synthesis was undertaken.

Results/Discussion: Three SRs, including 8 RCTs, 7 different HRQoL instruments, met the inclusion criteria. Three main comparisons were identified, **1**. four-layer bandage versus two-layer bandage, short-stretch bandage or usual care; **2**. unknown compression system plus exercise versus unknown compression alone; **3**. two-layer compression system versus short-stretch bandage.

Comparison 1: in 3 studies, for the domains physical symptoms, daily living scores, physical function, physical components and mental component, the mean difference (MD) in HRQoL scores was statistically significant in favour of a 4-layer bandage system. Two studies found a statistically significant difference in HRQoL years in favour of two-layer cohesive compression bandage, whereas one study found no difference in HRQoL years among the study groups.

Comparison 2: one study found no differences between the study groups in terms of physical and mental component summary scale scores. In a further study, for the EQ visual analogue scale at 12 months, there was a statistically significant MD in HRQoL scores between the study groups, in favour of intervention group. However, in the same study, for the VEINES-QOL, at 12-month follow-up, there was no statistically significant MD between the groups.

Comparison 3: one study found no statistically significant MD in HRQoL scores between the study groups.

Conclusion: Results were varied, reflecting uncertainty in determining which of the compression systems exerts the greatest impact on HRQoL in people with VLU.

EP068 EFFECTIVENESS OF A HYDROPHOBIC DRESSING FOR MICROORGANISMS' COLONIZATION OF VASCULAR ULCERS: PROTOCOL FOR A RANDOMIZED CONTROLLED TRIAL (CUCO-UV STUDY)

Juan C Morilla-Herrera[1 2 3], Alberto J Gomez-Gonzalez[1], Antonio Díez-De los Ríos[2], Inmaculada Lupiañez-Perez[1 2 3], Marta Aranda-Gallardo[4], Ana B Moya-Suarez[3 4], Silvia Garcia-Mayor[1 3], Jose M Morales-Asencio[1 3], Carlos Acosta[1]

[1]University of Malaga, Faculty of Health Sciences, Málaga, Spain; [2]Distrito Sanitario Malaga Valle del Guadalhorce, Malaga, Spain; [3]Instituto de Investigaciones Biomédicas (IBIMA) Málaga, Malaga, Spain; [4]Hospital Costa del Sol, Marbella, Spain

Aim: To determine the effectiveness of a hydrophobic dressing (Cutimed Sorbact®) against a silver dressing (Aquacel® Ag Extra) in the level of colonization of chronic venous leg ulcers in a pragmatic trial. As secondary endpoints health-related quality of life, level of pain, and time to complete healing will be evaluated.

Method: Design: Open randomized controlled trial, with blinded endpoint. Patients with chronic venous leg ulcers with signs of critical colonization will be randomized in a concealed sequence using computer software to receive one of the alternative dressings. A total of 204 participants recruited in Primary Health Care and nursing homes will be necessary to assure statistical power. Measures will include sociodemographic variables, wound-related variables (area, exudate, and time to healing), level of pain, adverse effects, and health-related quality of life. Wound size will be evaluated by planimetry using PictZar® 7.6.1 Software; the characteristics and clinical evolution of the wound will be evaluated using the Resvech 2.0 scale. Smear samples will be collected from the ulcers and will be subject to DNA-typing technique through polymerase chain reaction to obtain the level of colony-forming units. Measures will be collected at baseline, 4, 8, and 12 weeks.

Results / Discussion: Elevated levels of microorganisms prevent wound healing and favor chronic evolution. Reduction of bacterial load is the main target when colonization is present. Hydrophobic dressings reduce the bacterial load in the wound by means of physical effect, so that the possibility of antimicrobial resistance is significantly reduced.

Conclusion: This trial allows an evaluation of Cutimed Sorbact effectiveness in real clinical practice conditions, with rigorous design and method

EP069 SHORT-STRETCH COHESIVE 2-LAYER COMPRESSION SYSTEM IMPROVES VENUS LEG ULCER CLINICAL, SAFETY, AND RESOURCE USE OUTCOMES IN REAL WORLD CLINICAL SETTINGS

Christine Bongards[1], Leah Griffin[2]

[1]3M Deutschland, Health Care Business Group, Neuss, Germany; [2]3M, Health Care Business Group, San Antonio, United States

Aim: The study aim was to evaluate short-stretch cohesive 2-layer compression system (C2L)* for venous leg ulcer (VLU) care at US wound clinics.

Method: The VLUs were documented between Jan 2018 and Aug 2021 in the US Wound Registry, with a minimum 2 weeks of compression care. VLUs treated with greater than 50% C2L (>50%C2L) applications were compared to any other compression care (AOC). Outcomes analyzed included: healing rates, time-to-heal, complication rates, and resource use.

Results: VLUs were managed with >50%C2L (n=2,744) or AOC (n=27,055). There was no baseline difference in VLU Wound Healing Index.[1] Compared to AOC, VLUs managed with >50%C2L had significantly higher healing rates at 4, 8, 12, and 16 weeks ($p<0.0001$); At Week 4, wound healing rates with >50%C2L and AOC were 22.0% versus 17.9%, respectively, and 78.4% versus 69.9% at Week 16. Time-to-heal was 68 days with >50%C2L, versus 81 days with AOC. Patients in the >50%C2L group experienced significantly lower rates of adverse events (<0.0001), additional VLUs (20% lower), hospitalizations (88% lower), VLU infections (35% lower), and fewer patients required antibiotic prescriptions (29% lower; $p<0.0001$). With >50%C2L, the frequency of weekly visits was 30% lower, and the overall duration of wound care was shorter by 16 days ($p<0.0001$). This allows a projection of $1,376 mean cost saving per VLU based on mean $86/day VLU care cost.[2]

Conclusion: Based on the significantly improved clinical, safety, and resource use outcomes, C2L has strong potential for cost-effectiveness in real-world conditions, to be confirmed in further research.

Trademarks: *3M™ Coban™ 2 Two-Layer Compression System (3M; St, Paul, MN)

EP070 AUTOLOGOUS WHOLE BLOOD CLOT TECHNOLOGY TO TREAT HARD-TO-HEAL WOUNDS – AN OBSERVATIONAL PILOT STUDY

Liezl Naude[1], Patricia Idensohn[2], Febe Bruwer[3], Georges Balenda[4], Maxim Gurevich[5]

[1]Wound Advanced Wound Care (Eloquent), South Africa; [2]Clinicare, Alberton, South Africa; [3]Wound Clinic at Life Roseacres Hospital, South Africa; [4]CIME; [5]Hillel Yaffe Hospital, Hadera, Israel

Aim: Treating hard-to-heal wounds, especially in patients with comorbidities, is challenging and associated with high treatment costs, placing a significant burden on the patients and the health system.

An autologous whole blood clot (WBC) is a point-of-care treatment that mimics the properties of the extracellular matrix (ECM), leading an organized manner of healing. Reconstruction of the ECM assists in progressing through the wound healing process, allowing for granulation over-exposed vital structure i.e., tendons, bone, and neurovascular structures.

Method: 29 patients, ≥18 years of age, have signed the informed consent form allowing them to share their medical data and wound images.

The autologous WBC was created by using the patient's own peripheral blood at the point of care.

Results / Discussion: By week 4 three patients reached a complete wound closure. Average percentage wound reduction recorded at 4 weeks was 65%. On week 12, 11 patients reached 100% closure and 2 reached 80% area reduction at the last observation. The average percentage area reduction by week 12 was 94%.

Conclusion: The autologous WBC was found to be safe and effective in treating hard-to-heal wounds that were stall over time. The autologous WBC stimulates and activates the migration of growth factors to the injured area to assist in facilitating and expediting the wound towards the proliferative phase, to prevent further degradation of the tissue and acts as a protective scaffold, assisting in the reconstruction of the ECM as a means of providing an organized manner of healing, one that mimics the natural wound healing process.

EP072 TOPICAL WOUND OXYGEN (TWO2) THERAPY FOR CHRONIC VENOUS STASIS ULCERS IN PATIENTS WHO FAILED PREVIOUS THERAPIES

Perry Kerner[1], Gennady Vulakh[2], Anil Hingorani[3], Natalie Marks[3], Enrico Ascher[3]

[1]SUNY Downstate Health Sciences University, Brooklyn, NY, United States; [2]Perelman School of Medicine at the University of Pennsylvania, Philadelphia, PA, United States; [3]NYU Langone Hospital Brooklyn, Brooklyn, NY, United States

Aim: Topical Wound Oxygen (TWO2) therapy is a multimodal therapy which allows both compression and oxygen to be applied directly to chronic non-healing wounds. We assessed outcomes of TWO2 therapy in a select group of patients with chronic, hard-to-heal venous stasis ulcers.

Methods: We followed patients undergoing TWO2 therapy for chronic venous stasis ulcers weekly. These patients had all failed multiple previous therapies (see "Results"). We assessed patients' responses to TWO2 therapy by measuring ulcer size weekly.

There were 23 total patients, 13 (57%) women, 10 (43%) men. Average age: 72 ± 18 years (range 36-96). Racial breakdown: 13 (57%) White, 6 (26%) Hispanic/Latino, 3 (13%) Black, 1 (4%) Asian. 23 (100%) patients had hypertension, 12 (52%) had hyperlipidemia, 6 (26%) had diabetes.

Results: Previous failed therapies included Unna boots in 20 (87%) patients, sclerotherapy in 11 (48%), GSV RFA in 16 (70%), SSV RFA in 11 (48%), perforating vein RFA in 7 (30%), CIV stenting in 11 (48%), EIV stenting in 9 (39%), and debridement in 3 (13%).

Average treatment length was 7 ± 6 months. 7 (30%) patients' ulcers healed completely, 8 (35%) improved but did not completely heal, 4 (17%) were unchanged, 2 (9%) worsened, 1 (4%) patient was transferred to a nursing home, and 1 (4%) patient became hospitalized unrelatedly.

Conclusion: As 15 (65%) patients had ulcers that improved or completely healed, the data suggest that TWO2 therapy may be useful in the treatment of chronic, hard-to-heal venous stasis ulcers. Offering TWO2 therapy to a greater number of patients and following outcomes for longer treatment periods are likely to provide further support for these preliminary data.

EP073 PAIN REDUCTION IN VENOUS LEG ULCER PATIENTS WITH ACELLULAR FISH SKIN APPLICATION

John Lantis[1], Callie H2 ___us leg ulcers often report low quality of life (QOL) and high pain scores. It has long been recognized that patients treated with cellular and tissue-based products (CTPs)all note some reduction in pain. However, we wanted to quantify this based on the standard 10 point pain score.

Method: Over a 12 month period 30 patients were treated in an outpatient tertiary wound/vascular practice with Acellular fish skin (AFS) for peri-malleolar wounds. This Omega 3 rich – piscine skin (AFS) was used on patients with venous ultrasounds consistent with CEAP Class VI venous insufficiency and ankle brachial indices > 0.69.

Results / Discussion: AFS cohort had their median pain score drop from 9 to 5 ($p<0.05$) within 1 hour and drop to 4 ($p<0.05$) at 30 days.

Conclusion: When treating peri malleolar wounds with AFS, there was immediate and sustained pain reduction.

EP074 ACELLULAR FISH SKIN HELPS REDUCE WOUND AREA IN PATIENTS WITH LOWER EXTREMITY ULCERS OF VENOUS ETIOLOGY

John Lantis[1], Callie Horn[1]

[1]Mount Sinai West Hospital and the Icahn School of Medicine, Surgery, New York, NY, United States

Aim: Acellular fish skin (AFS) is usually used on very well prepared lower extremity ulcers. However, some patients do not allow for good wound cleaning. Acellular fish skin was used an 18 patients who had significant comorbidities and only marginally adequate debridement of their lower leg ulcers.

Method: Patients with lower extremity ulcers primarily of venous or atypical etiology with ultrasound tests consistent with some form of venous pathology, but adequate ankle brachial indices of with greater than 0.7 were approached. The patient then underwent 5 sequential weekly applications of AFS. The patient then underwent 3 further weeks of observation with non-stick dressings and multilayer compression. Of note none of these patients had particularly aggressive debridement.

Results / Discussion: A 40% decrease in wound surface area ($P < 0.05$) and a 48% decrease in wound depth was seen with 5 weekly applications of the fish-skin graft and secondary dressing ($P < 0.05$). Complete closure was seen in 3 of 18 patients by the end of the study phase. The patients had a much steeper wound healing trajectory during the weekly application of the AFS then afterwards. Once AFS application was stopped, the wound healing trajectory became flat line.

Conclusion: This fish-skin product appears to provide promise as an effective wound closing adjunctive ECM. This is true when used in this compassionate setting, where many other products fail. This study lacks a control arm and an aggressive application schedule, but the investigators believe it represents real-world practice.

EP075 DISEASE KNOWLEDGE AND SELF-CARE IN PATIENTS WITH CHRONIC VENOUS LEG ULCERS: PRELIMINARY SHORT-TERM RESULTS OF A RANDOMIZED CONTROLLED STUDY

Matteo Martinato[1], Rosanna Comoretto[1 2], Flavia Masiero[3], Fabio Beghin[3], Sonia Virgis[1], Francesca Angioletti[1], Eleonora Monaco[1], Dario Gregori[1]

[1]University of Padova, Department of Cardiac-Thoracic-Vascular Sciences and Public Health, Padova, Italy; [2]University of Torino, Department of Public Health and Pediatrics, Torino, Italy; [3]Azienda ULSS 6 Euganea, Padova, Italy

Aim: assess whether a very simple educational intervention can improve self-care and disease knowledge of patients with venous leg ulcers (VLU).

Method: patients attending an outpatient clinic were randomly assigned to receive additional information (intervention) or standard of care (control). All subjects filled-in two questionnaires at baseline and after two weeks: "VeLUSET" and "Educational interventions in patients with venous ulcers in the legs" (EI), measuring levels of self-care and disease knowledge, respectively.

Results / Discussion: 29 subjects were enrolled, 21 females, median age of 75, most in follow-up for ulcer recurrence (median disease duration: 3 years). Near half of them were autonomous in wound dressing. Three quarters already received information on VLU, mostly from the healthcare personnel at the clinic. No significant difference emerged between the two groups after randomizatione. After two weeks, the mean VeLUSET score increased from 227 to 271 for intervention (p<0.001) and from 200 to 213 for control (p=0.33) – fig.1. For EI questionnaire, at t1 the mean score increased from 6.3 to 11.5 for intervention (p<0.001) and from 5.8 to 6.9 for control (p=0.28) – fig.2.

Conclusion: a simple intervention could be useful for improving both self-care and disease knowledge. Despite considering the limits of the small sample size and the short duration of observation, emerge a clear indication to distribute 'instructions for use' to VLU patients. Further research should consider medium-long-term and multicenter data collection to provide generalizable results. In this perspective the study team is developing a smartphone app for simple selfcare and knowledge screening.

	Domain	# of questions	Baseline	After 2 weeks	P value
Control group	general self-care	5	31/50	33/50	0.88
	daily self-care activities	12	78.5/120	79.5/120	0.76
	normal life	4	29.5/40	36.5/40	0.26
	skills development	6	42.5/60	48/60	0.08
	avoid trauma	3	23/30	26.5/30	0.11
	Total score	30	205/300	221/300	0.33
Intervention group	general self-care	5	36/50	48.5/50	**0.01**
	daily self-care activities	12	88.5/120	106.5/120	**0.0003**
	normal life	4	38/40	39,5/40	0.12
	skills development	6	45.5/60	55/60	**0.01**
	avoid trauma	3	28/30	30/30	**0.03**
	Total score	30	246/300	272.5/300	**0.0006**

Figure 1. VeLUSET results

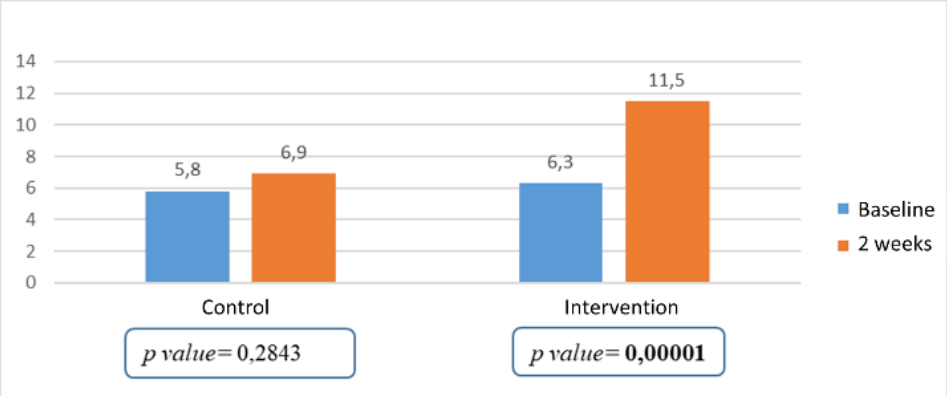


Figure 2. EI results

EP076 THE CORRECT USE OF THE ANKLE-BRACHIAL INDEX IN THE TREATMENT OF VENOUS LEG ULCERS: A RETROSPECTIVE LONGITUDINAL STUDY

Flavia Masiero[1], Fabio Beghin[1], Rosanna Comoretto[2], Francesca Angioletti[3], Sonia Virgis[3], Honoria Ocagli[3], Dario Gregori[3], Eleonora Monaco[3], Matteo Martinato[3]

[1]Azienda ULSS 6 Euganea, Padova, Italy; *[2]University of Torino, Department of Public Health and Pediatrics, Torino, Italy*; *[3]University of Padova, Department of Cardiac-Thoracic-Vascular Sciences and Public Health, Padova, Italy*

Aim: The main objective of this study is to assess whether the Ankle Brachial Index (ABI) is used by nurses in the treatment of vascular ulcers of the lower limbs, before compression treatment, to exclude arterial disease. The secondary objective is to assess the knowledge of nurses about the diagnosis of vascular leg ulcers and the compression treatment.

Method: medical records were assessed to check whether the ABI is used in daily clinical practice and an e-questionnaire was administered to nurses employed in a home care nursing service to test their knowledge on ABI and compression treatment.

Results / Discussion: 100 patients were enrolled. ABI was applied only in 24% of VLU patients. Only in 44% of cases with an ABI score ≤ of 0.9 nurses referred the patient to a vascular consultant. The multi-component inelastic bandage is the most used compression treatment, although there are some gaps in the knowledge of the criteria for selecting patients for this treatment. 29% of the patients studied were not applied any compression therapy.

Conclusion: since ABI is fundamental to implement a compression therapy without negative effects, the reason why nurses do not use it is missing (training, organizational, or structural deficiencies?). To improve the treatment of VLU, staff must come trained in the use of ABI, to increase its use in the initial assessment phase. The review of medical records and patients' files has been useful to identify the issue above described: it could be a methodology to be applied frequently in the periodic assessment of any retraining need of healthcare personnel.

EP077 THE USE OF DERMAL SUBSTITUTES TO PROMOTE ARTERIAL ULCER HEALING AFTER OPEN OR ENDOVASCULAR REVASCULARIZATION

Luigi Federico Rinaldi[1 2], Chiara Brioschi[1], Besjona Puta[1], Enrico Marone[1 3]

[1]Policlinico di Monza, Vascular Surgery, Monza, Italy; *[2]Università di Genova, Department of Integrated Surgical and Diagnostic Sciences (DISC), Genova, Italy*; *[3]Università degli Studi di Pavia, Department of Clinical-Surgical, Diagnostic and Pediatric Sciences, Pavia, Italy*

Aim: Arterial ulcers represent 10% of all skin lesions of the lower limb, but they are burdened by high mortality and risk of major amputation, and healing could be a difficult and slow process even after revascularization. Our aim is to describe the effectiveness of dermal substitutes in promoting wound healing of arterial ulcers after revascularization and debridement.

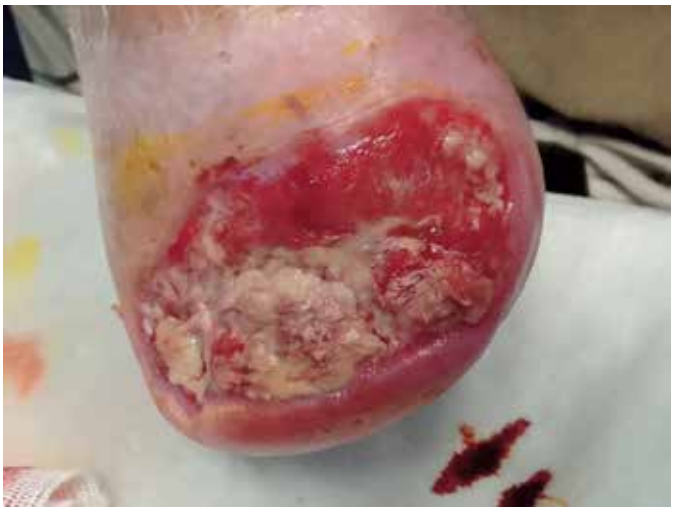
Method: Between March 2021 and October 2022, 121 patients affected by chronic limb-threatening ischemia (CLTI) underwent open or endovascular revascularization. 20 of them, all staged as III or IV and presenting with arterial foot ulcerations classified as W2 or W3 according to the WIfI classification, also received surgical debridement (4), amputation of one or more digits (13) or forefoot amputation (3), followed by application of a dual-layer dermal regenerating matrix consisting in atelocollagen and a silicone film[1]. The indications for its application were extensive tissue loss, or dehiscence of the surgical wound following amputation (see figures below). The matrix was maintained for one week, then the silicon layer was removed and the wound was managed with non-adherent dressings.

Results: All procedure were successful, with improvement of the ankle-brachial index (ABI) and regression of ischemic pain at rest. 14 patients had complete healing and 6 significant wound reduction (>50%). No surgical revision or more proximal amputations were needed over a mean follow-up of 12 months.

Conclusion: A dermal regenerating matrix is extremely useful to enhance healing of chronic ischemic wounds in patients with CLTI after revascularization.

[1] Pelnac®, Biomedica Srl



EP078 TRADITIONAL CHINESE MEDICINE IN TREATING VENOUS ULCER – A CASE AND A CROSS-SECTIONAL STUDY

Hsiao Ju Sun[1 2], Hsin Yi Chen[1], Yueh Chi Tsai[1], Chih Sheng Lai[1], I Chen Chen[1], Ya Chen Yang[1], Chia I Tsai[1]

[1]Taichung Veterans General Hospital, Taichung, Taiwan; [2]China Medical University, Taiwan

Aim: About 70% of leg ulcers in the adults are related with venous disease. These ulcers are often difficult healed for more than six weeks, and were formed by chronic edema in lower extremity, varicose vein, and venous eczema. Chronic leg ulcers reduce quality of life and make patients suffered from acute and chronic pain for a long time. The progress of healing is time-consuming and the wounds are highly recurrent.

For more than two thousand years ago, the Traumatology Department of Traditional Chinese Medicine has developed throughout history. Many treatments for chronic venous diseases had been recorded in ancient Chinese books. Although the published studies about Chinese medicine in treating venous ulcers were rare, they were proved to be effective to promote wound healing. We plan to cooperate with modern AI analysis technology to establish a wound assessment method in Chinese and Western medicine for patients with chronic leg ulcer.

Method: In this study, 20 patients with chronic leg ulcers were included in the plastic surgery outpatient department and inpatient consultations of Taichung Veterans General Hospital. We recorded wound status RESVECH scale, traditional Chinese medical body constitution(BCQ questionnaire), history (work and life style, the proportion of long standing and sedentary time, wound persisting time, marital status, educational level, surgery, skin grafting times, etc.), physical examination (ankle joint range of motion, leg circumference, BMI, posterior tibial and dorsalis pedis pulse, edema degree), and the recent lab data (WBC、Hb、PLT、PT/INR、Alb、ALT、CRP、ESR、BUN/Cr、BNP、HbA1C、wound culture). We used AI technology to analyze the proportions of wound skin, granulation, carrion, and necrotic tissue. Besides, the temperature of wound with hot spots was also recorded.

Results / Discussion: Patients with venous ulcer have long-standing lifestyle. Physical examination showed they have less range of motion of ankle joint, and had the body condition of Yin-Xu and Stasis. We designed traditional Chinese medicine prescriptions, acupuncture and exercise protocol based on our results. A case composed of 5-year-nonhealing venous ulcers with the wound area of 3x2.5, 2.7x2.8, 6x10 and 8x6cm^2, shrinked to 3x3.5cm^2 under our Chinese Medical treatment protocol with external and internal application.

Conclusion: We analyzed the body condition of patients with chronic leg ulcers and designed traditional Chinese medicine prescriptions, acupuncture and exercise protocol. Combined with western medicine treatment, we promote difficult wound healing, improve quality of life for patients, and reduce medical expenses.

EP079 NATURAL GUIDED REGENERATION THERAPY WITH L-PRF IN THE TREATMENT OF CHRONIC WOUNDS FROM DIFFERENT ETHIOLOGY REFRACTORY TO STANDARD TREATMENT

Enrico Rescigno[1], Nelson Pinto[2], Yelka Zamora[3], Diego A. Pinto[4], Gregor E. Pinto[5], Catalina Carvajal[6], Sushil Koirala[7], Indra B. Napit[8], Marc Quirynen[9]

[1]Ospedale - Lavagna, Chirurgia, Lavagna, Italy; [2]Universita' delle Ande, Maxillo Facciale Odontoiatria, Santiago, Chile; [3]Universita' Delle Ande, Medicina, Santiago, Chile; [4]Universita' delle Ande, Ortopedia, Santiago, Chile; [5]Martin Hospithal, Geriatria, Chillan, Chile; [6]Universita' delle Ande, Medicina, Santiago, Chile; [7]Vedic Institute Smile Aesthetic, Maxillo Facciale Odontoiatria, Kathmandu, Nepal; [8]Anandaban Hospital, Dermatologia, Kathmandu, Nepal; [9]Katholieke Universiteit, Oral Health Sciences, Leuven, Belgium

Aim: To evaluate Natural Guided Regeneration Therapy (NGR-T) with leucocyte- and platelet-rich fibrin (L-PRF), in the management of chronic wounds refractory to standard therapy.

Method: 1,136 consecutive patients suffering from chronic wounds refractory to standard therapy: Venous ulcers n= 680, Diabetic Foot n= 325, Post-Surgical Complications n=71, Leprosy Ulcers n=30, Pressure Ulcers n=25, Arterial Ulcers n=5, were treated weekly with NGR-T. The study includes four advanced wound care centers. One doctor and one nurse in each center received prior specific training to ensure uniformity in the procedure. The study period was September 2010 to November 2017. Changes in wound area were recorded longitudinally via digital planimetry. Histological analysis, adverse events, and pain levels were also registered.

Results: 1,032 (90.9%) patients followed the treatment until complete healing. 68 (5.9%) patients did not reach the endpoint of complete closure but the median reduction of the wounds was 68% (62-78%). 36(3.2%) patients discontinue the treatment for reasons not related to the therapy. The median follows up period was 32 months (12- 72 months). During the follow-up time, 991 (96%) wounds remain closed. No adverse effects were recorded. Significantly improve on pain scale was observed. Histological and clinical findings show a high level of regeneration instead of scar tissue."

Conclusion: NGR-T on chronic ulcers refractory to standard wound care, promotes wound healing.

L-PRF not only promote wound closure but also improves quality of the regenerated tissue which may explain the low recurrence.

NGR-T Improves wound healing and quality of life by reducing pain and healing time.

This new open-access therapy is simple, safe and inexpensive.

EP080 THE USE OF AUTOLOGOUS DERMAL FAT MICROGRAFT IN CHRONIC WOUNDS: OUR PRELIMINARY EXPERIENCE

Carlotta Scarpa[1], Franco Bassetto[1]

[1]UOC Chirurgia Plastica e Ricostruttiva, Neuroscienze, Padova, Italy

Aim: In order to study the safety and efficacy of autologous dermal fat micrografts on vascular chronic ulcers. **Method:** After informed consent and pictures, we treated patients affected by vascular chronic ulcers. After disehepitelization we performed 3 punch biopsies from the ipsilateral thigh of the patients. The biopsies have been disrupted in a mechanical disruptor featured by 100 hundreds of helicoidal blades and added to saline solution. The solution has been reinjected both in the borders and in the wound bed. The wounds have been dressed with an ovine extracellular matrix for 1 week and then with antiadherent gauzes.

Results / Discussion: In all the patients we obtained a good wound bed preparation and the reduction of the area. **Conclusion:** In our experience the possibility to use autologous dermal fat micrografts can be a great help to promote both wound healing and a good bed preparation.

EP081 ROLE OF WOUND CARE IN PATIENTS WITH ARTERIAL DISEASE UNDERGOING TREATMENT WITH MONONUCLEAR CELLS: A SINGLE CENTER STUDY

Andrea Ascoli Marchetti[1], Nella Mosca[2], Fabio Massimo Oddi[1]

[1]Università di Roma Tor Vergata, Biomedicina e Prevenzione; [2]Policlinico Tor Vergata, Roma, Italy

Aim: Angiogenesis aims to counteract the progression of atherosclerotic disease. The aim of this study is to characterize the role, safety and efficacy of the local therapy that must be associated with this procedure in a dedicated nursing service.

Method: From 2014 to 2022, 400 operations were performed in our center for obstructive arterial disease of the lower limbs, caused by PAD. In 30 cases they were patients in stage I (7.7%), 244 operations in stage I 2 (61%), 32 operations for arterial disease in stage II 4 (8%) and in 76 cases in stage III 5 (19 %), 19 patients with a mean age of 74.75 (SD 9.4) were considered non-revascularizable (4.8%). 48 treatments were performed (2.5 treatments/patient, min2/max 4). This was a first therapeutic approach in 55%, while it was proposed as a therapeutic alternative in patients who had already undergone previous operations and/or revascularization attempts in 45%. After treatment, all patients with trophic lesions underwent periodic medications with check-ups in the dedicated nursing clinic.

Results: In the 19 non-revascularizable patients or with failure of revascularization therapy that were considered, limb salvage was observed in 14/19, 73.6%, major amputation in 1/19 case (5,2%), and in 4/19 cases (21.2%) unrelated death.

Conclusions: Treatment with mononuclear cells by selective filtration is an effective procedure, in a selected patients. The association of advanced medications, carried out at the dedicated service, has made it possible to obtain the good results obtained.

EP082 IMPROVING CARE FOR PATIENTS WITH LOWER LIMB WOUNDS WITHIN THE HOSPITAL SETTING

Merlin-Kwan Elizabeth[1], Cassandra Brereton[2], Katie Leek[2]

[1]Urgo Ltd, Clinical, Shepshed, United Kingdom; [2]Royal Stoke University Hospital, United Kingdom

Aim: To provide consistency of care for patients with venous leg ulcers by maintaining compression treatment following hospital admission.

Method: Usual practice within secondary care is that all dressings and compression therapy are removed on admission. Acute admission often dictates that leg ulcers are a secondary focus as there are other, more important, priorities, although development of complications such as infections could increase the length of hospital stays.

A tissue viability team recognised that patients entering the acute hospital with active leg ulceration were not receiving evidenced based treatment. Their service and the vascular service capacity also does not allow for compression bandage application or diagnosis and initiation of evidence-based care for patients with new leg ulcers.

TV also looked at their referrals over a 1-month period and found 85 patients were referred to the TV team for a lower limb ulcer but only 5 of these referrals met the referral criteria and were appropriate for review.

Results / Discussion: A lower limb admission flowchart and a compression therapy guide were developed and leg ulcer champions were created which led to a successful pilot on 2 wards and subsequently rolled out to a further 3 wards. Following completion of the lower limb training and education, the staff were able to positively implement the flowchart to standardise care. As this is still in the pilot phase only 12 patients have followed this new process. All patients have received the correct plan of care and appropriate onward referrals. Feedback has been positive from other clinical areas stating this would be a useful guide for their staff to use in their departments

Conclusion: This change will require on-going training and support to ensure Leg Ulcer treatment, incorporating compression and using the flowchart, becomes usual practice within the hospital.

EP083 ASSESSMENT OF DISEASE KNOWLEDGE AND SELF-CARE ABILITY IN PATIENTS WITH CHRONIC VENOUS LEG ULCERS: PRELIMINARY RESULTS OF AN EPIDEMIOLOGICAL STUDY

Matteo Martinato[1], Flavia Masiero[2], Fabio Beghin[2], Rosanna Comoretto[3], Eleonora Monaco[1], Sonia Virgis[1], Francesca Angioletti[1], Dario Gregori[1]

[1]University of Padova, Department of Cardiac-Thoracic-Vascular Sciences and Public Health, Padova, Italy; [2]Azienda ULSS 6 Euganea, Padova, Italy; [3]University of Torino, Department of Sciences of Public Health and Paediatrics, Torino, Italy

Aim: Every year in Western countries, venous leg ulcers (VLU) affect about 1% of the population and 3% of over 80 years old with a high 12-month recurrence rate (from 18% to 28%). If not treated properly, ulcers can lead to serious consequences, compromising limb function and quality of life.

Method: This study was divided in two phases. In the first, the translation, cultural adaptation, and psychometric validation of the VeLUSET (Venous Leg Ulcer Self Efficacy Tool) have been performed in the Italian population through a Bayesian approach.

The second phase aims to describe the levels of self-care and knowledge of patients with VLU, by administering questionnaires "VeLUSET" and "Educational interventions in patients with venous leg ulcers" to patients with VLU in follow-up at an outpatient clinic.

Results / Discussion: 65 subjects with a median age of 78 years (interquartile range (IQR) 67-82) with a higher prevalence of the male gender (n=45, 69%) were enrolled. They had vascular ulcers on average for 3 years (IQR 1-17 years), in 68% of cases it was a relapse (44 subjects) and 65% received a specific education about VLU. Subjects with specific training are more autonomous in management capacity of vascular ulcers, avoiding recourse to the services of the National Health System (p=0.001). There is also a positive correlation between self-care ability and knowledge scores (r=0.27, p=0.034).

Conclusion: These results show that patients' ability to self-care is related to their level of knowledge. Interventions aimed at improving patients' knowledge take on relevance aiming at promoting better self-care.

EP084 REDUCING VARIATION IN CARE FOR PATIENTS WITH LEG ULCERS: INTRODUCING A PATHWAY TO PROMOTE EQUITABLE EVIDENCED BASED PRACTICE

Merlin-Kwan Elizabeth[1], Nichola Nangle[2]

[1]Urgo Ltd, Shepshed, United Kingdom; [2]Blackpool Victoria Hospital, United Kingdom

Aim: Implementing an evidence-based treatment pathway is an effective way of ensuring patients receive equitable, evidenced based care throughout a healthcare organisation. Demonstrating improved outcomes utilising local data to promote confidence in using the treatment pathway in practice.

Method: A point prevalence baseline audit of lower limb care was conducted across 3 localities during a pilot phase. An evidenced based leg ulcer treatment algorithm was then introduced to give clear guidance on appropriate and timely treatment and signposts to avoid delayed referral to specialists.

An outcome tracker was completed weekly during the pilot phase to monitor wound healing progression.

Results / Discussion: The base line audit (see table 1) demonstrated that within the 3 localities, consisting of 3 district nurse bases and 2 treatment rooms, there were 162 patients with an active leg ulcer. Only 57% (N=92) had undergone an Ankle Brachial Pressure Index assessment within the last 12 months and 43%(N=69) patients were receiving compression. Forty-four patients were commenced on the leg ulcer treatment algorithm and for the patients who healed there was an average time to healing of 40 days, demonstrating an impressive improvement from the pre-pathway average for patients being treated in compression of 146 days to healing (see table 2). This is a 72.6% reduction in average healing time.

Conclusion: The primary aim of the implementation of the treatment algorithm has been achieved and demonstrated that by removing the variance of care, whilst using evidence-based practice and evidence-based treatment options, improves wound healing and patient outcomes.

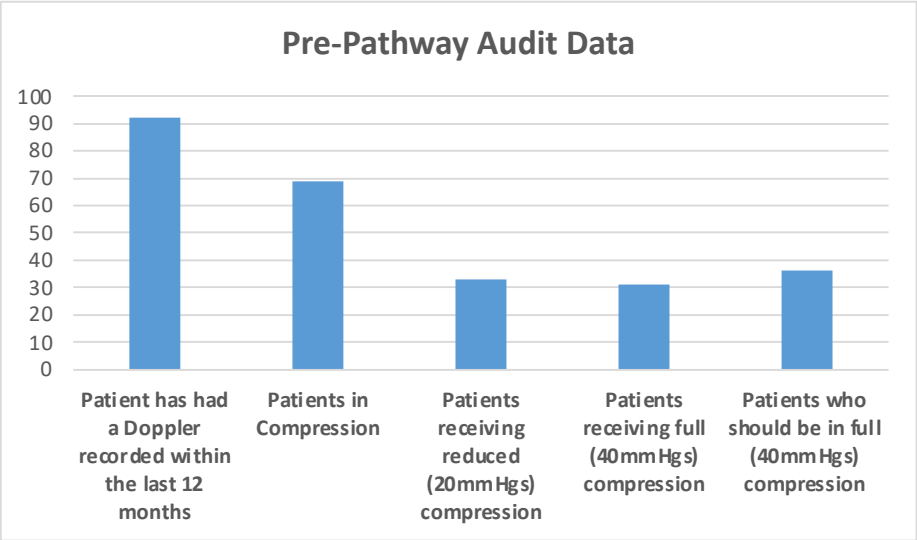


Table 1

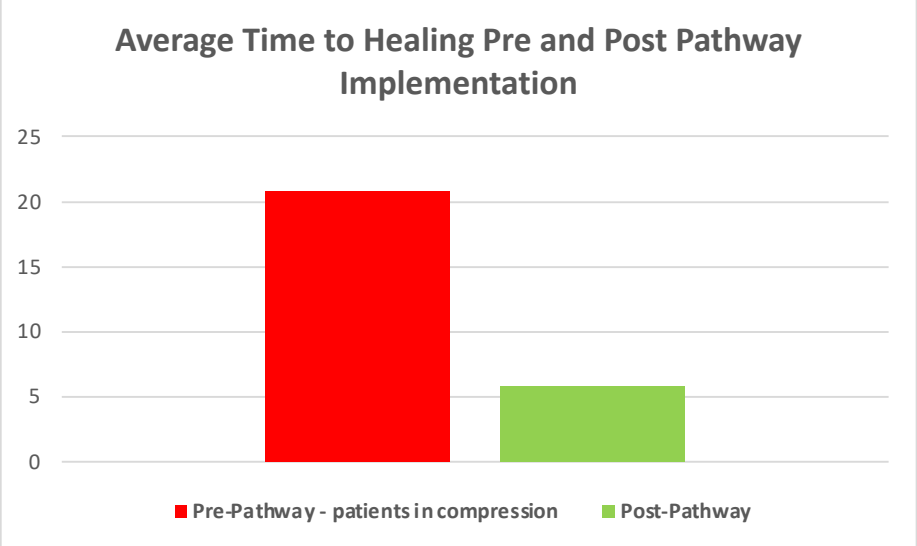


Table 2

EP085 FISH SKIN GRAFT (FSG) FOR THE TREATMENT OF HARD-TO-HEAL VENOUS LEG ULCERS (VLU)

Michael Romberg[1]

[1]19657 South La Grange Road, Mokena, United States

Aim: Venous leg ulcers (VLU) are non-healing full-thickness skin defects resultant from chronic venous diseases, including venous hypertension, a consequence of valve reflux often accompanied by venous obstruction. The clinical manifestation of ulceration is a significant burden on the patient, often causing edema, pain, limb heaviness, and poor ambulation[1]. Advanced skin biologics have implications for expediting healing, thus improving quality of life and patient care. A relatively new and novel biologic, Fish skin graft (FSG) has been used and proven to be a highly effective adjunctive therapy for treating VLUs[2].

Method: A sixty-five-year-old female presented with a painful VLU on the lateral aspect of her ankle that had significant erythema, edema, and necrotic tissue. After managing the underlying pathophysiology, the patient underwent debridement and ten applications with FSG. Debridement and application were not definitive and clinical manifestation and judgment guided treatment.

Results: There was a significant improvement to the peri-wound and wound bed on day fourteen following only two applications of the FSG. A beneficial and linear progression ensued until the patient benefited from complete closure during the seventh month.

Conclusion: FSG is a relatively new and innovative biologic that has preserved mechanical and biological properties, allowing faster cell migration and guided regeneration, augmenting neovascularization. Not yet fully elucidated, but evidence suggests that hemostatic properties of the fish skin combined with faster cell migration and neovascularization rapidly progress chronic wounds through the stages of healing[3,4]. There is evidence to suggest that FSG may expedite healing, improving clinical outcomes and the economic burden associated with treating VLUs. More extensive prospective studies should evaluate the use of FSG in treating VLUs.

EP086 RISK FACTORS AND OUTCOMES OF HOSPITAL-ACQUIRED PRESSURE ULCER AMONG ADULT ICU PATIENTS IN SELECTED TERTIARY HOSPITALS

Fatma Al-Mamari[1], Omar AL-Rawajfah[2], Sulaiman Al Sabei[2]

[1]Sultan Qaboos University Hospital; [2]Sultan Qaboos University, Sib, Oman

Aim: To identify risk factors and estimate in-hospital mortality rates, and approximate the lengths of ICU stays and health care costs of hospital acquired pressure ulcers (HAPUs) among adult ICU patients.

Method: A retrospective, cross-sectional, nested, case -control design was used to identify the HAPUs' risk factors and health care outcomes for adult ICU patients (n = 214) over 1 calendar year (January 1, 2019, to December 31, 2019) in two tertiary hospitals.

Results / Discussion: HAPUs' risk factors included male gender (odds ratio [OR] = 0.37, p = 0.023), organ failure (OR = 3.2, p = 0.033), cancer (OR = 3.41, p = 0.049), CVA (OR = 12.33, p = 0.001), mechanical ventilator (OR = 9.64, p = 0.025) and ICU-LOS (OR = 1.24, p < 0.001). The in-hospital mortality rate for patients with HAPUs was 62.8%. HAPUs were associated with a 14-day increased length of stay. The extra direct health care costs due to HAPUs were 2,998 Rial for each HAPU case.

Conclusion: HAPUs among ICU patients constitute a significant healthcare problem associated with severe clinical consequences and result in substantial adverse healthcare outcomes worldwide. Identifying the risk factors and the impact on the health care system is the foundation for preventing and managing HAPUs. Furthermore, the results of this study can be used as a reference baseline information for future national strategies to prevent HAPUs in ICU and other hospital units.

EP087 MONITORING MOBILITY IN PATIENTS IN THE COMMUNITY: AN INDICATOR OF PRESSURE ULCER RISK

Silvia Caggiari[1], Sarah Fryer[1], Pete Worsley[1]

[1]University of Southampton, School of Health Sciences, United Kingdom

Aim: Mobility represents a primary intervention for pressure ulcer prevention with frequent repositioning advocated depending on the individual level of risk (EPUAP, 2019). Specific patient groups, e.g., spinal cord injured (SCI) patients have movement impairments dependent on the nature of the injury, and skin damage has been shown to be associated with low movement frequency in hospital (Fryer, 2022). However, their movement profiles in community settings have yet to be explored. This study aims at investigating the movement profile of SCI patients after discharge to the community and evaluate its relation to level of injury, ASIA score and skin damage.

Method: Twelve patients were continuously monitored (ForeSitePT, Xsensor) on their allocated support surface, during prolonged periods of lying and sitting. An intelligent algorithm (Caggiari, 2021) was used to automatically detect events associated to 'movements to offload vulnerable areas (MOVAs)'. Frequency of MOVAs and maximum interval between MOVAs were used for analysis.

Results: Patients showed a wide range of injury levels and severity. Results revealed a reduced movement frequency and larger intervals between MOVAs in those with higher injuries, e.g., cervical and upper thoracic spine. These individuals were also observed to have the highest incidence of skin damage during the monitoring period, in both lying and sitting (Fig. 1).

Conclusion: In the community, frequency of repositioning may not strictly adhere to the international guidelines. The present study showed an increased maximum interval between MOVAs and their frequency, according to lower level of injury, and an association with skin damage. Intelligent indicators of movements represent a means to predict the level of risk and support pressure ulcer prevention strategies.

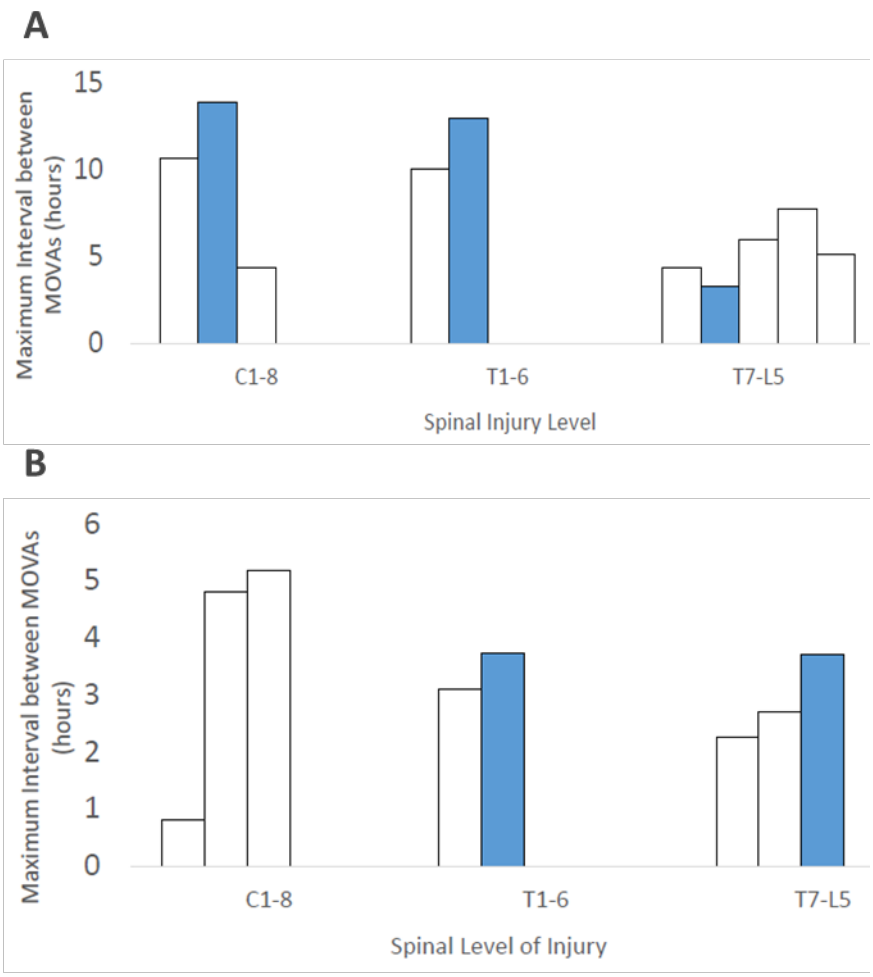


Fig. 1: Maximum interval between MOVAs in lying (A) and sitting (B) with respect to spinal level of injury in 12 SCI patients. Those who were observed to have skin damage are denoted in solid blue bars.

EP088 UNDERAPPRECIATED BACTERIAL BURDEN IN PRESSURE ULCERS: CLINICAL TRIAL AND REAL-WORLD EVIDENCE

Charles Andersen[1], Katherine McLeod[1], Rowena Steffan[1], Thomas Serena[2]

[1]Madigan Army Medical Center, Vascular/Endovascular/Limb Preservation Surgery Service, Joint Base Lewis-McCord, United States; [2]SerenaGroup Research Foundation, United States

Aim: Bacterial infection of pressure ulcers (PUs) can lead to poor healing, osteomyelitis, hospitalization, sepsis, and death. Early detection and localization of bacterial burden is therefore critical and can be accomplished directly using point-of-care fluorescence (FL) scanning*. To assess the impact of FL-scanning on bacterial management in PUs, we compared real-world outpatient evidence to clinical trial data.

Method: Sub-analysis of 22 PUs from the single-timepoint FLAAG clinical trial included signs/symptoms assessment, FL-scanning, and wound biopsies. Longitudinal real-world evidence was collected from 31 consecutive PU outpatients scanned at each visit between 2020-2021 (3-18 FL-scans/patient).

Results / Discussion: *Clinical trial*: Biopsies revealed that all PUs had bacterial loads of concern (10^4 –10^8 CFU/g). Only 9% (2/22) were identified as positive for bacteria based on signs/symptoms assessment, while FL-imaging correctly identified 68% (15/22). *Real-world*: FL-scanning revealed that 94% of PUs (29/31) had bacterial loads of concern at some point during their care. Bacterial loads were dynamic and rapidly returned, without symptoms, in a subset of patients. Frequent monitoring was therefore required, and bacterial loads were iteratively addressed with hygiene strategies and re-scanned to identify any remaining bacterial presence. If so, antimicrobial dressings were employed, and antibiotics were prescribed in suspected cases of wound-associated cellulitis.

Conclusion: With frequent bacterial monitoring and immediate intervention, healing rates improved, and no PU patients required hospitalization. This is a noteworthy departure from historical norms of frequent hospitalization in this high-risk outpatient population. Frequent FL-imaging is therefore recommended to enhance bacterial detection, hygiene, and care plans for all PU patients.

*MolecuLight

EP089 PRESSURE ULCER IN SURGERY – ANALYSES FROM HOSPITAL INFORMATION SYSTEM

Lenka Veverkova[1], Petr Doležal[2], Michal Reška[1], Petr Vlček[1], Jakub Habr[1], Igor Penka[1]

[1]Medical Faculty Masaryk University Hospital and St Ann's, , First Department of Surgery, Brno, Czech Republic; [2]Consulting, s.r..o.Czech Republic, Brno, Czech Republic

Aim: Pressure ulcers (PUs) represents an undesirable complication during hospitalization. Retrospective data analysis to verify the prevalence of PUs since 2015 (since the mandatory registration of the PUs an adverse event) by principal diagnosis, type of surgery and length of hospital stay in the period 2015-2021.

Method: Retrospective analysis of data from the hospital information system (HIS), at 0.05 level of significance (T-Test) with the variables: age, number of pressure ulcers, principal diagnosis, operation, length of hospitalization and prevalence of COVID-19 to length of hospitalization.

Results / Discussion: A total of 2350 PU cases in 1539 patients (1.52 PUs/patient) were registered in the HIS, and 930 (40%) patients were admitted to hospital with PUs. The most common locations of PUs were: heel (33%), sacrum 6% less, buttocks (17%). Between 2015 and 2021, 17,247 patients were operated on, of whom 289 had a PUs. The most common principal diagnosis in the occurrence of PUS was femoral neck fracture (14.35%) and neurological (9.09%) or oncological disease (12.03%). The incidence of PUs was surprising in patients with ileal conditions (11.57%). COVID-19 was found in 163 patients in 2020 and 2021, 6 of whom had PUs and prolonged hospitalization.

Conclusion: It is important to view the health status of people with chronic wounds and PUs in a comprehensive manner and to develop an individualized care plan to improve patients' lives and chances of recovery.

EP090 TREATMENT OF STAGE 4 PRESSURE INJURIES WITH AUTOLOGOUS HETEROGENOUS SKIN CONSTRUCT: A SINGLE CENTER RETROSPECTIVE STUDY

Diana Burgueño-Vega[1], Dilip Shahani[1], Ryan Mathis[2], Melodie Blakely[2]

[1]Lakeland Regional Health Medical Center, Lakeland, United States; [2]PolarityTE, Medical Affairs, Salt Lake City, United States

Aim: Pressure injuries (PI) affect 2.5 million people per year in the United States, resulting in 60,000 deaths annually. Surgical closure is the treatment of choice for stage 3 and 4 PI, but with complication rates of 59-73%, less invasive and more effective treatments are needed.

Autologous heterogeneous skin construct (AHSC) is a novel autograft, made from a small full-thickness biopsy of healthy skin. The authors sought to determine the effectiveness of AHSC in the treatment of recalcitrant stage 4 pressure injuries.

Method: All data was collected retrospectively. The primary efficacy outcome was complete wound closure. Secondary efficacy outcomes included percent area reduction, percent volume reduction, and coverage of exposed structures.

Results: Seventeen patients with twenty-two wounds were treated with AHSC. Complete closure was achieved in 50% of patients in a mean time of 146 days (±93), and the percent area and volume reductions were 69% and 81%, respectively. A 95% volume reduction was achieved in 68.2% of patients at a mean time of 106 (±83) days, and critical structures were fully covered in 95% of patients in a mean time of 33 days (±19). After AHSC treatment, there was a mean decrease of 1.65 hospital admissions ($p=0.001$), 20.92 hospital days ($p<0.001$), and 2.36 operative procedures per year ($p<0.001$).

Conclusion: AHSC demonstrated the ability to cover exposed structures, restore wound volume and achieve durable wound closure in chronic refractory stage 4 PIs, with better closure and recurrence rates than current surgical and nonsurgical treatments. AHSC represents a minimally invasive alternative to reconstructive flap surgery that preserves future reconstructive options, while minimizing donor-site morbidity and promoting improved patient health.

EP091 AN AUTOLOGOUS BLOOD CLOT, UTILIZED FOR TREATMENT OF PRESSURE ULCERS

Zvi Landau[1], Katie Whtiacre[2], Charles Leewood[3], Jessie Hawkins[4], Chinenye Wachuku[5], Robert Snyder[6]

[1]Clalit Health, Ness Ziona, Israel; [2]Surgical Wound Care Services, Cuyahoga Falls, United States; [3]Center for Hyperbarics and Wound Care - Candler Hospital, Savannah, United States; [4]Franklin Health Research & Education Center, Franklin, United States; [5]Hoboken University Medical Center, Hoboken, United States; [6]Barry University, Miami Shores, United States

Aim: Pressure ulcers (PU) continue to be a huge burden on the health, affecting mostly patients in intensive care units and long-term care settings. Chronic PU remains in the inflammatory phase which results in deterioration of the extracellular matrix (ECM).

An autologous whole blood clot (AWBC) created from the patient's own blood, was found to be safe and effective in treating chronic wounds. AWBC creates a protective scaffold that acts as an ECM, reestablishing the communication between the cells in the wound environment, and creating a protective barrier.

Method: The patients in this study were sourced from a Registry study (NCT04699305). AWBC was created by using the patient's own peripheral blood at the point of care. Statistical analysis on the efficacy of AWBC treatment was performed using a Wilcoxon Signed Rank.

Results / Discussion: A total of 25 patients were evaluated and 22 had sufficient data for inclusion. The mean wound size at baseline was 20.66 cm^2. By week 4, the mean percent area reduction (PAR) was 77.94%. 36.36%of the patients achieved complete healing by week 4, and 94.44% of the patients exceed 40% PAR at week 4. By week 12, the mean PAR was 96.23% with 18 patients achieving complete wound healing.

Conclusion: AWBC was found to be highly effective in treating chronic PUs by reconstracting the ECM and promoting the wound healing process. AWBC is an advanced product bringing an affordable cost-effective treatment solution to complex cases.

EP092 THE USE OF MOIST EXPOSED BURN OINTMENT (MEBO) ON PRESSURE INJURY PATIENTS IN A TERTIARY HOSPITAL, NORTH BORNEO

Jiann Wen Yap[1], Adlin Fariha Azhar[1]

[1]Queen Elizabeth Hospital, General Surgery, Wound / Stoma Care Unit, Kota Kinabalu, Malaysia

Aim: Pressure Injury (PI) caused major issue in the hospital care because it caused health care burden in managing them. In this tertiary hospital, majority of the workload is managing PI patients, which occupied 53% to 56% of the workload. Therefore, minimise the health care burden in managing PI patients will be utmost important. MEBO studies showed the ability in reducing the inflammation and promote granulation by regenerating the primitive cells on the wound bed. Li et al. 2017 study showed better result after MEBO application on their PI patients. Therefore, this study is to observe if PI patients who stayed in this region able to have a better healing after the application of MEBO.

Method: This is a case series study. Patients with PI will be included various disciplines who admitted to the tertiary hospitals and refer to the Wound Care Team. MEBO was applied after the removal of the necrotic tissues.

Results / Discussion: There were 42 PI patients recruited, 45% of them showed improvement in granulating tissues; 36% of their PI seems static; 17% did not show any improvement, and the wound bed were more sloughy. We found that patients who had PI developed in spinal cord injury did not show remarkable healing. This could be due to less frequent immobilize patients, faecal or urine incontinence. Also, as the defect of neurological involvement in muscle contraction, may hindrance the healing process.

Conclusion: Application of MEBO did show great improvement in healing PI in most of the cases. However, PI in various co-morbidities in patients and its mechanisms, may require further understanding and study.

EP093 RISK FACTORS FOR THE DEVELOPMENT AND EVOLUTION OF DEEP TISSUE INJURIES: A SYSTEMATIC REVIEW

Matthew Wynn[1], Melanie Stephens[1], Sheba Pradeep[1], Robert Kennedy[2]

[1]*Salford University, United Kingdom*; [2]*Huddersfield University, Huddersfield, United Kingdom*

Aim: The aim of this systematic review is to identify the current epidemiological evidence indicating the unique risk factors for deep tissue injury (DTI) compared to grade I-IV pressure injury (PI), the proportion of DTI which evolve rather than resolve and the anatomical distribution of DTI.

Method: A systematic literature search was undertaken using the MEDLINE and CINAHL Plus databases using the search terms 'Deep tissue injury OR DTI [Title/abstract]'. A google scholar search was also conducted in addition to hand searches of relevant journals, websites and books which were identified from reference lists in retrieved articles. Only peer-reviewed English language articles published 2009–2021 were included, with full text available online.

Results / Discussion: The final qualitative analysis included nine articles. These included n = 4 retrospective studies, n = 4 prospective studies and n = 1 animal study.

Conclusion: The literature indicates that the majority of DTI occur at the heel and sacrum although in paediatric patients they are mainly associated with medical devices. Most DTI are reported to resolve, with between 9.3-27% deteriorating to full thickness tissue loss. Risk factors unique to DTI appear to include anaemia, vasopressor use, haemodialysis and nicotine use although it is unclear if these factors are unique to DTI or are shared with grade I-IV PI. Factors associated with deterioration include cooler skin measured using infrared thermography and negative capillary refill. More prospective studies are required to establish causal links between risk factors. Ideally these should use statistically powered samples and sufficient follow up periods allowing DTI outcomes to be reached.

EP094 CHANGES IN NUTRITIONAL STATUS AND PRESSURE ULCER STATUS OVER TIME IN PATIENTS WITH INDIVIDUALIZED NUTRITIONAL SUPPORT IN AN ACUTE SETTING

Eunae Won[1], Nakyung Park[1], Hyunjung Yoo[1]

[1]*Gangnam Severance Hospital, Seoul, Republic of Korea*

Aim: In patients with pressure ulcer (PU), nutritional status affects prevention of PU, healing of PU, and maintaining tissue tolerance. Malnutrition can increase the risk of PU, delay the healing of PU, increase complications, increase the number of days of hospital stay, and increase the mortality rate. This study examines the nutritional status and PU status of patients receiving individualized nutritional support.

Method: In 42 patients who were treated on stage 2 and 3 PU receiving individualized nutritional support according to the prescription of the nutrition support team, the nutritional status and PU status were investigated before and after individualized nutritional support (3 days later, 1 week later, 10 days later, 2 weeks later). Nutritional status investigated through PG-SGA, biochemical indicators (Hb, total protein, albumin, CRP), and diet intake survey method. PUSH (Pressure Ulcer Scale for Healing) tool was used for the pressure ulcer healing status.

Results / Discussion: Overall, nutritional status indicators improved over time, but BMI (19.88 to 20.44) and PG-SGA (17.04 to 16.22) were not statistically significant in nutritional status. Among biochemical indicators, hemoglobin, plasma albumin, and plasma protein levels increased, but were not statistically significant. CRP was significantly decreased(p=.016). Calorie intake (p=.005).and protein intake (p=.039) through the diet intake survey method increased statistically significantly. In the pressure ulcer state, the PUSH score decreased statistically significantly(p=.000). in addition, CRP and PUSH showed a statistically significant correlation after 2 weeks (r=.390, p=0.012).

Conclusion: In the case of PU patients receiving individualized nutritional support, improvement in nutritional status and PU condition were confirmed. But the sample size was too small and there was a limitation of acute care setting with a short hospitalization period.

EP095 ISTOPATHOLOGICAL EXAMINATION FOLLOWING POLYDEOXYRIBONUCLEOTIDES TREATMENT IN PRESSURE ULCERS AND HARD-TO-HEAL WOUNDS

Barbara De Angelis[1], Fabrizio Orlandi[1], Chiara di Segni[1], Carlo Cossi[1], Maria Scioli[2], Augusto Orlandi[2], Valerio Cervelli[1]

[1]University of Rome Tor Vergata, Plastic and Reconstructive Surgery, Roma, Italy; [2]University of Rome Tor Vergata, Anatomo-Pathology, Roma, Italy

Aim: Polydeoxyribonucleotide is particularly indicated for tissue damage repair and acts by activating healing capacity, accelerating the process of hard-to-heal wounds and chronic ulcers, improving their repairing capacity.

Method: In our study we administered deoxyribonucleotide as double dose (n. 2 vials, 5 mL, once a week within a 6 months' time). The group of study consisted of 20 paraplegic male patients, age being 30-70 yrs old, 10 years of disability at least, presenting ischiatic 4th grade pressure ulcers, diameter being greater than 10x10 cm. Administration was done in the surrounding tissues and inside the lesion itself, considering a 2 cm gap in between, using a Loerlock syringe with a 18G needle, infiltrating up to 2 cm deep. Subsequently, medication by cleansing - disinfection, silver sulfadiazine associated to honeycomb extended polyurethane has been performed.

Results / Discussion: In our study we present istopathologic images from T0 (before treatment) until T3 (3 months). First results demonstrate deoxyribonucleotide effectiveness in pressure lesions healing improvement, according to tissue repair and neoangiogenesis displayed by punch biopsy images.

Conclusion: We have demonstrated that polydeoxyribonuclotide held by phosphodiester bonds can reach inflammation site interacting with elements such as platelets and fibronectin, and facilitates tissue regeneration by positive cellular stimulation, diminishing healing time and activating neoangiogenesis, as well as performing anti-dystrophic action.

EP096 USE OF MEDICAL GRADE HONEY IN THE MANAGEMENT OF HEEL PRESSURE ULCERS: A CASE SERIES

Georgios Papanikolaou[1], Georgios Gousios[2], Niels Cremers[3]

[1]GP-Plastic Surgery Clinic, Ioannina, Greece; [2]Pharmalife, Ioannina, Greece; [3]Triticum Exploitatie BV, Maastricht, Netherlands

Aim: Management of heel ulcers remains challenging and innovative approaches must be considered. The aim of this prospective observational study is to present the high effectiveness and safety of medical grade honey (MGH) for the conservative treatment of heel pressure ulcers (HPU).

Method: Eleven patients (9♀/2♂) developed HPUs (73% unilateral, 27% bilateral) due to permanent immobility (64%) or prolonged immobility post-surgery (36%). HPUs were grade II (9%), grade III (73%), and grade IV (18%). The average age of the patients was 77.6 years (44-94 years), and they all had several comorbidities (e.g. cardiovascular diseases (91%), neurological disorders (82%), and concomitant pressure ulcers elsewhere in the body (45%)). Most wounds were considered chronic (>4 weeks) and often multiple previous treatments were ineffective, including povidone-iodine and topical antibiotic creams. All wounds were treated with MGH wound gel[1] and MGH-impregnated non-adherent dressing[2] and dressings were changed every two days.

Results / Discussion: The mean length of the ulcers was 5.07cm (range 3-7cm) and the mean width was 4.14cm (range 3-7cm). The median time to healing was 152 days (range 14-502 days). MGH provides a moist wound environment, stimulates autolytic debridement, has anti-inflammatory activity, and promotes angiogenesis and re-epithelialization. Considering the failure of previous treatments and the chronic nature of the wounds, MGH was an effective treatment.

Conclusion: MGH-based products[1,2] are clinically and cost-effective for treating hard-to-heal pressure ulcers such as HPU. Thus, MGH can be recommended as an alternative or complementary therapy in wound healing.

[1]L-Mesitran Soft (Triticum Exploitatie BV, Maastricht, the Netherlands)
[2]L-Mesitran Tulle (Triticum Exploitatie BV, Maastricht, the Netherland)

EP097 IMPACT OF COVID-19 ON IMPLEMENTATION PROCESS OF RNAO'S BEST PRACTICE GUIDELINES; EFFECTS ON PRESSURE INJURIES

Carmen Blasco[1 2], Monica Castella[1], Eva Janeiro[1], Cristina Casanovas[1], Pilar Muñoz[1], Roser Villegas[1], Ariadna Huertas[1]

[1]Hospital Universitari Germans Trias i Pujol, Nursing, Spain; [2]GNEAUPP, Spain

Aim: To assess the impact of COVID-19 on the implementation process of the Registered Nurses' Association of Ontario Best Practice Guideline (BPG) *Risk Assessment and Prevention of Pressure Ulcers.*

Method: A retrospective, pre- and post-intervention, quasi-experimental design, comparing quality indicators of pressure ulcers before and after implementation of BPG. All patients admitted to the internal medicine unit during the study period (2017-2021) were included, excluding those who had died or been discharged in the first 24 hours. Statistical analyses were performed using R comander. A *P* value of less than 0.05 was considered to indicate statistical significance.

Results / Discussion: 946 patients were included between the years 2017 and 2021; 49.9% of the people included were men and 50.1% were women. The average age for the two periods was 75 years. In both study periods, the percentage of individuals who presented pressure ulcers was 6%. There was no statistically significant evidence to consider that there was a difference between the number of pressure ulcers in 2017 and 2021 (p=0.72). Regarding the proportion of nosocomial pressure ulcers, a considerable increase was observed, being 28.1 % in 2017 and 59.3% in 2021.

Conclusion: Dedications of the nursing teams during COVID-19 were focused on providing the best possible care for patients. However, the increase in patient care needs was detrimental to quality standards. The results of this study lead to the design of improvement strategies to deal with possible future adverse events.

EP098 THE EFFICACY OF SILVER-CONTAINING DRESSING COMPARED WITH THE HYDROCOLLOID DRESSING FOR THE TREATMENT OF SUPERFICIAL SECONDARY-DEGREE BURN INJURY

Meng-Hsuan Wu[1]

[1]National Taiwan University College of Medicine, Taiwan

Aim: Controlling infection and promoting healing was important for treatment of burn injury. Our aim was to evaluate the efficacy of a silver-containing dressing (Aquacel Ag) compared with Duoderm for treatment of superficial partial-thickness burns.

Method: A prospective, randomized, clinical trial was conducted in patients with secondary burn wound after debridement for blisters. The patients were divided into two 60 patient-groups. The study period was two months for each patient. Depth of burns were according to Classification of burn wounds (Vaughan and Beckel, 2012). Demographic data, wound size, wound photography, and bacterial wound culture were recorded at the beginning of the study and every two weeks thereafter. Wounds were covered with Duoderm in the control group and Aquacel Ag in the experimental group. Dressings were changed every three days in both groups.

Results / Discussion: The mean healing rates and the percentage of reduction in digital image analysis were better in the study group than in the control group but they were not statistically significant. Better changing in bacteriological study after the treatment was shown in experimental group.

Conclusion: Aquacel Ag is one of the choices for treatment superficial partial-thickness burn with good healing rate and convenience.

EP099 THE UPTAKE OF THE INTERNATIONAL PRESSURE ULCER/INJURY PREVENTION AND TREATMENT GUIDELINES IN THE SCIENTIFIC LITERATURE: A SYSTEMATIC ANALYSIS OF TWO MAJOR CITATION DATABASES

Jan Kottner[1], Monira El Genedy-Kalyoncu[1]

[1]Charité - Universitätsmedizin Berlin, Institute of Clinical Nursing Science, Berlin, Germany

Aim: The European Pressure Ulcer Advisory Panel, the National Pressure Injury Advisory Panel and the Pan Pacific Pressure Injury Alliance (EPUAP/NPIAP/PPPIA) developed international Clinical Practice Guidelines of the prevention and treatment of pressure ulcers/injuries in 2009, 2014, and 2019. Despite substantial dissemination efforts, evidence about guideline dissemination and uptake in the international literature is lacking. The aim of this review was to capture to the greatest detail possible the number of the citations of the three published Clinical Practice Guidelines.

Method: The citation databases Web of Science and Scopus were searched for citations of the 2009, 2014 and 2019 Clinical Practice Guidelines including all derivative products including short versions and translations. Two separate search strategies were iteratively developed to ensure highest sensitivity.

Results / Discussion: The Cited Reference Search in Web of Science identified hundreds of different referencing formats with more than 2000 citing articles. The Scopus search revealed 250 different reference formats and more than 2000 citation counts. After publication there was a gradual increase of citations that peaks approximately after four years.

Conclusion: The three Clinical Practice Guidelines including all derivate versions had a substantial uptake in the scientific literature. This supports the assumption that the guideline dissemination strategies were and are successful.

EP100 PRESSURE INJURY PREVENTION: CASE STUDY IN KING FAHD CENTRAL HOSPITAL - GIZAN

Ali Alibrahim[1]

[1]*King Fahad Central Hospital, Wound Care Unit, Abuarish, Saudi Arabia*

Aim: Study aimed to assess the effectiveness of a developed Standard Programme in preventing HAPUs.

Method: This is a retrospective comparative study of pressure ulcer prevention Programme (PUPP) at single healthcare facility (ICU). The outcomes of PUPP were tracked for 1 year. The current project location was in King Fahad Central Hospital – Jazan, a tertiary hospital with 450 beds located in Saudi Arabia. The average annual census in 2021 was 30,000 patients with 5.2 days average length of patient stay.

Results / Discussion: Hospital acquired pressure ulcers (HAPUs) remain a significant problem, despite implementation of numerous prevention initiatives. We aimed to assess the relationship between healthcare professionals' (nurses, residents, and attending physicians) perceptions of the importance of HAPU prevention and actual HAPU prevalence. Additionally, we were interested in their perception of the effectiveness of existing prevention initiatives and devices, as well as their satisfaction with the same. We hypothesized that perceptions of the importance of pressure ulcer prevention would be correlated with pressure ulcer prevalence. We also hypothesized that there would be high perceived effectiveness for, and satisfaction with, existing initiatives. A quality improvement project was initiated by the hospital administration to improve patient wound management through education and documentation of risk assessment. During fall of 2021, the nurse director, quality improvement nurse, clinical nurse educator, and wound care team including doctors, dietician, health educators, and infection control met to review the hospital pressure ulcer rates and the implemented practices. An initial assessment of the committee found that policy and procedure were incomplete and outdated, there was no protocol for general wound care and there was no complete wound care. Additionally, there was a shortage of proper beds and mattresses and heal protectors. A decision was made to commence PUPP looking at three categories. The first category was creating a wound care team; second was hospital staff education about PUPP; and third was continuous data collection and monitoring through frequent reporting. The initial aim was to reduce the PU rates in the hospital by 50% within the first 6 months of the Programme implementation.

Conclusion: Despite an overall positive perception of the importance of pressure ulcer prevention, HAPUs continue to be a major problem. Contrary to our hypothesis, many current initiatives are felt to be effective. There was an effective correlation between perceptions on the importance of prevention and HAPU prevalence, suggesting that prevention methods are effective as thought or they are being used as widely as they should. Further research should take advantage of these positive attitudes by prospectively investigating novel interventions, especially in the ICU setting.

EP101 IMPLEMENTATION OF HOSPITAL-ACQUIRED PRESSURE INJURY (HAPI) PREVENTATIVE BUNDLE (HAPIPB) IN CRITICAL/INTENSIVE CARE ENVIRONMENT : A QUALITY IMPROVEMENT (QI) PROJECT

Dr. Red East Tumang[1]

[1]*University of San Francisco, San Francisco, United States*

Aim: National Database of Nursing Quality Indicators (NDNQI) had estimated that the average HAPI costs about $50,000 to $150,000 per injury, & mortality increase by 12%. 2.5 million HAPI patients are treated in US healthcare facilities annually 60,000 US Hospital Patients die each year from complications related to HAPI.

322,946 reported cases of CMS patients with HAPU/HAPI as secondary diagnosis each case. Average charge of $40,381/case.

Annual total cost of $13 billion.

Variability / Case Mix / Level of Cares: 62% of HAPI are surgical patients, 76% ICU patients, 81% admitted patients.

Centers for Medicare & Medicaid Services (CMS) none reimbursement for HAPI. Considerable fines & litigation for development of HAPI Patient safety, comfort, morbidity and mortality at risk.

Method: To investigate the reduction of pressure injury incidence and prevalence in the adult critical care or intensive care patient population environment using HAPIPB and address any clinical knowledge gaps for change management of HAPI.

Does a HAPIPB assist in reducing HAPI rates in the adult critical care and/or intensive care patient population of a level one academic trauma medical center within a 5-week timeframe?

Pre-Post Comparative Study Analysis Design.

Tool: HAPIPB Bundle & AHRQ Toolkit Questionnaires.

N=1120 (Pre 560 & Post 560 in eight weeks).

Results / Discussion:

3 confirmed HAPI cases prior to HAPIPB Implementation.

Post-implementation resulted in ZERO HAPI cases on Dec 2021, Mar 2022 (Q1), Jun 2022 (Q2), Sep 2022 (Q3), Dec 2022 (Q4) data extraction as illustrated in HAPI rates graph.

1120 Chart Audited in eight weeks.

(Indicator 1): 42.3% increase in documentation of skin monitoring.

(Indicator 2): 69.9% increase in positioning documentation.

(Indicator 3): 88.9% increase of nursing staff documenting upon admission.

Z scores of each behavior as follows *-15.201, -19.723, and -22.271* is less than the standard alpha & Asymp. Sig (2-tailed) less than 0.05 which conclude a difference between to sets of data are statistically significant.

Conclusion: Positive clinical management of HAPI behavior changes factored into the overall reduction of HAPI rates.

Pilot ICU had 3 HAPI cases reported in November 2021. After HAPIPB; follow up data extraction revealed zero HAPI cases as of December 2021, and Quarterly in 2022 = ZERO HAPI

These findings supports the HAPIPB on reducing HAPI rates in the adult inpatient critical/intensive care HAPI rates in the adult inpatient critical/intensive care.

EP102 PREDICTION OF PRESSURE ULCERS USING MODULAR CRITICAL CARE DATA AND MACHINE LEARNING METHODOLOGY

Petr Sin[1 2], Alica Hokynkova[1 2], Andrea Pokorna[3], Marie Nováková[4], Rostislav Krč[5], Jan Podroužek[5]

[1]University Hospital Brno, Department of Burns and Plastic Surgery, Brno-Bohunice, Czech Republic; *[2]Faculty of Medicine Masaryk University, Czech Republic*; *[3]Faculty of Medicine Masaryk University, Department of Health Sciences, Brno, Czech Republic*; *[4]Faculty of Medicine Masaryk University, Department of Physiology, Brno, Czech Republic*; *[5]Brno University of Technology, Institute of Computer Aided Engineering and Computer Science, Faculty of Civil Engineering, Czech Republic*

Aim: The aim is to investigate the predictability of pressure ulcers (PUs) incidence and its association with multiple parameters using machine learning (ML) methodology. The medical data were retrospectively collected within the Medical Information Mart for Intensive Care (MIMIC) project. Challenges presented by the problem's high-dimensional nature were addressed and the importance of model selection and data processing.

Method: Health-related datasets contain many irregularly sampled time-variant and scarcely populated features, which may exceed the number of observations. ML techniques are effective when applied to such datasets. Successful utilization of ML-based PU prediction requires consistent reporting of clinical variable selection, data pre-processing, and model specifications. The ML techniques include regression algorithms, instance-based algorithms, ensemble algorithms, artificial neural network algorithms, and Bayesian algorithms. A custom database for PU prediction includes 7 time-invariant and 16 time-variant features for PU patients and a randomly sampled control group of the same size (4652 patients).

Results / Discussion: The best performing random forest model yields an accuracy of 96%. The predictor importance may differ significantly in time for any given patient. The most important patient features are time-invariant (ICU length of stay, total input/output).

Conclusion: We uniquely explore the theoretical and practical considerations of applying six different classification models for predicting PUs using one of the most extensive medical databases (MIMIC-IV dataset).

Acknowledgements: This work was supported by the Ministry of Health of the Czech Republic under grant no. NU21-09-00541, "The role of oxidative stress in pressure ulcers treatment in a patient with spinal injury".

EP103 EPIDEMIOLOGICAL CHARACTERISTICS OF HOSPITAL ACQUIRED PRESSURE INJURIES IN A HIGH COMPLEXITY ECUADORIAN HOSPITAL IN THE CONTEXT OF STOP PRESSUR ULCERS PROJECT IMPLEMENTATION

Caicho Caicedo Oscar[1], Nicolalde Rodriguez Danny Manuel[2], Jimbo García Yacila[3], Mero Naranjo Andrés[4], Cardenas Caicedo Marianella[5], Vargas García Jennifer[6], Rodriguez Macias Henry[7], Naldy Febré[8], Viviana Munoz[9 10]

[1]Omnihospital, Wound Clinic Manager, Guayaquil, Ecuador; [2]Omnihospital, Nurse Manager, Guayaquil, Ecuador; [3]Omnihospital, Registered Nurse, Guayaquil, Ecuador; [4]ICU, Registered Nurse; [5]Omnihospital, Psychologist, Guayaquil, Ecuador; [6]Omnihospital, Physician Nutrition Specialist, Guayaquil, Ecuador; [7]Omnihospital, Physiotherapist, Guayaquil, Ecuador; [8]UNAB, PhD in Health Sciences / Epidemiology, Santiago, Chile; [9]Universidad Andres Bello (UNAB), PhD Student of Nursing Science, Concepción, Chile; [10]B Braun Medical, Regional Clinical & Education Manager Wounds, Ostomy, and Continence Latin America, Conchalí, Chile

Aim: To determine the epidemiological characteristics of hospital acquired pressure ulcers (PU) in a highly complex Ecuadorian hospital.

Method: Point of prevalence study, sample of 61 hospitalized patients, descriptive analysis of variables, crude prevalence was estimated, study authorized by the institution's ethics committee.

Results / Discussion: Crude prevalence of PU was 31.14%; 68% of the patients were classified as stage I PU, more frequently in the sacrum (26%); Of the 18 patients classified at admission with high risk of PU, 68% developed pressure ulcers. The Intensive Care Unit had a higher prevalence of 140% (7 pressure injuries in 5 patients). Of the 19 PU detected, 26% were associated with medical devices. It should be noted that just 36% of nursing records had repositioning strategies in patients with high and medium risk of and in 64% was partial or non-existent. 25% of patients classified as high or medium risk developed PU. Of the 61 patients evaluated, 9 (14.75%) presented incontinence-associated dermatitis (IAD) and 8 patients (13.11%) with skin medical adhesive skin injuries caused (MARSI).

Conclusion: The crude prevalence of PU is 31.14%, with a higher frequency of stage I, located in the sacral region. It should be noted that DAI and MARSI presented a prevalence of 14.75% and 13.11%, respectively. According to the evaluation carried out, it is important to apply prevention and control measures for hospital acquired pressure ulcers and other skin injuries.

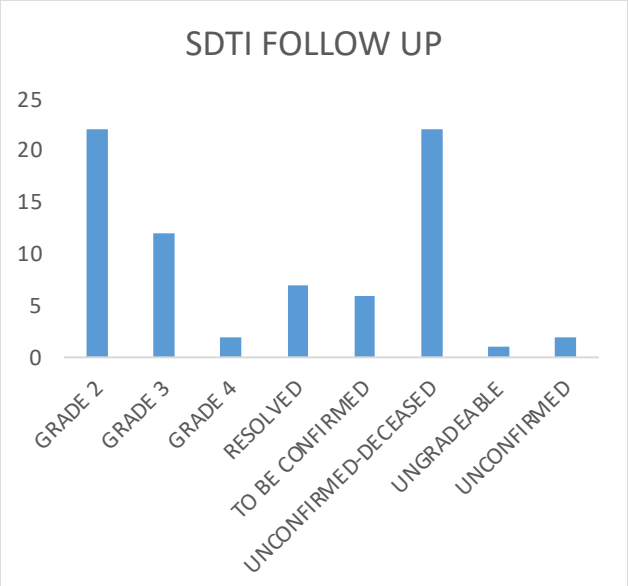
EP104 SUSPECTED DEEP TISSUE INJURY-EVOLVE OR RESOLVE?

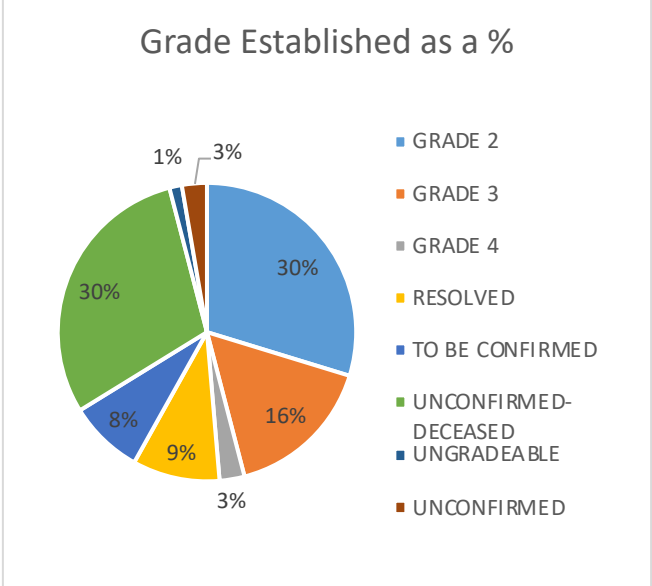
Susan Newman[1]

[1]NHS Ayrshire and Arran, Crosshouse, United Kingdom

Aim: The author has recently taken up a new post of Pressure Ulcer Improvement Nurse. Prior to commencing new role, Suspected Deep Tissue Injuries (SDTI) would mostly remain unconfirmed and would require escalation and requirement for further incident review and be seen to be a 'significant event'. The author wished to follow up on SDTI's in ascertain the outcome in order that correct Grade was established and appropriate escalation procedures were maintained.

Method: Identification of in-patients and data collection took place within 2 acute hospital sites where a SDTI had occurred. This involved notification through the Health Board's adverse event reporting system. Follow up involved either clarifying in person or through discussions with other health professionals to ascertain Grade of wound. Follow up ranged from several days to weeks to establish.





Results / Discussion: Follow up of the wounds was at times difficult to establish correct Grade. Variation could be possible due to different health professional's interpretation of Grade seen. The author tried to reduce variation by asking questions to establish what tissue/skin damage if any was visible and recorded.

Conclusion: The follow up and confirmation of the above was found to be of benefit in order to clarify Grade and ensuring accuracy of Grading on the reporting system ensuring correct escalation/de-escalation of events as appropriate. This also allowed for verification and breakdown of Grades for further interpretation.

EP105 PROSPECTIVE RANDOMIZED STUDY TO VERIFY THE EFFECTIVENESS OF PHOTOBIOMODULATION WITH BLUE LIGHT IN THE TREATMENT OF STAGE II AND STAGE III PRESSURE ULCERS

Hamilton Dollaku[1], Mara Dalladonna[1], Mario Parisi[1], Claudio Macchi[1]

[1]*IRCCS Don Carlo Gnocchi, Florence, Italy*

Aim: Photobiomodulation has been studied in animal models and in humans where it has elicited stalled wounds' inflammation overcoming and stimulated tissue regeneration. The purpose of the current clinical study is to verify the effectiveness of Photobiomodulation with Blu Light in supporting the reparative process of stage 2 and stage 3 pressure ulcers in a rehabilitation hospital care setting.

Method: Hospitalized patients undergoing rehabilitation at IRCCS Fondazione don Carlo Gnocchi, Florence, are included. Effectiveness is evaluated through PUSH TOOL 3.0 score reduction measurement, comparing the results obtained in the ulcers treated with Blue Light three times a week for four weeks in addition to standard of care (SoC) versus the ulcers treated with SoC only. Blue Light treatment is performed for 60 seconds on the entire lesion's area with a portable, rechargeable medical device that uses LED sources emitting Blue Light.

Results / Discussion: Currently, 22 (14 males, 8 females; mean age 76,1 years) out of 40 patients have been enrolled in the study: 14 patients with stage 2 pressure ulcers and 8 with stage 3 pressure ulcers. Preliminary results show that, in four weeks, the ulcers treated with blue light have obtained a 30% length-by-width PUSH TOOL 3.0 sub score mean reduction (from 7 to 4.9) and a 24,7% total PUSH TOOL 3.0 score mean reduction (from 11,1 to 8,4) while the lesions treated with SoC only, have obtained a 14.7% length-by-width PUSH TOOL 3.0 sub score mean reduction (from 6.1 to 5.2) and a 15.2% total PUSH TOOL 3.0 score mean reduction (from 9,2 to 7,8).

Conclusion: Based on the results of the ongoing study the contribution of Photobiomodulation with Blue Light as adjuvant therapy in the management of pressure ulcers in a rehabilitation hospital setting will be assessed.

EP106 IMPROVED CLINICAL OUTCOMES IN PRESSURE INJURY MANAGEMENT THROUGH EARLY DETECTION

Kyuwon Baek[1]

[1]*Samsung Medical Center, Nursing, Korea, Rep. of South*

Aim: This study was conducted to confirm whether Pressure Injury Prevention Rounding (PIPR) can improve pressure injury management by increasing the early detection rate of pressure injuries (PIs).

Method: This study was conducted as a non-equivalent control group posttest only design. Patients at risk of PIs admitted to the ward from January 1, 2020 to December 31, 2021 were analyzed for the condition of PIs that occurred during hospitalization. The control group was 5116 hospitalized between January and December 2020. The experimental group consisted of 5417 people who were hospitalized between January and December 2021 when PIPR was performed. PIPR was performed through rounding once a week for PIs prevention activities together with primary wound nurses (PWN) and unit manager. An early detection campaign was conducted to detect PIs less than 1 cm in size and stage 1 and stage 2 PIs at an early stage. Education to increase the accuracy of pressure injury risk assessment and interventions to establish standards for pressure injury re-evaluation were applied.

Results / Discussion: As a result of analyzing the incidence of PIs in the high-risk group, PIs occurred in 33 patients in the control group and 34 patients in the experimental group. However, the early detection rate was 80% in the experimental group and 72.7% in the control group. The early detection rate was high in the experimental group in which PIPR was performed. Through the PIPR, awareness of nurses' PI early detection and re-evaluation criteria was raised.

Conclusion: Early detection of PI is very important for early healing and prevention of PI exacerbation. PIPR for early detection is an effective intervention for PI prevention and management. Improvement in nurses' awareness of PI early detection through PIPR also affects PI prevention activities.

E-POSTER SESSION: E-HEALTH & COVID19

EP107 MORTALITY AND PRESSURE INJURY IN SUBJECTS WITH COVID-19-RELATED ARDS UNDERGOING PRONATION. A PROSPECTIVE STUDY

Alessia Marini[1], Luca Giuseppe Re[2], Barbara Bassola[2], Massimiliano D'Elia[2], Isabella Fontana[1], Maura Lusignani[3]

[1]ASST Grande Ospedale Metropolitano Niguarda, Anestesia e Rianimazione, Milano, Italy; [2]ASST Grande Ospedale Metropolitano Niguarda, Corso di Laurea Infermieristica - Università degli Studi di Milano, Milano, Italy; [3]Università degli Studi di Milano, Scienze Biomediche per la Salute , Milano, Italy

Aim: To evaluate the impact of pronation on mortality and pressure injury occurrence in subjects with COVID-19-related ARDS.

Method: Prospective descriptive study with consultation of medical records of people admitted during March 2020 to April 2022 for COVID-19-related ARDS in the dedicated Intensive Care Units (ICU) of a hospital in North Milan.

Results / Discussion: 228 (57.1%) of the 399 medical records analysed were of pronated subjects. The latter had more deaths (54.8% vs. 23.4%) and pressure injuries (11.4% vs. 4.1%) than the non-pronated; however, they were older, had spent more time in the ICU, had a higher SOFA score and were more likely to suffer severe ARDS (78.1% vs. 51.4%).

For the pronated and non-pronated, comorbidities and SOFA score were positively associated with a higher probability of death.

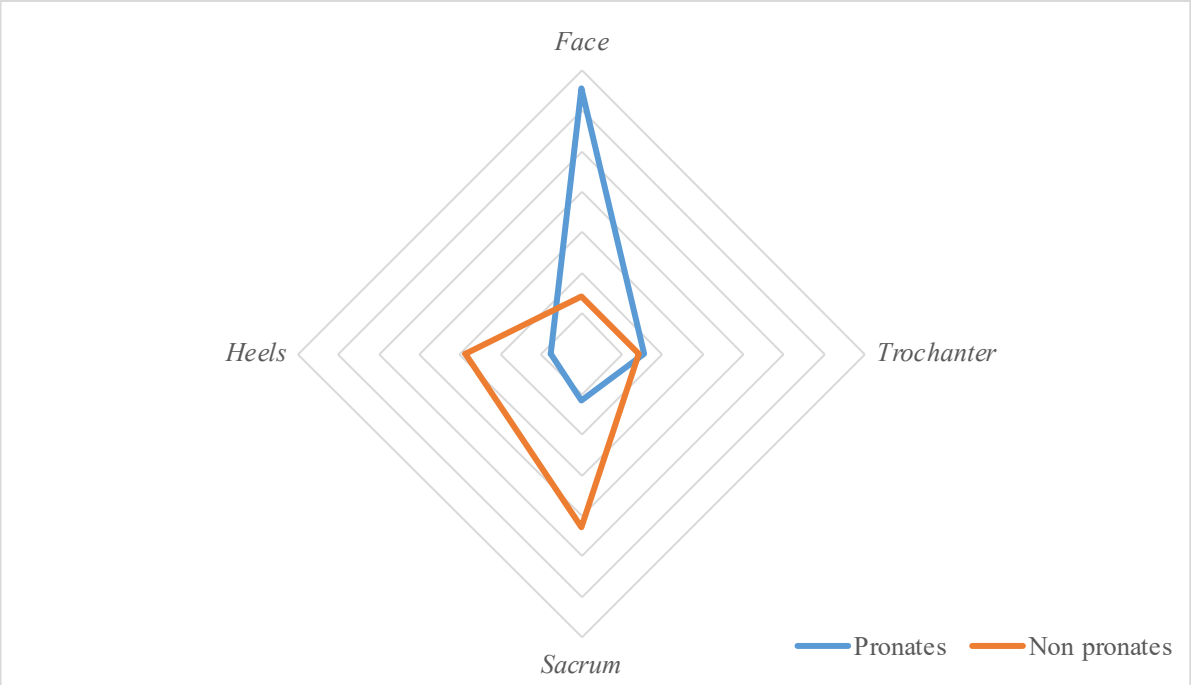
162 subjects had at least one pressure injury occurring in the ICU (40.6%). There were 282 pressure injuries with an average of 1.7 new injuries per subject. The average stage of new pressure injuries was 2.3.

The amount of ICU days has a highly significant association in the occurrence of pressure injury with a negative direction: as the number of ICU days decreases, the clinical severity increases.

A pronated subject compared to a non-pronated one had more than twice as likely to have at least one new pressure injury.

Conclusion: Despite the considerable difficulties faced in the management of the pandemic tsunami, the implementation of pronation cycles as salvage therapy in individuals with COVID-19-related severe ARDS made it possible to contain mortality within reasonable limits in the face of an otherwise acceptable increase in pressure injuries.

Pressure injuries distribution by site.



EP108 SURGICAL TREATMENT OF SACRAL PRESSURE WOUNDS IN PATIENTS WITH COVID-19: A CASE SERIES

Dimas Milcheski[1], Gregory Nicolas[1], Daniel Valente[1], Marita Saliba[2], Rolf Gemperli[1]

[1]*University of* São Paulo, Sao Paulo, Brazil; [2]*University of Balamand - UOB, Souq El Gharb Aley Campus, Souq El Gharb, Lebanon*

Aim: The COVID 19 pandemic has resulted in an increased number of patients requiring intubation and intensive care. This has led to an increased incidence of sacral pressure ulcers requiring surgical management. We report our experience of COVID 19 related sacral pressure ulcers requiring surgical reconstruction.

Method: A case series study was performed with 12 patients who presented grade IV sacral pressure ulcers after hospitalization for COVID-19 in a single institution. The mean age was 49.8 years and the most frequent comorbidities were arterial hypertension, diabetes and obesity, each present in 6 patients. All of them were submitted to surgical reconstruction with fasciocutaneous flaps after improvement of their clinical status. Follow up time was of at least 30 days after reconstruction. Preoperative laboratory tests and surgical outcomes were compared to data available in the literature.

Results / Discussion: No major dehiscence was observed and minor dehiscence happened in 2 cases (16.7%). Out of the 12 patients, 8 (66.7%) had hemoglobin levels less than 10.0 and 5 (41.7%) had albumin levels less than 3.0, though this did not lead to a higher rate of complications.

Conclusion: This study showed that ambulating patients with grade IV pressure ulcer after COVID- 19 infection may undergo debridement, negative-pressure wound therapy and closure with local flaps with adequate results and minimal complication rate.

EP109 TELEMEDICINE IN VULNOLOGY: ISTRUCTION FOR USE

Francesca Pasquali[1], Gugllielmo Pacileo[2], Paola Tortarolo[3], Daniela Tacconi[4]

[1]*S.S. Vulnologia ASLAL, Distretto di Alessandria , Alessandria, Italy*; [2]*Direzione Generale, ASLAL, Alessandria, Italy*; [3]*S,S. Vulnologia ASLAL, Distretto di Acqui Terme, Acqui Terme, Italy*; [4]*Poliambulatorio Alessandria , Distretto di Alessandria , Alessandria, Italy*

Aim: Since April 2020 in Asl AL, vulnology has developed the "bedside vulnology" project, i.e., bringing vulnology with telemedicine to everyone fragile, chronic and bedridden of all ages, from children to adults.

All structures of the hospital province, RSA / CDR, patients in adi, in palliative care and private at home have joined such projects.

Methods: Through the email vulnologia.adi.aslal@aslal.it, we brought a super specialist medicine to the bedside with first visits, follow-up visits and training of the nurses who were close to the patient.

In April 2021, we created a virtual medical clinic in the geographically most penalized district,

that of Acqui, where patient and caregiver can go by booking to the regional CUP to perform a vulnological visit or angiological visit and take advantage of all the therapeutic and technological innovations in our possession.

By associating television viewing with the photographic project with a high-resolution device, we had the possibility of acquiring high-resolution images and archiving them in a depository to be able to use them and compare them for scientific purposes.

Results: Visits are around 500 in 30 months.

Conclusion: Now it is a consolidated service independent of the covid peaks.

EP110 THE "WOUNDER CARE" PROJECT: EASY, SOCIAL AND SHAREABLE

Alicia Gyssel Sanchez Sotomayor[1], Francesca Gerna[2], Elena Rapis[3], Lucia Sassi[4]

[1]Via Santi Cosma e Damiano, Vimercate, Italy; [2]Via Pergolesi, Monza, Italy; [3]Piazza OMS, Italy; [4]Via Niccolò Jommelli, Milano, Italy

Aim: The advent of eHealth heralds a new era in the development of advanced and innovative strategies to support decision-making in the healthcare sector.

The aim of this project is to share scientific recommendations on wound care, not only with healthcare professionals but with the entire population, by using an accessible tool and simple language.

Method: In January 2020, after carefully scanning through academic papers to investigate the state of the art of science communication on social media, we set up a round table to find the best way to achieve our goal.

We have identified a popular and simple social media platform based on sharing iconographic material to make information easier and accessible, always quoting academic references.

Results / Discussion: This is how the "WoundER care" project was born. The creation of the logo and the opening of the social profile have materialized our shared mission and vision: making as many people as possible aware that scientific evidence represents an indispensable tool in the care of a person with wounds.

Conclusion: The project proves that accurate information may also be delivered through social networks if supported by academic references and evidence-based literature.

Using a social platform allows you to step away from traditional channels and reach your healthcare colleagues and the population faster.

Science belongs to everyone: making it usable is essential to ensure that it does not remain stagnant and accessible only to professionals.

EP111 ELECTRONIC WOUND RECORDS: IMPLICATIONS AND CONTRIBUTIONS TO THE CONTINUITY OF CARE

Sofia Vieira[1], Cláudia Sousa[2 3], João Freitas[2 4], Samuel Frade[2 5]

[1]Serviço de Saúde de Região Autónoma da Madeira - SESARAM, EPE, Intensive Care Unit, Funchal, Portugal; [2]BinaryScope Solutions, Funchal, Portugal; [3]Serviço de Saúde de Região Autónoma da Madeira - SESARAM, EPE, Internal Medicine, Funchal, Portugal; [4]Serviço de Saúde de Região Autónoma da Madeira - SESARAM, EPE, Community Care, Funchal, Portugal; [5]University of Porto, Center for Health and Technology and Services Research - CINTESIS, Porto, Portugal

Aim: To determine whether the wound records on electronic recording platforms guarantee the continuity of care, providing health indicators in the treatment of wounds and in the quality of care provided.

Method: A systematic review was conducted in accordance with the Joanna Briggs Institute (JBI) recommendations. The search was conducted in September 2022 on 6 electronic databases: B-On, BVS, EBSCO/CINAHL, MEDLINE/PubMed, Scielo, Cochrane, using the descriptors "Wound healing", "Electronic health records", "Outcome assessment", "Pressure ulcer", "Wounds", having been selected 6 articles.

Results / Discussion: It was found that electronic records in the assessment and treatment of wounds are fundamental regarding internal regulations, continuity of care, reducing the level of documentation error, reducing running costs and increasing wound care capacity. When comparing the use of paper and electronic registers, there was a wide preference of patients and health professionals in the electronic version of the records. The use of electronic health records, although at an early stage, is extremely useful in nursing care, although it is necessary to ensure that they are intuitive and user-friendly, so as to not further increase the complexity of the records and workload of health professionals.

Conclusion: The use of electronic records benefits the continuity, quality and safety of the care provided and encourages communication between health professionals. As future projects, we intend to make our contribution to professional practice, incorporating the results of this study into clinical practice, through the implementation of a project aimed at creating a platform for recording wounds.

EP112 THE INTEGRATED COMPUTERIZED MEDICAL RECORD FOR THE MANAGEMENT OF VASCULAR PATIENTS ON AN OUTPATIENT BASIS. RESULTS OF A SINGLE-CENTRE PRELIMINARY TRIAL

Nella Mosca[1], Jacopo Fiorini[1], Fabio Massimo Oddi[2], Andrea Ascoli Marchetti[2]

[1]Policlinico Tor Vergata, UOC Direzione Infermieristica, Roma, Italy; *[2]Università di Roma Tor Vergata, Biomedicina e Prevenzione, Roma, Italy*

Aim: To evaluate the outcomes of patients with vascular ulcers in outpatient settings after the implementation of the integrated computerized medical record. The computerization of care pathways can influence the clinical outcomes of hospitalized patients and represent a useful tool in the continuity of care of patients from hospitalization to the specialist outpatient clinic, filling an information and communication gap, up to promoting home management.

Method: A computerized medical-nursing outpatient file was implemented at a university hospital, containing initial assessments, re-evaluations, treatments, photographs with vascular lesions, elaborated on the current TIMERS ® guidelines and principles and shared with the vascular surgeon. It also includes medical history, allergies, diagnostic reports, drug therapy, blood tests, pain assessment (NRS scale), lesion size and specialist advice.

Results: 80 patients were taken care of from discharge in the Nursing Outpatient Clinic for continuity of care from September 2022 to December 2022. The sharing of clinical-assistance information between the two services and healthcare professionals (vascular surgeon and nurses specialized in wound care) creating a direct communication bridge between the professionals involved and allowed users to benefit from continuity, reducing treatment times and outpatient visits and improving the wound healing process.

Conclusions: The patients benefited from a clinical and organizational integration of their treatment path, allowing constant monitoring of the vascular lesion and directly collecting the information necessary for the continuation of the therapeutic process. Finally, it allows the professionals involved to analyze aggregated data of the followed users in real time.

EP113 HEALICO WOUND CARE APPLICATION IMPROVES WOUND CARE MANAGEMENT IN DAILY ROUTINE PRACTICE

Jose Mª Flores Lopez[1], Laura Suarez Barcena Gonzales[2], María de Gracia Martín García[3], Julia Fernández Morata[4]

[1]Centro de salud Ciudad Real III, Wound Commission, Spain; *[2]Gerencia de Puertollano, Nurse specialist, Spain*; *[3]Residencia Antonio Fernández de Puertollano, Spain*; *[4]Urgo Medical, Especialista clínico, Spain*

Aim: Evaluate if a smartphone application can optimize the continuity of care of patients and the management of wounds through the communication of healthcare professionals from different care settings.

Method: The wound care application was implemented in primary care and sociosanitary centres in different regions of Castilla la Mancha. A series of clinical cases were collected with the application, including wound of different etiologies (dependency-related injuries, lower extremity venous ulcers, and surgical deficiencies) both for prevention of further complications and treatment. It was also recorded the utility for healthcare professionals of using the application in their wound care management.

Results / Discussion: 1,518 wounds have been registered in the wound care application. Healthcare professionals recorded relevant clinical data such as the medical history of the patient as well as wound-related aspects: the presence of clinical signs of infection, the type of tissue, the aspect of the perilesional skin and the level of the exudate. Furthermore, the application facilitated sharing the applied treatment within the wound care team improving the rapid communication between healthcare professionals. Consequently, the follow-up of patients' treatments was more exhaustive. In addition, it enabled the unification of criteria for early interventions, since the parameters to be assessed were always the same independently of the healthcare professional's registration.

Conclusion: the application allowed the continuity of patient care through the transfer of clinical information interlevel. The implementation of digital apps that offer continuity of care in daily practice should be evaluated to improve the care of patients with wounds.

E-POSTER SESSION: DRESSINGS 1

EP114 DEVELOPMENT AND CONSENSUS STUDY OF A CORE OUTCOME SET FOR CLINICAL EFFICACY STUDIES OF BORDERED FOAM DRESSINGS IN THE TREATMENT OF COMPLEX WOUNDS

Charlotte Raepsaet[1], Paulo Alves[2], Harikrishna K.R Nair[3], Amit Gefen[4], José Luis Lázaro Martínez[5], Hadar Lev-Tov[6], Bijan Najafi[7], Nick Santamaria[8], Andrew Sharpe[9], Terry Swanson[10], Kevin Woo[11], Dimitri Beeckman[12 13 14]

[1]Skin Integrity Research Group (SKINT), University Centre for Nursing and Midwifery, Department of Public Health and Primary Care, Ghent University, Ghent, Belgium; [2]Wounds Research Lab , Centre for Interdisciplinary Research in Health, Catholic University of Portugal, Porto, Portugal; [3]RedC Consultancy, Bradford, United Kingdom; [4]Department of Biomedical Engineering, Faculty of Engineering, Tel Aviv University, Tel Aviv, Israel; [5]Diabetic Foot Unit, Universidad Complutense de Madrid, Madrid, Spain; [6]University of Miami Hospital Miller School of Medicine, Dr. Phillip Frost Department of Dermatology and Cutaneous Surgery, Miami, United States; [7]Interdisciplinary Consortium on Advanced Motion Performance (iCAMP), Division of Vascular Surgery and Endovascular Therapy, Michael E. DeBakey Department of Surgery, Baylor College of Medicine, Houston, Texas, United States; [8]School of Health Sciences, University of Melbourne, Melbourne, Australia; [9]Podiatry Department, Salford Royal NHS Foundation Trust, Salford Care Organisation, Salford, United Kingdom; [10]Warrnambool, Victoria, Australia; [11]School of Nursing, Queen's University, Queen's University, Kingston, Ontario, Canada; [12]Swedish Centre for Skin and Wound Research, Faculty of Health and Medicine, School of Health Sciences,Orebro University, Orebro, Sweden; [13]Research Unit of Plastic Surgery, Department of Clinical Research, Faculty of Health Sciences, Odense, Denmark; [14]School of Nursing & Midwifery, Royal College of Surgeons in Ireland (RCSI), Dublin, Ireland

Aim: To develop a core outcome set (COS) for clinical efficacy studies of bordered foam dressings in the treatment of complex wounds.

Method: The study involved three steps: (1) the development of a list of outcomes, (2) a Delphi consensus study, and (3) a consensus meeting. A list of candidate outcomes was identified through a systematic review and interviews with eight health care providers, five researchers, and five patients in the wound care field. These candidate outcomes were used in a two-stage Delphi study with a global group of stakeholders to indicate which outcomes should be considered important in future clinical trials. The COS will be finalised at a consensus meeting with a panel of wound care experts and eight participants from the Delphi rounds.

Results / Discussion: The systematic review yielded 83 outcomes, and 20 additional outcomes were identified in the interviews. After refinement, 111 panelists from 24 countries evaluated a list of 57 outcomes. The final list COS will be decided in an interdisciplinary consensus meeting and will include a maximum of 5-7 outcomes. The COS will be presented at the conference. **Conclusion:** This is the first COS project in this domain, and the results will improve the comparability of study results worldwide, facilitate synthesis of research data, reduce potential bias in reporting of results, and promote evidence-based practice and decision making.

EP115 EVALUATION OF A POLYVINYL ALCOHOL GELLING FIBRE DRESSING IN HOME CARE AND ACUTE CARE SETTINGS

Sophie Blaise[1], Manuela Santacreu[2], Marie Lardet[3], Wassila Drareni[4], Elodie Desrennes[4], Gilbert Madriaga[5]

[1]Centre Hospitalier Universitaire de Grenoble, La Tronche, France; [2]Polyclinic Picardie, Amiens, France; [3]medipole Hopital Prive , France; [4]Molnlycke Health Care, France; [5]Molnlycke Health Care, Singapore

Aim: This survey aimed to describe the use of a non-woven polyvinyl alcohol (PVA) gelling fibre dressing* and to evaluate clinicians' satisfaction with its daily use in France.

Method: Health care professionals (HCPs) from home and acute care settings evaluated the dressing when used on exuding wounds. Each HCP was asked to complete up to five questionnaires (one per wound) in order to collect clinical data, including wound characteristics, practice patterns, and satisfaction with dressing use.

Results / Discussion: A total of 105 questionnaires completed by 42 HCPs (nurses: 72%; physicians: 21%; surgeons: 7%) from 41 facilities were analysed. Majority of patients (73%) presented with chronic wounds. All patients (n=105) received PVA gelling fibre dressing as the primary dressing. For secondary dressings, the majority were provided with superabsorbent foams (32%) or adhesive foams (30%). Most patients (69%) required daily dressing changes. HCPs favourably assessed the 'ease/speed of application' (99%), the 'one-piece removal without residue' (94%), and the 'ease/speed of removal' (93%) of the dressing. Ease of removal in one piece was found to be an advantage of the PVA gelling fibre dressing, compared to previously used dressings. The clinicians' general satisfaction rate was 94%. Clinical objectives were 'partially achieved' or 'achieved' at the end of the follow-up period in 93% of patients.

Conclusion: The HCPs evaluated the PVA gelling fibre dressing with a favourable level of satisfaction for all technical characteristics. Furthermore, they determined that ease of removal in one piece is an advantage of this dressing over others they have used previously.

*Exufiber® with Hydrolock® Technology

EP116 THE EFFICACY OF COMBINATION OF SODIUM HYPOCHLORITE (NAOCL)/HYPOCHLOROUS ACID (HOCL) IN WOUND MANAGEMENT: A SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS

Chumpon Wilasrusmee[1], Napaphat Poproma[1], Chairat Supsamutchaia[1], Jakrapan Jirasiritham[1], Chaowanun Pornwaragorn[1]

[1]Faculty of Medicine Ramathibodi Hospital, Mahidol University, Surgery, Bangkok, Thailand

Aim: Antiseptic and antibacterial solutions are increasing used in the treatment of various types of wounds. The successful stabilization of the combination Sodium Hypochlorite/Hypochlorous acid (NaOCl/HOCl) or superoxidized solution (SOS) has been reported as an effective solution without irritating on mammal cell and no evidence that poses a carcinogenic hazard. There was no systematic review or meta-analysis to compare the effectiveness of these antiseptic solutions. In this study, we aim to investigate the role of NaOCl/HOCl in the treatment of wounds.

Method: The systematic review with extended to network meta-analysis (NMA) was conducted with included NaOCl/HOCl, povidone iodine, octenidine dihydrochloride, polyhexamethylene biguanide, alcohol, and silver compared with normal saline. The primary outcome was wound healing. The direct and indirect comparisons were performed with probability being best of treatment using surface under the cumulative ranking curve (SUCRA).

Results / Discussion: A total of 507 studies were identified from PUBMED and SCOPUS databases, and 64 articles were duplicates. Among 29 studies were included, there were 22 RCTs and 7 cohort studies met our inclusion criteria. NaOCl/HOCl had higher chance of wound healing from 1.07 to 1.30 compared with all of regimens. The probability of being the best treatment was NaOCl/HOCl, followed by silver and octenidine with SUCRAs of 36.9, 23.1, and 21.8, respectively.

Conclusion: Our evidence suggests that NaOCl/HOCl had highest efficacy. It was ranked first followed by silver, octenidine, and PHMB for treatment success. Further large scale RCTs should be conducted alongside with economic evaluations.

EP118 SUPERIORITY OF EHO-85 A NEW ANTIOXIDANT HYDROGEL CONTAINING AN EXTRACT OF OLEA EUROPAEA LEAVES VERSUS A STANDARD HYDROGEL IN HARD TO HEAL WOUNDS. SECONDARY RESULTS FROM A RANDOMISED CONTROLLED TRIAL

José Verdú Soriano[1], Marisol de Cristino-Espinar[2], Silvia Luna-Morales[3], Caridad Dios-Guerra[2], Antonio Casado-Diaz[4], Miriam Berenguer Pérez[1], Leocadio Rodríguez Mañas[5], José Luis Lázaro Martínez[6]

[1]University of Alicante, Community Nursing, Preventive medicine, Public Health and History of Science, San Vicente del Raspeig, Spain; *[2]Hospital Universitario Reina Sofia, Department of Nursing, Córdoba, Spain*; *[3]Hospital Universitario Reina Sofia, Nursing Department, Reina Sofia University Hospital, on behalf of the researchers of Córdoba-Guadalquivir and Southern Cordoba Health Management Areas (Andalusian Health Service, Spain), Córdoba, Spain*; *[4]Hospital Universitario Reina Sofia, Maimonides Institute of Biomedical Research of Cordoba (IMIBIC) and Clinical Management Unit of Endocrinology and Nutrition, Córdoba, Spain*; *[5]Getafe University Hospital, Department of Geriatrics, Getafe, Spain*; *[6]Complutense University of Madrid, Diabetic Foot Unit, University Clinic of Podiatry, Madrid, Spain*

Aim: Patients with hard to heal wounds were separated for evaluation from a RCT, to assess the superiority of EHO-85 containing an extract of Olea europaea leaves (OLE) to promote and/or improve wound healing compared with a standard hydrogel (SH).

Method: A prospective, multicentred, randomised, observer-blinded, controlled trial, approved by the Ethical Committee of Cordoba (Spain), was performed. Patients (≥18 years-old) were recruited if they had pressure ulcers (PU) (cat II-III), venous leg ulcers (VLU) or diabetic foot ulcers (DFU), excluding ischemic conditions, and according to strict inclusion and exclusion criteria. Patients with > 6 months of evolution were treated with EHO-85 (n=35) or Varihesive® (ConvaTec. Spain) (SH), (n=34); 3 times/week for 8 weeks. Main endpoint was relative wound area reduction (WAR) measured as ((area to-area tn)/area to) x 100). Analysis were made by intention to treat (ITT) and per protocol (PPP).

Results: Both groups were comparable by main variables. There is a significant superior effect on WAR in favour of EHO-85 vs. SH, both by ITT: the median relative WAR decreased by -51.57 % in the EHO-85 treated group vs. -18.90 % in the control group ($p < 0.001$). Differences were early observed after only 2 weeks of treatment ($p<0.001$). Accordingly, absolute WAR (mm2) and healing rate (mm2/day) also favour experimental group ($p<0.001$). Multivariate analysis (linear mixed model and Kaplan-Meier survival curves) confirms better results for EHO-85 vs SH.

Conclusion: EHO-85 hydrogel, containing OLE, promotes and accelerates wound healing when compared with a SH in Hard to heal wounds. This superiority is likely based on its optimal moisturising capacity and its excellent pH lowering and antioxidant properties.

EP119 NON-INFERIORITY OF COPPER OXIDE DRESSINGS (COD) MANAGEMENT TO NEGATIVE PRESSURE WOUND THERAPY (NPWT) OF DIABETIC FOOT ULCERS (DFU): RANDOMIZED CONTROLLED TRIAL PRELIMINARY RESULTS

Eyal Melamed[1], Tohar Roth[2], Gadi Borkow[2]

[1]Rambam Health Care Campus, Department of Orthopaedics, Haifa, Israel; [2]MedCu Technologies Ltd, Herzliya, Israel

Aim: Compare the effect on diabetic foot ulcers (DFU) wound healing efficacy, cost, convenience and complications between Negative Pressure Wound Therapy (NPWT) and Copper Oxide Dressings (COD).

Method: Randomized controlled trial with 60 diabetic patients comparing quality and rate of wound healing by using an artificial intelligence program (Tissue Analytics), cost of treatment, convenience to patient and caregiver and other adverse events during 3 months of COD management or NPWT.

Results: A total of 31 patients finalized the study. 17 patients were enrolled in the COD arm and 14 in the NPWT arm. The mean and SD age of the patients at the commencement of the trial was 59.7±10.8 and 58.3±15.5 years in the COD and NPWT arms, respectively (p=0.75). The mean and SD initial wound areas were 20.9±23.4 and 14.9±13.7 cm^2 in the COD and NPWT arms, respectively (p=0.4). Eight wounds (53.3%) and 5 wounds (35.7%) were closed during the 3 months of treatment in the COD and NPWT arms, respectively. The average time of wound closure was 60.14 and 77.75 days in the COD and NPWT Arms, respectively (p=0.18). The percent wound size reductions were 60.6% and 39.7% after 1 month, 80.9% and 80.1% after 2 months, and 86% and 83.7% after 3 months, in COD and NPWT arms, respectively. Analysis using a 20% margin shows a statistically significant non-inferiority of the COD Arm as compared to the NPWT Arm in terms of wound size reduction. COD therapy was more convenient (Visual Analog Score [VAS] was 8.44 vs. 5.33; p=0.002) and less painful (VAS was 1.15 vs. 2.19; p=0.67) to the patients in the COD arm than in the NPWT arm. The medical personnel scored COD application as more convenient than the NPWT application (8.29 vs. 6; p=0.007). The mean application time was shorter for the COD compared to the NPWT (8.5 vs. 13.25 minutes; p<0.001). Cost is estimated to be ~84% lower in the COD Arm compared to NPWT Arm.

Conclusion: The preliminary results of this RCT study indicate statistically significant non-inferiority of COD dressing therapy than NPWT in terms of wound healing rate of DFU. However, there are several benefits of using the COD than NPWT, such as convenience and reduced costs, raising the possibility of using the COD instead of NPWT for management of diabetic foot wounds as the first line of treatment.

E-POSTER SESSION: ATYPICAL WOUNDS

EP120 LOCAL TREATMENT PROTOCOL FOR PEOPLE WITH EPIDERMOLYSIS BULLOSA OR BUTTERFLY SKIN

Alvaro Villar Hernández[1], Elena Perona[1], Miriam Villa Casasano[1], Esther Domínguez[1], Natividad Romero Haro[1], Julia Fernández Morata[2]

[1]NGO DEBRA Spain Piel de Mariposa (Butterfly Skin), Enfermera, Spain; [2]Urgo Medical, Especialista clínico, Spain

Aim: Epidermolysis Bullosa (EB) is a clinically and genetically heterogeneous group of blistering diseases of low prevalence, whose main characteristic is extreme fragility of the skin and mucous membranes. This disorder results in the formation of blisters and wounds with minimal trauma, even spontaneously, affecting deeply the quality of life of these people and their caregivers. Herein, we propose an easy and comprehensible protocol for caregivers in order to promote learning of wound healing and the importance of self-care and, at the same time, avoid and manage infections.

Method: A comprehensive review of the published healing literature in EB was conducted in order to define the most important steps of wound care.

Results / Discussion: A dedicated clinical protocol was developed divided in four parts. The first one summarizes the "ABC" of the procedure of wound healing and it includes specific advices for each step. The second one considers the factors involved in choosing a dressing (healing promotion, infection, exudate, perilesional skin, cleaning and debridement). The most adequate dressing should be selected by the healthcare professional. The third part includes some examples of dressing cuttings to adapt dressing to different anatomical parts. Finally, it encompasses the warning signs to Scammy Cell Carcinoma, a severe complication of Recessive Dystrophic EB.

Conclusion: This protocol based on scientific evidence aims to guide patients on the appropriate approach to EB wound care. It also establishes clear decision-making criteria to lead caregivers in the appropriate dressing selection and how to adapt them to the wound bed.

EP121 NON-CONTACT, NON-THERMAL, LOW FREQUENCY ULTRASOUND ENERGY AS TREATMENT FOR PYODERMA GANGRENOSUM

Haresh Kane[1], Michael Jensen[1], Cullen Chiu[1]

[1]*Kane Wound Care, Princeton, United States*

Aim: Pyoderma gangrenosum (PG) typically presents as painful destructive cutaneous ulcerations. The hallmark of the disease is painful ulcerations exacerbated by minor trauma leading to exaggerated skin injury. Surgical debridement is generally contraindicated in PG. We propose introducing low frequency ultrasound energy as an alternative to surgical debridement.

Method: This is a 60 YO WF with chronic wounds from suspected PG, who originally presented to the ED in August 2021 with malodorous draining bilateral thigh wounds. Surgical debridement was not performed due to pathergy. The facility wound care team deemed the patient would benefit most from non-contact, non-thermal, low frequency ultrasound energy to address the significant necrotic tissue to the left medial thigh wound. This modality acts by selective emulsification and fibrinolysis of necrotic tissue, by up-regulation of intracellular activity with enhanced growth factor synthesis. The treatment was performed 3 times weekly, with an average duration of 20 min using 360 cc of normal saline. At each visit, the wound care team assessed the wound response to treatment looking at reduction in necrotic tissue, increase in granulation tissue, decrease in pain, and decrease in size.

Results / Discussion: Wound surface area was dramatically reduced to full closure by a factor of 5.3 over a 6-month period of ultrasound treatment coupled with significant reduction in necrotic tissue and pain. The wound bed displayed prominent increase in granulation tissue. There were no readmissions to the hospital and no re-infections of the wound.

Conclusion: Based on these results, we suggest a clear healing benefit using non-contact low frequency ultrasound energy in PG wounds, with the added benefit of being atraumatic and largely pain-free.

EP122 TREATMENT OF CHRONIC WOUNDS IN ISCHEMIC LOWER EXTREMITIES WITH NOVEL FISH SKIN–DERIVED MATRIX: A PROSPECTIVE, RANDOMIZED, CONTROLLED STUDY

Hyung-Sup Shim[1], Hyeju Han[1]

[1]The Catholic University of Korea, St. Vincent`s Hospital, Suwon, Korea, Rep. of South

Aim: To evaluate the efficacy of treatment in the chronic wounds of patients with ischemia of the lower extremities, we compared an omega-3 wound matrix product (Kerecis, Isafjordur, Iceland) with a standard dressing.

Method: We performed a single-center, prospective, randomized, controlled clinical trial of patients with a wound that failed to heal following 3 weeks of conservative care.

The ischemic condition was confirmed as decreased transcutaneous oxygen pressure (TcPO2) < 40 mmHg. After randomizing patients into a case and a control group, the weekly decrease in wound area over 12 weeks and the number of patients that achieved complete wound closure were compared between the two groups. Patients with TcPO2≤32 mmHg were further extracted to analysis in a severe ischemic context.

Results / Discussion: 28 patients were assigned to the case group and 22 patients to the control

group. During 12 weeks, the wound area decreased more rapidly in the case group than the control group. Complete wound healing occurred in 82% in the case group and 45% in the control group. Even in patients with a severe ischemic wound with TcPO2 value < 32 mmHg, wound area decreased more rapidly in the case group than the control group. The proportions of epithelized area in the groups were 80.24% and 57.44%, respectively.

Conclusion: Considering the more rapid decrease in wound area and complete healing ratio in the case group, application of a fish skin–derived matrix for treating lower-extremity chronic wounds, especially in chronic wounds in ischemic lower extremities, is a good treatment option.

	Case group (n = 28)	Control Group (n = 22)	*P value*	Case group (Lower $TcPO_2$) (n = 5)	Control Group (Lower $TcPO_2$) (n = 6)	*P value*
Decreased wound area (cm^2)			***0.0006 (***)***			***0.0001(****)***
Initial area	16.42 (±2.91)	16.14 (±3.43)		18.40	17.25	
1st week	12.61 (±2.12)	13.39 (±2.99)		13.60	15.16	
2nd weeks	10.25 (±1.51)	11.79 (±4.56)		11.30	14.08	
4th weeks	7.54 (±2.42)	9.19 (±3.52)		9.45	12.08	
8th weeks	3.45 (±2.62)	5.38 (±4.32)		6.23	9.91	
12th weeks	1.75 (±1.23)	2.57 (±3.26)		3.25	7.25	
Ratio of decreased wound area (%)			***0.0225 (*)***			***0.021(**)***
Initial to 1st week (%)	23.05 (±5.10)	17.10 (±4.87)		25.78	15.16	
Initial to 2nd weeks (%)	37.23 (±4.38)	27.00 (±7.97)		38.30	18.05	
Initial to 4th weeks (%)	53.87 (±5.66)	43.53 (±10.97)		47.12	29.33	
Initial to 8th weeks (%)	79.31 (±9.74)	68.36 (±19.60)		65.38	42.19	
Initial to 12th weeks (%)	97.72 (±5.88)	85.88 (±18.69)		80.24	57.44	
Number of patients with complete wound healing	23 (82.14%)	10 (45.45%)	***0.0148 (*)***	–	–	–
Duration to wound healing (days)	59.5 (±10.7)	65.9 (±12.1)	*0.673 (ns)*	–	–	–

EP123 INCIDENCE AND RISK FACTORS OF INGUINAL WOUND COMPLICATIONS AFTER PERIPHERAL EXTRACORPOREAL MEMBRANE OXYGENATION DECANNULATION

Naichen Cheng[1], Ching-Hsuan Yang[2]

[1]National Taiwan University Hospital, Surgey, Taipei, Taiwan; [2]National Taiwan University Hospital, Taiwan

Aim: We aimed to identify the risk factors of poor wound healing at the insertion sites of peripheral extracorporeal membrane oxygenation (ECMO) at inguinal area and provide our management strategy of these wounds.

Method: The study group comprised 223 patients (160 men and 63 women) who received peripheral ECMO insertion at National Taiwan University Hospital from January 2014 to April 2019. ECMO wound complications were classified as lymphocele or seroma, hematoma, infection and wound dehiscence that require surgical intervention. To identify the risk factors for patients to develop poor wound healing after ECMO decannulation, we analyzed several clinical characteristics, including the demographics, underlying disease, preoperative lab data, operative technique, postoperative course and ECMO wound conditions.

Results / Discussion: In this study, venoarterial (VA)-ECMO was performed in 181 patients and venovenous (VV)-ECMO in 42 patients. Wound complications were identified in 27 patients (12.1%). The mean age of all patients who received peripheral ECMO was 55.07 years. Compared to the patients without poor wound healing after ECMO decannulation, the patients with wound complications were more likely to receive VA-ECMO implantation (96.3% vs 79.08%, p=0.032) and femoral cut-down procedures for ECMO cannulation (96.3% vs 72.68%, p= 0.0075). Inguinal ECMO wound complications were treated with debridement (55.6%), negative pressure wound therapy (7.4%), split thickness skin graft (11.1%), advancement flap (25.9%), musclocutaneous flap (3.7%). Wounds in 21 patients (77.78%) healed after one operation, while 6 patients (22.22%) required repeated surgical interventions.

Conclusion: Inguinal wound complications after ECMO decannulation are relatively common, though they can usually be surgically managed. Inguinal wound complications were more likely to develop in patients who received VA-ECMO cannulation and femoral cut-down procedures.

EP124 A RELIABLE ALTERNATIVE FOR CHALLENGING DEFECTS IN THE PERINEOSCROTAL AREA: THE MEDIAL CIRCUMFLEX FEMORAL ARTERY PERFORATOR FLAP

Perçin Karakol[1], Sabri Ozturk[1], Mert Dabak[1]

[1]Sisli Hamidiye Etfal Training and Research Hospital, University of Health Sciences, Plastic, Reconstructive and Aesthetic Surgery, Istanbul, Turkey

Aim: Fournier's gangrene, traumatic lesions and excision of scrotal skin lesions can all lead to significant scrotal defects. The perineum's diverse bacterial flora, difficulties in providing immobilization, and achieving a natural surface of the testes make testicular cover challenging. Several methods have been described to reconstruct the penoscrotal area. This report aims to present the medial circumflex femoral artery perforator (MCFAP) flap technique in this difficult area.

Method: From January 2019 to September 2022, 12 male patients underwent scrotal reconstruction in our clinic using the MCFAP flap due to Fournier's gangrene. These patients were retrospectively evaluated according to age, gender, comorbidities, defect size, donor area, perforators, length of hospital stay, follow-ups and complications.

Results / Discussion: In all cases complete scrotal coverage was accomplished with the MCFAP flap. The resulting scrotal shape was satisfactory (Fig. 1). Contamination was controlled by colostomy. In two patients venous insufficiency, and in three patients wound dehiscence was seen. Venous insufficiency improved with leech therapy. Detachments were healed by secondary suturing.

Figure 1. A perineoscrotal defect caused by Fournier's gangrene's (A) perioperative (B) and postoperative images (C-D).

Figure 2. The MCFAP flap can reach an axial rotation of 180°.

Conclusion: For perineoscrotal defects, the MCFAP flap offers a minimal donor site deformity, a one-stage procedure, and an acceptable scrotum-like shape. Additionally, it can be used as a chimeric flap, that includes the gracilis muscle. According to our findings, MCFAP is a superior local flap amongst the limited reconstructive options in this challenging area. Because this flap protects the testicle without raising its temperature, it also gives the testes a pliable local flap without being bulky.

EP125 TREATMENT OF REFRACTORY OVERGRANULATION TISSUE IN CHRONIC WOUNDS WITH HYDROFIBER (AQUACEL® EXTRA)

Seung-eun Hong[1]

[1]*Ewha Womans University Seoul Hospital, Plastic surgery, seoul, Korea, Rep. of South*

Aim: The treatment of overgranulation wound remains controversial and problematic. The surface is moist and an ideal medium for bacterial colonization and bio film formation. Therefore, lowering bacterial load, removing excessive moisture, flatten tissue can be considered as a method of treatment. Of the many antimicrobial agents available, povidone iodine has ability to penetrate biofilms, anti-inflammatory properties and low cytotoxicity. Hydrofiber (Aquacel® Extra) can absorb as much as 30 times its weight, permitting its use even in highly exuding wounds. In this case series, we aimed to examine the feasibility and document the use of povidone-iodine soaked hydrofiber in the treatment of overgranulation wound.

Method: A retrospective chart review was performed on consecutive patients who underwent povidone-iodine soaked hydrofiber dressing for overgranulation wound between 2020 and 2022. Upon identification of overgranulation wound, povidone-iodine soaked hydrofiber was applied as usual care for the treatment. Factors such as demographic data, past medical history, and wound characteristics were recorded. The status of the wounds was then examined on days seven, 14 and 21 of management.

Results / Discussion: This retrospective study included 56 patients with a mean age of 45.7 years, comprising 29.5% women. All wounds were reported to have healed or improved and 87.5% of the patients after 14 and 21 days, respectively. After 21 days, the wounds were smaller ($p<0.001$), and the percentage of overgranulation wound bed tissue had decreased ($p<0.001$). Tolerance of the dressing was good, with low levels of pain reported, both while wearing the dressing and on removal.

Conclusion: The use of povidone-iodine soaked hydrofiber for overgranulation wound was effective, inexpensive, noninvasive practical option and technically very simple.

EP126 VALUE OF EARLY COLOSTOMY IN PERINEAL WOUNDS

Mohammed Abdulateef[1]

[1]National Guard Hospital In Dammam, General Surgery, Alkhobar, Saudi Arabia

Aim: value of early colostomy creation in cases of badly infected perineal wounds and necrotizing fasciitis cases (commonly seen in immunocompromised status).

Method: over the last 2 years (period from February 2014 till March 2016) we had 10 patients with serious badly infected perineal wounds had diversion colostomy to minimize septicaemia, ARDS, renal and other complications. This was reviewed retrospectively versus severe cases which were managed without early colostomy. Double barrel sigmoid colostomy was commonly used in most cases (end colostomy was performed in one case only). Colostomy should be properly placed, well fitted with no leak around to prevent excoriation and soiling of the surrounding skin (pictures included).

Results / Discussion: Of cases of severe heavily infected necrotic wounds following incision and drainage of abscesses around the anus and perineal areas we noticed that cases where early colostomy was performed had a much better outcome with rapid healing and less complication. (One of the cases of Fournier's gangrene was following simple haemorrhoidectomy!!). Enriched diet with high protein could be commenced early for these patients to improve their nutritional status with no fear of soiling. Patient and his family should be prepared psychologically for the long-term management plan and repeated surgical intervention before closure colostomy.

Conclusion: Early diversion colostomy in cases of severe badly infected perineal wounds and necrotizing fasciitis may have a significant and dramatic effect on prognosis, rapid healing and less complication when it is done in the proper time without hesitancy. Patient should be prepared for a long-term management plan from all medical, surgical, psychological and social aspects.

EP127 WARFARIN INDUCED SKIN NECROSIS AND DIFFERENTIAL DIAGNOSES - A GUIDE TO EARLY DIAGNOSIS AND TREATMENT

Ellen Haahr[1], Sumangali Chandra Prasad[2]

[1]University of Southern Denmark, Sundhedsvidenskabeligt Fakultet, Odense, Denmark; [2]Odense Universitetshospital, Hudafdelingen I og Allergicentret, Odense C , Denmark

Aim: In rare cases warfarin paradoxically induces hypercoagulation, multiple microthrombi and necrotic skin ulcers. Severe cases may lead to amputation or death. Thus, early treatment is imperative and possibly life- or limb saving. Warfarin induced skin necrosis (WISN) can be difficult to diagnose, because of its rarity and many mimickers. The aim of this article is to establish diagnostic characteristics of Warfarin induced Skin Necrosis (WISN), with the intent of creating an easily accessible guide to aid physicians in early detection and treatment of WISN. The objective is to identify the differences in epidemiology, clinical and paraclinical findings between WISN and the differential diagnoses: heparin induced skin necrosis, calciphylaxis, pyoderma gangrenosum and antiphospholipid syndrome.

Method: Literature available on PubMed was reviewed to identify clinical features of WISN and the differential diagnoses. Exclusion- and inclusion criteria were applied to 465 articles. The included articles were reviewed and clinical features of the diseases were summarised and compared.

Results / Discussion: The five diagnoses mentioned have various clinical expressions, some rare, some common. Differentiation between the aforementioned diseases can be challenging. However, we were able to find dissimilarities in the histological, clinical and paraclinical characteristics, which might aid physicians in diagnosing WISN. Furthermore, we found consensus on treatment within the literature.

Conclusion: These diseases are rare, but nonetheless require early therapeutic treatment to minimize sequelae and potentially save the patient's limb or life. Treatment depends on the diagnosis, but all patients are given conservative wound care and may need surgical intervention.

EP128 THE TREATMENT OF SCLERODERMA ULCERS WITH HOMOLOGOUS APHERESIS PLATELET-RICH PLASMA FROM HEALTHY DONOR

Alessandra Grazia Condorelli[1], Alberico Motolese[1]

[1]AUSL-IRCCS di Reggio Emilia, Arcispedale Santa Maria Nuova Dermatology Unit

Aim: Skin ulcers, especially digital ulcers, are a frequent complication of systemic sclerosis, affecting about 50 percent of patients. They are often resistant to treatment, cause pain, and decrease patients' quality of life. The use of platelet-rich plasma (PRP) for the treatment of difficult-to-heal ulcers is already present in the literature, for diabetic, pressure, and vascular ulcers and for those undergoing a systemic sclerosis, albeit with a low level of evidence. The rationale behind the use of PRP is that since it is a platelet concentrate, it is characterized by a high presence of growth factors and molecules involved in the wound healing process.

Methods: We report 10 scleroderma skin ulcers that have been present for at least 6 weeks and are resistant to conventional treatments, such as prostanoids, phosphodiesterase 5 inhibitors, calcium channel blockers, antiplatelets, and advanced dressings. The ulcers were treated with homologous PRP, harvested by apheresis, gelled by thrombin and calcium gluconate, and applied at the ulcer site. The treatment was administered 1 time per week until the wound healed, for up to 8 weeks.

Results: We report a reduction in ulcer area of 78% after an average of 4,7 applications. In addition, all patients reported marked improvement in pain symptoms.

Conclusions: Homologous PRP is a good therapeutic option for scleroderma skin ulcers.

EP129 THE IMPACT OF A 100% CHITOSAN BASED DRESSING WITH BIOACTIVE MICROFIBER GELLING (TM) TECHNOLOGY AND THE IMPORTANCE OF EDUCATION IN THE MANAGEMENT OF ONCOLOGY WOUNDS

Susan Rice[1], Susy Pramod[2]

[1]CD Medical, United Kingdom; [2]The Christie NHS Foundation Trust, United Kingdom

Aim: Cancer diagnosis and subsequent treatments induce a set of symptoms and problems specific to each individual experiencing the disease trajectory. Intensity of cancer and its treatments can have major implications in relation to formation of wounds and woundcare management, leading to problematic long-term care, (Naylor et al, 2001) Sharing best practice is crucial.

During 2021 our tissue viability service found an increase in referrals up to 94.4% compared to pre-covid year for advice and support for the management of malignant fungating wounds. At this time, we were presented with the opportunity to assess the potential impact of a 100% Chitosan with Bioactive Microfibre Gelling (BMG) dressing to support wound management objectives.

Method: Evaluation of BMG dressing with 10 patients over 4-week period.

Results / Discussion: (BMG) dressing was able to:

Lock in the absorbed wound fluid.

Provide a barrier to bacteria whilst also providing antibiofilm properties.

Reduce odour, and wound area reduction.

100% patients experienced a reduction in pain within the first few dressing changes.

Promote wound progression across the healing continuum.

Support end of life woundcare.

A virtual conference to update clinicians across the UK in oncology wound management also facilitated sharing the results which was an enhanced experience for all involved.

Conclusion: The impact that the introduction of this advanced dressing has had in such a short period of time has been remarkable. Further publications pathway development and presentations are planned to share best practice from a European and international perspective.

EP130 FISH SKIN SUBSTITUTE USED AS BRIDGE THERAPY TO SPLIT THICKNESS SKIN GRAFT TO TREAT FULLY EXPOSED TENDON WOUNDS CAUSED BY INFECTION

Peter Lovato[1], Patrick McEneaney[1], Rimvydas Statkus[1]

[1]*Northern Illinois Foot & Ankle Specialists, Crystal Lake, United States*

Aim: To determine effectiveness of fish skin substitute (FSS) applications in high-risk non-granular wounds with fully exposed tendon as bridge therapy to STSG.

Method: Infections initially treated with antibiotics and/or I&D. FSS was then used to promote granulation tissue over exposed tendon. FSS was re-applied at intervals of 2-3 weeks until 100% granulation was achieved. NPWT was utilized at 75-125mm/hg. STSG 0.18in was used to complete healing. STSG donor site was from the posterior calf. Post-operative management after STSG utilized mineral oil, adaptic white foam and NPWT at 75mm/Hg. NPWT was discontinued at 5-7 days post op.

Results/Discussion: All cases had complete wound healing after 52-90days without complication. Full return to function was achieved in all cases. No cases of further amputation were encountered. Patients were seen weekly for dressing changes and FSS application. Comorbidities included DM, obesity, and PAD. Noninvasive arterial exam was performed on every patient with diminished pulses. Interventional cardiology utilized as needed.

Conclusion: Wounds with exposed tendon after infection frequently result in non-healing wounds, further infection, and loss of limb at a staggering rate. FSS can rapidly achieve granulation over exposed tendon even in patients with significant barriers to healing. High-risk healing areas included watershed area of the Achilles and anterior ankle dehiscence after total ankle arthroplasty. FSS provided an anti-bacterial layer which resulted in no recurrence of infection within the wound healing course after initial infection management. Rapid granulation tissue formation in <10 weeks over exposed tendon was seen. FSS reduced pain scores, provided an antibacterial layer, increased angiogenesis in an areas of decreased arterial flow, and cases of PAD to help facilitate wound healing.

EP131 SUCCESSFUL TREATMENT ALGORITHM OF CHRONIC PERINEAL HIDRADENITIS SUPPURATIVA WITH INTACT FISH SKIN XENOGRAFT: A CASE STUDY

Marcus Yarbrough[1]

[1]*Nassau University Medical Center , Burn and Wound Care , East Meadow, United States*

Aim: Evaluate wound contraction benefits of fish skin graft in the management of large surface area Hidradenitis Suppurativa of the perineum.

Method: Case Study. A 56-year-old male presented with chronic extensive HS involving the perineal and buttock area. The patient underwent weekly operative excision and debridement with application of fish skin graft over a period of 7 weeks. Wound surface area was measured and photographed using Image J software. Secondary observations included exudate amount, pain, and infection.

Results / Discussion: Patient results following 7 weekly excisional procedures with fish skin graft applications showed significant decrease in total surface area each week at the time of follow up. The median weekly surface area reduction was 38 cm2. The initial wound bed measured 750 cm^2. At 7 weeks wound surface area reduction of 484 cm2; approximately 35.4% decrease in total surface area. The fish skin graft had 100% wound bed incorporation at the time of each weekly clinical evaluation. We observed a notable decrease in wound bed exudate as well as a robust increase in granulation tissue followed by each application of the fish skin graft.

Conclusion: Attempts at creating an optimal wound bed, decreasing wound bed exudate, and wound contraction is the mainstay of ensuring formidable autograft success. Incremental surgical intervention in patients with large surface area HS can be achieved with staged excision, debridement, and sequential use of intact fish skin grafting. More studies are needed to evaluate the effectiveness of the utilization of fish skin grafts in the treatment of HS.

EP132 PHOSPHATURIC MESENCHYMAL TUMOR ALONGTHE HALLUX SIDE INDUCING A CHRONIC NON-HEALING WOUND: A CASE REPORT WITHLITERATURE REVIEW

Sun Xiaofang[1], Shaohan Wu[2], Xie Ting[3]

[1]The Second Hospital of Jiaxing Affiliated to Jiaxing University, Department of Dermatology, Jiaxing, China; [2]The Second Hospital of Jiaxing Affiliated to Jiaxing University, Department of General Surgery, Jiaxing, China; [3]Shanghai 9th People's Hospital, Shanghai Jiao Tong University School of Medicine, Wound Healing Department, Shanghai, China

Aim: Phosphaturic mesenchymal tumor (PMT) is a rare paraneoplastic syndrome. The diagnosis of PMT is very difficult because of its insidious and small size, especially, when it appears in subcutaneous tissue with a chronic non-healing wound.

Method: We report a rare case of a 38-year-old man with a chronic non-healing wound on the left hallux for approximately eight months. Radiographic images, Pathologic examination, immunohistochemistry, ELISA, and RT-PCR were used to investigate the association between PMT and chronic non healing wound.

Results / Discussion: Plain radiographic images and magnetic resonance imaging (MRI) revealed a cystic radiolucent shadow in the left distal phalanx. Bone scan observations also showed increased uptake in the same location. Histologically, this tumor was composed of numerous spindle cells with clusters of giant cells. The serum FGF23 level was significantly higher before surgery, with higher FGF23 levels closer to the tumor. RT-PCR and immunohistochemistry further confirmed the high expression of FGF23 in tumors. The tumor was CD56- and D2 to 40-positive and CD31-negative.

Conclusion: These data suggest that FGF23 may be a potential causative factor of PMT. The serum FGF23 levels might be useful for the diagnosis of PMT and localization of the tumor. The non-healing wound caused by PMT might be attributed to the invasive growth of the tumor, destruction of intercellular junctions, and decrease in the number of endothelial cells.

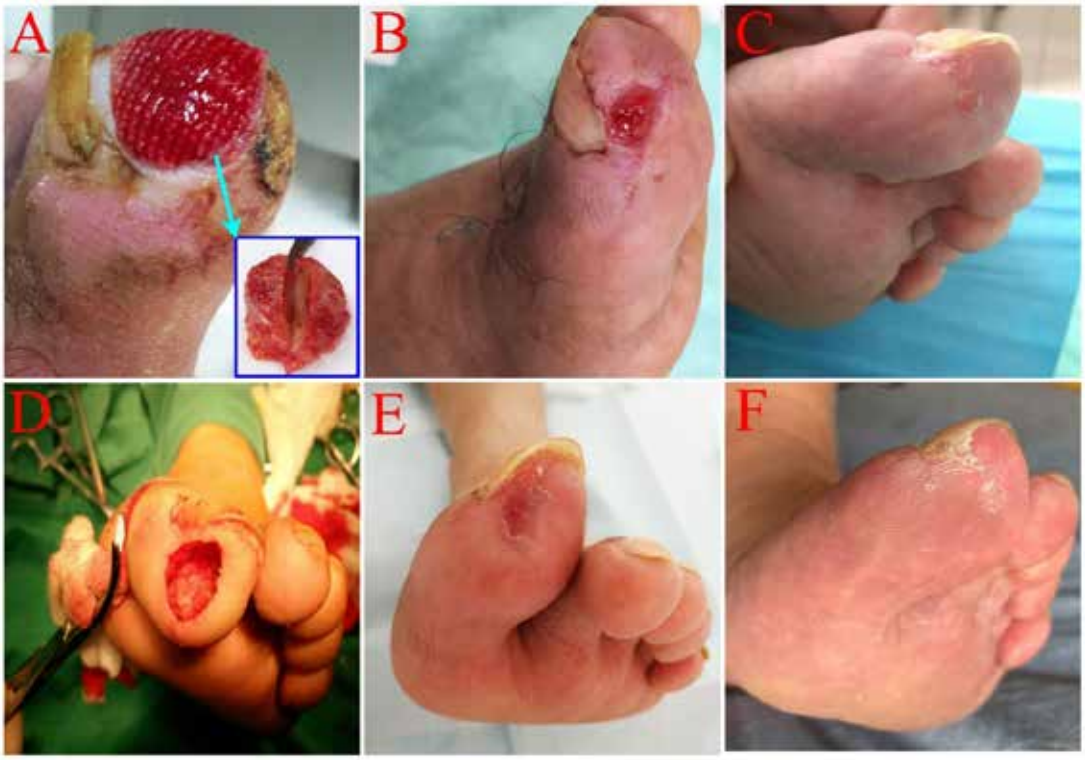


Figure 1.

Figure 2.

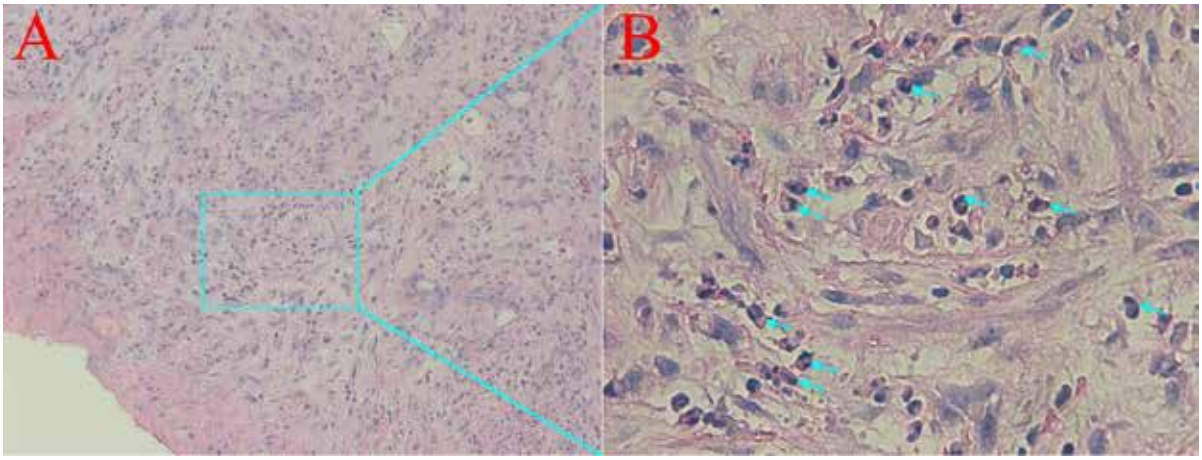


Figure 3.

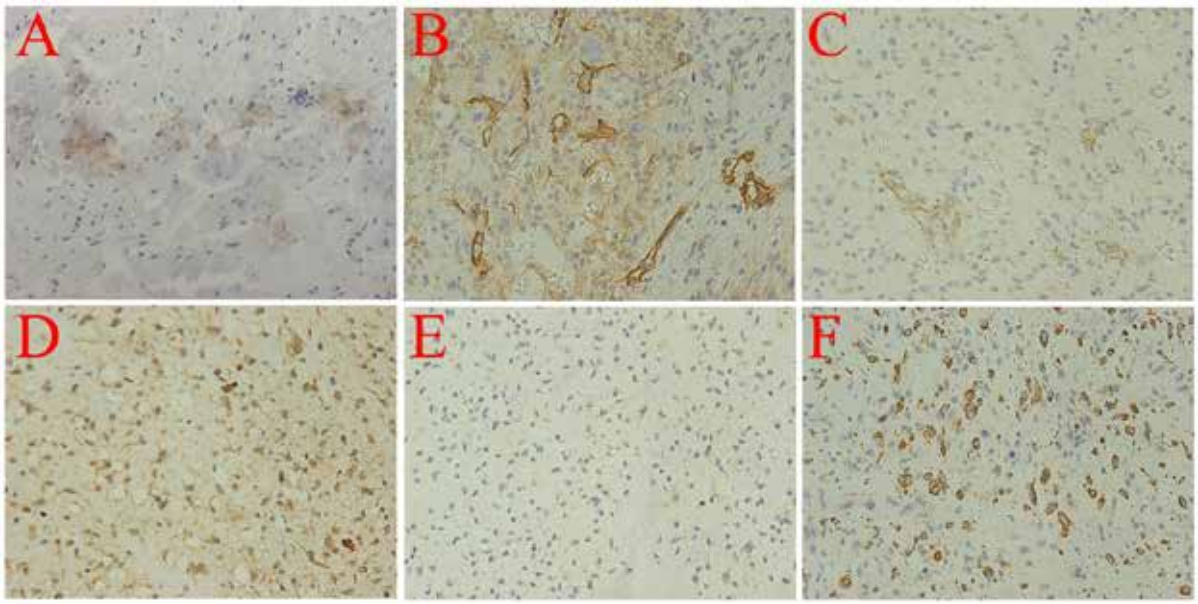


Figure 4

Figure 5

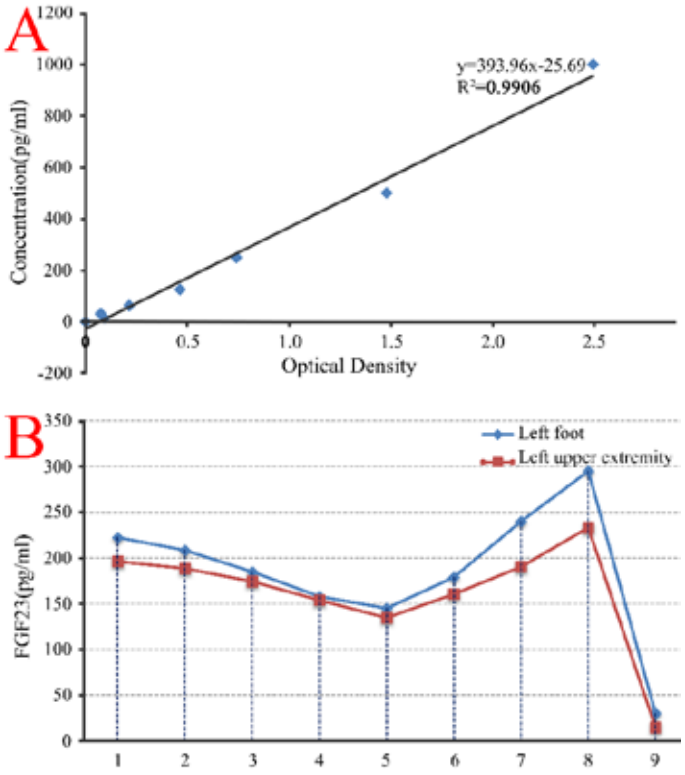


Figure 6

EP133 DYSTROPHIC EPIDERMOLYSIS BULLOSA: TREATMENT OF SYNDACTYLIES AND CONTRACTURES

Monika Rimdeikaite[1], Rytis Rimdeika[2]

[1]Vilnius University Faculty of Medicine, Vilnius, Lithuania; [2]Lithuanian University of Health Sciences, Kaunas, Lithuania

Aim: The term Epidermolysis Bullosa (EB) refers to a group of disorders best characterized by blister formation resulting from increased skin fragility. Clinical manifestations range widely but the localized blistering of the limbs is present in majority of the patients. The hands and feet are exposed to blistering due to intensive use during normal daily activity, with secondary scarring leading to pseudosyndactyly, adduction contracture of the thumb, and flexion or extension contracture of the fingers.

Method: All types of EB are rare; the overall incidence and prevalence of the disease is approximately 50 per one million live births. Around 92 percent are cases referred to EB Simplex and only 5 percent to Dystrophic EB. Optimal patient management requires a multidisciplinary approach and involves susceptible tissue injury prevention, the use of advanced wound dressings, nutritional support, and adequate surgical interventions to correct extracutaneous complications. Prognosis varies considerably and is based on both the EB subtype and the overall health of the patient.

Results / Discussion: We present 12 clinical cases and the treatment options for patients suffering from syndactyly and contractures due to Dystrophic EB. The standard surgical approach for correcting these deformities is based on degloving of the affected limb, combined blunt-to-sharp release of pseudosyndactyly and contractures as well as skin grafting of the secondary wounds. Post-op protocol requires individual custom-made splinting and fixation of the released fingers, ensuring proper recovery without secondary contractures. Non-adhesive contact dressings play a major role in the dressing technique.

Conclusion: Authors conclude that an individual surgical attitude, along with adequate intra- and post-operative rehabilitation, ensures restoration of function and a delay of inevitable recurrence.

EP134 MARJOLIN'S ULCER AS THE RESULT OF POST-BURN SCAR TRANSFORMATION

Monika Rimdeikaite[1], Rytis Rimdeika[2]

[1]Vilnius University Faculty of Medicine, Vilnius, Lithuania; [2]Lithuanian University of Health Sciences, Kaunas, Lithuania

Aim: To present six clinical cases of post-burn scar ulcerations and transformations into Marjolin's ulcer – a rare type of squamous cell carcinoma.

Method: Marjolin's ulcer is a squamous cell carcinoma that occurs in the area of chronically wounded or scarred skin. It is a locally spreading aggressive tumor that has a high metastatic potential with the malignant change occurring approximately 10-25 years after the initial injury. Clinically, in about half of the cases, ulceration occurs on the lower limb, and the ulcer can close and reopen repeatedly. Clinically, Marjolin's ulcer presents as painful ulceration in the hypertrophic scar and is associated with foul-smelling pus, crusting, and bleeding. As the lymphatic vessels undergo local destruction, there is an absence of exudation and the appearance of a dry wound bed. The tumor edge is everted and not always raised as in the other forms of squamous cell carcinoma.

Results / Discussion: The treatment of Marjolin's ulcer is similar to that of squamous cell carcinomas. Wide excision of the lesion with 1 cm safe margins all around is required, with radial removal being the aim. The depth of the excision depends on the depth of the ulceration. In our six presented clinical cases, the defects after the excision were closed using either skin split thickness flaps or local flap rotation.

Conclusion: The ulceration of post-burn scar on the lower extremity should always be closely investigated with the biopsy being essential for the diagnosis. Tissue specimens should be obtained from the margins and center of the lesion. A meticulous follow-up of the ulceration is necessary in the case of a negative diagnosis.

E-POSTER SESSION: BURNS 1

EP135 THE EFFICIENCY OF USING BROMELAIN ENRICHED WITH PROTEOLYTIC ENZYMES ON THE BURNED WOUND

Mihaela Pertea[1], Madalina Fotea[2], Oxana-Madalina Grosu[3], Stefana Luca[3]

[1]"Grigore T. Popa" University of Medicine and Pharmacy, Iasi, Romania; Department of Plastic Surgery and Reconstructive Microsurgery, St. Spiridon Emergency County Hospital, Iasi, Romania, Plastic Surgery, Iasi, Romania; [2]Sf Spiridon Emergency County Hospital, Plastic Surgery, Iasi, Romania; [3]"Grigore T. Popa" University of Medicine and Pharmacy, Iasi, Romania; Department of Plastic Surgery and Reconstructive Microsurgery, St. Spiridon Emergency County Hospital, Iasi, Romania, Plastic Surgery, Iasi, Romania

Aim: Bromelain, an extract from the pineapple fruit, contains a mixture of proteolytic enzymes and non-enzymatic substances, having effects in the treatment of edema, inflammation, and pain. It can be administered orally, intravenously and topically on the burned skin. Enzymatic debridement in deep burns is increasingly used in recent years. The use of bromelain in order to remove eschars from deep burns is effective because it does not affect the skin, leaving a clean dermis after.

Method: The current study is carried out on a group of 21 patients with deep burn injuries, aged between 20 and 56 years, in which enzymatic debridement with bromelain was used. The inclusion criteria of the patients in the study group complied with the international protocols, unlike the application protocol, which was slightly modified compared to the usual one.

Results / Discussion: Spontaneous healing was obtained in 12 of the 21 cases, and in the remaining 9 cases free split skin grafting or micrografting with the MEEK technique was used. The evaluation of the results was done according to the Vancouver Scar Scale.

Conclusion: Bromelain can be successfully used in cases of deep burns, following a series of exclusion criteria for its use. Sometimes the application of Bromelain is succeeded by the necessity of grafting through various surgical techniques.

EP136 BURN IMAGE DATASET FOR CONVOLUTIONAL NEURAL NETWORK BASED DEEP LEARNING

Hyunghwa Jeong[1], Jeongmok Cho[1], Hyunsuk Suh[1], Joon Pio Hong[1], Soon Chul Kwon[2], Chang Sik Pak[1]

[1]Asan Medical Center, Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South; [2]Kwangwoon University, Seoul, Korea, Rep. of South

Aim: Burn is relatively common injuries in routine activities. Assessing the degree and extent of burn area is crucial in diagnosing and making plans for the treatment. In this study, we made the burn image dataset for convolutional neural network (CNN) based deep learning algorithm which can aid the assessment of burn.

Method: Total 5000 images of all degrees of burn were collected. The images were refined using RCAN (Residual chain attention networks) super-resolution and BRDNet (Batch-renormalization denoising network) denoising technologies. CNN based automatic wound annotation algorithm were applied to automatically search and annotate the area of injury. Annotated images were checked by the physicians.

Results / Discussion: All dataset were successfully obtained. After the learning, the model showed AUROC of 0.814 and AUPRC 0.5, with 0.89 of positive predictive value and f-score for 0.6.

Conclusion: We aim to construct burn assessment image dataset for CNN based deep learning algorithm, which showed satisfactory learning result. Ultimately, it would provide guideline in managing burn for non-healthcare providers.

EP137 DRESSED FOR SUCCESS: PREVENTION OF RADIATION INDUCED SKIN BREAKDOWN IN BREAST CANCER PATIENTS USING SOFT SILICONE FILM DRESSINGS-RESULTS OF A CASE SERIES WITH PATIENT REPORTED OUTCOMES

Rosemary Hill[1], Shana Gaynor-Champion[2]

[1]Vancouver Coastal Health, Wound, Ostomy, Continence Nursing , North Vancouver, Canada; [2]Mölnlycke Health Care, Norcross, United States

Aim: The purpose of this case series and patient survey was to describe clinical and patient reported outcomes associated with using soft silicone film (SSF) dressings to prevent radiation dermatitis (RD) in breast cancer patients undergoing radiation treatment (RT).

Method: Within 24 hours of starting RT, SSF dressings were applied to the breast area of 20 women and remained in place during and up to two weeks after RT completion. Clinical data collected by a certified wound care nurse included regular skin assessment and surveillance for RD development. Patient reported outcomes were collected via telephone surveys after RT completion and asked 20 participants to rate RT related skin breakdown, the impact of the SSF on daily life, SSF related pain and willingness to recommend the SSF intervention to other patients undergoing RT for breast cancer.

Results / Discussion: In this case series, none of the patients treated with SSF dressings demonstrated clinical signs of radiation induced skin breakdown. Patient survey results were positive with 40% of patients reporting no skin breakdown and 60% categorizing radiation related skin issues as faint erythema. All patients (100%) surveyed recommended this intervention for breast cancer patients undergoing RT.

Conclusion: The application of SSF dressings to protect the skin during RT prevented radiation induced skin breakdown in 100% of breast cancer patients treated. Most patients reported minimal, or no radiation induced skin issues and 100% of patients were willing to recommend this intervention to other breast cancer patients undergoing RT.

EP138 THE USE OF POLYLACTIC ACID IN ACUTE BURNS

Giorgia Fara[1], Maria Alma Posadinu[1], Giovanni Paolo Muzzeddu[1]

[1]*Azienda Ospedaliero Universitaria Sassari, Sassari, Italy*

Aim: The polylactic acid is one of the most reliable skin substitutes in the management of burn injuries. It preserves residual dermal tissue thus allowing for primary healing with a single treatment. The polylactic acid is used in split-thickness skin graft donor sites, intermediate and deep second-degree skin burns, and after enzymatic debridement for eschar removal in deep burns to stimulate.

The polylactic acid has shown remarkable effectiveness for patient comfort and management of acute burn injury pain, which allow undisturbed dressing changes while improving healing time and need for hospitalization. We observed that the use of the polylactic acid may further improve healing times, particularly in burns with full or even partial dermal spar.

Method: We have treated 30 patients with deep second-degree burns with the polylactic acid. We evaluated the following outcomes:

Pain assessment with visual analog scale (VAS)

Split-thickness skin graft donor sites

Accelerated cutaneous re-epithelialization

Reduced risk of infection.

Results: We found that 70% of patients showed no evidence of bacterial or fungal wound contamination evaluated by microbiological exams. The average time for re-epithelialization was 14 days with good pain control since the first application, as demonstrated by the reduced need for pain relief drugs.

Conclusion: Even if limited by the small sample size and the absence of a control group, our study suggests that the polylactic acid is effective for pain control in severe burn injuries and clearly accelerates cutaneous re-epithelialization with low risk of infection. These results encourage us to extend our research and recruit more patients to the study.

EP139 BURN COMBAT INJURY COMBINED WITH HIGH ENERGY DAMAGE

Olga Kovalenko[1], Anton Kovalenko[2], Heorhii Kozynets[2], Andrei Grisha[2]

[1]*Bogomolets National Medical University, Surgery 1, Burn Clinic, Kyiv, Ukraine*; [2]*KNP Kyiv City Clinical Hospital No. 2 , Ukraine, Burn Clinic, Kyiv, Ukraine*

Aim: Improve treatment regimens for burn combat trauma combined with high-energy injury.

Method: We observed 57 victims with combat high-energy injuries and burns in the Burns Clinic in 2022. All patients had burns more than 25%, mine-explosive injuries, had a contusion of the brain, a contusion of the lungs, and liver. 10 patients had tibial fractures with an external fixation device applied, 5 patients after laparotomy and relaparotomy. Rib fractures with bilateral haemothorax were observed in 8 patients. Patients had infected shrapnel and burn wounds.

Results / Discussion: As a result of the explosive mine injury on November 3, 2022, the patient received a penetrating shrapnel wound of the abdominal cavity with multiple ruptures of the small intestine, ruptures of the mesentery with continuous bleeding, fecal peritonitis. Burns 25%TBSA, inhalation injury, fracture of the right tibia, rib fracture, bilateral haemothorax. Closed craniocerebral injury. In the military field hospital on November 3, 2022, bilateral thoracocentesis with drainage of the pleural cavities was performed according to Bülau. Laparotomy. Resection of the small intestine of 85 cm. Stoppage of mesenteric bleeding. The distal and proximal ends of the small intestine are blocked (DCS). Transferred to the regional hospital. 4.11.22. Closed repositioning. osteosynthesis of bones right tibia. Lower tracheostomy. Relaparotomy. Ileoascendostomy. 7.11.22 patient was transferred to the burn clinic for surgical treatment. The average duration of treatment for burns was 60 5 days, shin fractures 8± 2 months, osteomyelitis developed in 20% of patients, amputations were performed in 2% of patients.

Conclusion: "High-energy" combat trauma requires applying the FAST protocol, MARCH bleeding control and Damage control surgery.

EP140 TRENDS AND INNOVATION IN NEGATIVE PRESSURE WOUND THERAPY (NPWT): BURNS WOUND MANAGEMENT

Edin Nuhiji[1]

[1]3M, Medical Solutions Division , Melbourne, Australia

Aim: Burns injuries are caused by exposure to hot surfaces, liquids, gases, friction, and UV/ionizing radiation.[1] Standard of care involves clinical considerations which protect the patient, limit burn progression, and achieve wound closure. Negative pressure wound therapy (NPWT*) and NPWT with instillation and dwell (NPWTi-d†) are two advanced therapies which have improved outcomes for burn patients.[1,3-4] NPWT/NPWTi-d optimize wound healing conditions within a closed regulated environment. NPWTi-d further enhances therapy by combining wound cleansing phases with NPWT.[3-4] To address a high-level evidence gap[2], this analysis provides a general review of NPWT and NPWTi-d use in burn wound management.

Method: A literature search was performed using PubMed and Embase for peer-reviewed publications and conference abstracts written in English reporting on burn management using NPWT* and/or NPWTi-d† from a single manufacturer between 2000 and 2021. All burn types were included.

Results / Discussion: Thirteen studies and 222 patients were available for assessment. Use of NPWT was reported in majority of the studies (n=11) and 2 studies described NPWTi-d. Graft take (>85 %) and consistent definitive wound closure was observed in all studies. The most prescribed negative pressure setting was -125 mmHg. Delayed primary closure the most reported method of wound closure. Cyclic phases of fluid instillation delivered to the wound (NPWTi-d), may improve time to final wound closure.

Conclusion: The use of NPWT and or NPWTi-d in burn care has reported improved potential in wound bed preparation which ultimately lead to final wound closure. The use of these modalities should be considered in the management of burn care patients.

*3M™ V.A.C.® Therapy; †3M™ Veraflo™ Therapy (3M Company, St. Paul, MN, USA)

E-POSTER SESSION: DIABETIC FOOT 2

EP141 USE OF TRADITIONAL REMEDIES FOR TREATMENT OF DIABETIC FOOT ULCERS: A CROSS SECTIONAL STUDY AT A TERTIARY CARE CENTER IN SAUDI ARABIA

Khaled Edrees[1], Mansoor Radwi[2], Alanood Alqahtani[1]

[1]Dr. Edrees Medical Center, Jeddah, Saudi Arabia; [2]University of Jeddah, Jeddah, Saudi Arabia

Aim: Patients with diabetic foot ulcer (DFU) are prone to major complications including amputations. Traditional medicine (TM) has been used to treat DFU around the world. This study aims to identify prevalence of TM in among patients with DFU in our local cohort and its effect on DFU.

Method: 1,416 patients were included in the analysis. A podiatric physician or a trained nurse filled a questionnaire as part of interviewing patients at their initial visit. We collected patient demographics as well as characteristics of DFU including presence of Charcot joint and grading of ulcer using Wagner scale.

Results / Discussion: The mean age of cohort was 60 years (SD=12). Majority were males (70%) and had type 2 diabetes (95%). The mean duration of diabetes was 19 years (SD=9). (42%) percent of patients were treated with TM (28% were self-prescribed and 14% prescribed by a physician). More than two-third of cohort had cellulitis and/or osteomyelitis and only (8%) had Charcot joint at the time of presentation. Use of traditional medicine was significantly associated with higher Wagner grade of ulcer as well as presence of cellulitis and/or osteomyelitis ($p < 0.001$ for both variables) but not with Charcot joint. **Conclusion:** There is high use of traditional remedies for treatment of DFU in our cohort. It was also highly associated with high Wagner grade of foot ulcers as well as presence of diabetic foot infection. This studied showed for the first time the use of traditional medicine by medical physicians. We need to educate both patients and physicians on the detrimental effects of using traditional medicine on DFU.

EP142 PRO-ACTIVE CARDIOLOGICAL SCREENING IN DIABETIC FOOT PATIENTS BEFORE REVASCULARIZATION FOR CHRONIC LIMB-THREATENING ISCHEMIA (CLTI)

Letizia Pieruzzi[1], Lorenzo Conte[2], Nicola Troisi[3], Daniele Adami[3], Flavio Buttitta[2], Chiara Goretti[1], Elisabetta Iacopi[1], Alberto Piaggesi[1]

[1]University of Pisa, Diabetic Foot Section Department of Medicine, Pisa; [2]University of Pisa , Cardio-Angiology Section Cardio-toracic Department, Pisa; [3]University of Pisa, Vascular Surgery Unit Cardio-toracic Department, Pisa

Aim: Diabetic foot (DF) is a marker of cardiovascular pathology, often underestimated and undetected because of lack of symptoms in the presence of neuropathy; we aimed to evaluate the efficacy of a proactive cardiological screening in a high-risk cohort of DF patients affected by CLTI in identifying undetected cardiac pathologies in need of specialistic care.

Method: Fifty consecutive patients (age 74,3±10,98 yrs, 35M/15F, 3 T1DM and 47 T2DM) underwent a pro-active cardiologic evaluation including electrocardiogram and echography of the heart [all performed by the same cardiologist (LC)] before the endovascular revascularization for CLTI in our DF Section between January and June 2022, as part of the multidisciplinary management program.

Results / Discussion: Twenty-eight out of 50(56%) patients had a history of chronic ischemic heart disease, 5/50(10%) chronic heart failure and 8/50(16%) a moderate-severe valvulopathy. The proactive screening identified 5/50(10%) cases that needed specific cardiac treatment before the endovascular revascularization of the limb. In detail, we identified 3 patients with acute heart failure, 1 with a silent ischemic coronary disease and 1 with a severe valvulopathy.

Conclusion: The proactive cardiological screening revealed not previously recognized heart disease in up to 10% of CLTI patients. These data highlight the importance of screening high-risk DF patients before revascularization.

EP143 THE USE OF INFRARED THERMAL IMAGING AS A PREDICTOR OF HEALING IN TRANS-METATARSAL AMPUTATION IN DIABETIC FOOT PATIENTS

Nicola Riitano[1], Chiara Goretti[1], Linda Luppichini[1], Letizia Pieruzzi[1], Elisabetta Iacopi[1], Alberto Piaggesi[1]

[1]Pisa University Hospital, Diabetic Foot Section, Pisa, Italy

Aim: To evaluate the efficacy of infrared thermal imaging (IRT) in predicting healing of diabetic foot (DF) trans-metatarsal amputation (TMA).

Method: we prospectively studied all the consecutive DF patients admitted in our department May-June 2022 who had indication for TMA, didn't have a non-revascularizable critical ischemia and weren't smoker. We evaluated them with IRT (FLIR ET 500 infrared thermal camera) measuring skin temperature (ST) pre-operational (V0), one (V1) and two (V2) days after TMA, and at the desuture (V3) in three points of the plantar flap. Patients were then divided into two group: healed (G1) and not healed (G2) at three weeks.

Results / Discussion: we enrolled 10 patients (6G1/4G2), [1/9 DM1/DM2, duration of diabetes 21.3±7.3 yrs, $TcPO_2$ 46.8±4.8 mmHg]. At V0 average ST did not differ between the groups (35.45±0.42°C in G1 vs 34.73±0.42°C in G2), at V1 [36.05±0.17°C vs 34.57±0.32°C ($p<0.002$)] and V2 [36.25±0.17°C vs 34.35±1.46°C ($p<0.046$)] ST was significantly higher in G1 than in G2, while at V3 no differences were found between the groups [34.65±0.33 in G1 vs 34.12±0.2 in G2 ($p=0.095$)].

Conclusion: Our preliminary data shows that ST measured with IRT in the days immediately after TMA in DF patients may predict healing of the surgical wound at 3 weeks.

EP144 THE ROLE OF FLUORESCENCE BACTERIAL SCANNING IN THE IDENTIFICATION AND TREATMENT OF INTERTRIGINOUS BACTERIA IN DIABETIC FEET

Charles Andersen[1], Katherine McLeod[1], Rowena Steffan[1]

[1]Madigan Army Medical Center, Vascular/Endovascular/Limb Preservation Surgery Service, Joint Base Lewis-McChord, United States

Aim: Interdigital/intertriginous bacteria in diabetic patients can be a significant source of infection. Through fluorescence scans of bacteria, we previously identified an interdigital micro-fissure as the entry point for bacteria in a diabetic foot patient who did not have an obvious wound. This pilot study aims to determine the prevalence and management strategies for intertriginous bacteria in diabetic patients.

Method: 10 consecutive diabetic patients being seen for lower extremity wounds not involving the toes were scanned for intertriginous bacteria using fluorescence imaging*.

Results / Discussion: 50% of scanned patients had intertriginous bacteria. Of those, 2/5 had unexpected small fissures. In our treatment algorithm, all patients with diabetes and lower extremity wounds are scanned for intertriginous/interdigital bacteria. Negative scan patients are educated on daily hygiene and preventative measures. For positive scan patients, we thoroughly clean between the toes (flossing motion with gauze soaked in Dakin's solution), and if bacterial signal remains positive, patients are given at-home hygiene recommendations and a silver alginate strip** is prescribed.

Conclusion: Small fissures are a potential entry point for bacteria that can lead to infection, even in absence of an obvious wound in the vicinity. Fluorescence imaging provides objective information on presence of intertriginous/interdigital bacteria. It can document its successful removal after hygiene measures, providing feedback for patients and clinicians, and is foundational for educating patients on the importance of at-home intertriginous cleansing and not applying lotion between the toes. Altogether, this may decrease risk of diabetic foot infections originating from intertriginous bacteria.

*MolecuLight; **Aquacel Ag

EP145 THE EFFICACY OF AN AUTOLOGOUS WHOLE BLOOD CLOT, IN THE TREATMENT OF DIABETIC FOOT ULCERS – ANALYSIS FROM A REGISTRY TRIAL

Maxim Gurevich[1], Marie Williams[2], David Davidson[3], Naz Wahab[4], Jessie Hawkins[5], Robert Snyder[6]

[1]Hillel Yaffe Hospital, Diabetic Foot Clinic; [2]Aventura Hospital & Medical Center, Aventura, United States; [3]Buffalo General Medical Center, Buffalo, United States; [4]Wound Care Experts, Las Vegas, United States; [5]Franklin Health Research & Education Center, Franklin, United States; [6]Barry University, Miami Shores, United States

Aim: Diabetic foot ulcer (DFU) continues to be a worldwide health problem, with a huge burden on the medical system.

An autologous whole blood clot (AWBC), creates at a point-of-care, assists in reconstructing the extracellular matrix (ECM), leading to an organized manner of healing via the recruitment of cells, mediators, growth factors, and cytokines to the wound, resulting in cell granulation.

Method: 29 patients, >18 years, with chronic DFUs, were part of a registry study (NCT04699305). AWBC was created by using the patient's peripheral blood at a point of care. AWBC efficacy and superiority on weeks 4 and 12, over standard of care (SOC) treatment, were established.

Results / Discussion: A total of 29 patients with multiple comorbidities were evaluated. Mean wound size at baseline was 9.36 cm2 (SD=12.02; range 0.5, 38.5). AWBC showed superiority over the standard of care (SOC) on weeks 4 and 12 with 75.86% and 95% achieving 50% wound reduction on week 4 and complete healing by week 12, respectively (p=0.001).

Conclusion: AWBC was found to stimulate and activate the migration of growth factors to the injured area promoting the secretion of cytokines necessary to progress the wound toward healing. AWBC, was found to achieve complete wound closure and 50% percent area reduction at 4 weeks in 31% and 76% of the patients, respectively, in chronic and complex hard-to-heal DFUs.

AWBC treatment showed superiority over SOC treatment in hard-to-heal wounds, and provides closure of vital structures, wound closure, and reduction in overall wound size in a timely manner.

EP146 DERMAL COLLAGEN WOUND DRESSING COMBINED WITH NEGATIVE PRESSURE WOUND THERAPY

Seung-eun Hong[1]

[1]Ewha Womans University Seoul Hospital, Plastic Surgery, Seoul, Korea, Rep. of South

Aim: Negative pressure wound therapy (NPWT) is a well-known treatment modality in diabetic foot ulcerations (DFUs). However, diabetic foot, which are often hard-to-heal, any advanced wound care to aid healing is also recommended. ProHeal® is a collagen wound dressing which consists of 100 % dermal collagen and acts as biological therapy in the wound healing processes. This clinical trial was conducted to obtain clinical evidence on the use of a dermal collagen wound dressing with NPWT in patients with DFUs.

Method: A retrospective chart review was performed on consecutive patients who underwent dermal collagen (ProHeal®) wound dressing combined with NPWT (125 mm Hg) in the treatment of diabetic foot ulcer from 2020 to 2022. Collected data were organized into 5 categories: sociodemographic data, relevant medical histories, wound data, adjunctive treatments, complications. The status of the wounds was then examined on days 14, 28, 42 and 56 of management.

Results / Discussion: Thirtysix patients, with DFUs were included in this study. The mean age of the patients was 57.3 ± 6.5 years. There was an overall decrease in wound surface area over time. Average percentage reduction in DFU size at four weeks was 75.2%. Rate of complete healing rate at 8-weeks' follow-up was 64%. No significant complications have been noted.

Conclusion: This case series evaluation provides a snapshot of experience at one clinical center and the treatment of DFUs, and suggests that a dermal collagen wound dressing combined with NPWT may support progression to healing by modulating the wound environment. Further research may suggest the used of this dressing to shorten the length of time to achieve complete healing.

EP148 THE USE OF INFRARED THERMOMETRY IN THE IDENTIFICATION OF DIABETIC FOOT ULCERATION

Pauline Wilson[1 2], Declan Patton[1], Fiona Boland[1], Zena Moore[1], Niamh Phelan[2]

[1]Royal College of Surgeons in Ireland, Ireland; [2]St James's Hospital, Ireland

Aim: Research has shown that using thermometry in those with a history of diabetic foot ulceration (DFU) can reduce the rates of recurrent DFU. This study considered whether thermometry can identify early tissue damage and inform clinical practice.

Method: In this prospective observational study temperature measurements using the Flir E6 Infra-red camera were taken from 216 individuals attending outpatient diabetes clinics in a large urban teaching hospital in Ireland as part of a comprehensive diabetic foot assessment. Measurements were taken at foot sites associated with ulceration namely the plantar hallux, the 1st and 5th plantar metatarsal heads and the heel. Those identified at increased risk at baseline received repeat temperature measurement on 2 subsequent occasions in the following week. Any ulceration was subsequently recorded.

Results / Discussion: Of the 216 participants, 4% (n=9) developed ulceration within 7 days. All of these had been identified at high risk at baseline assessment and had a history of foot disease. A temperature differential of ≥ 2.2 degrees between sites of interest was recorded. Temperature ranges varied from 29.1 degrees Celsius to 37.6 degrees Celsius. High temperature was considered if over 35 degrees Celsius.

Temperature	DFU	No DFU
Low (<30)	0	21 (10%)
Normal (30.0-34.9)	2 (22%)	111 (54%)
High (≥35)	7 (78%)	75 (36%)

Conclusion: Initial analysis suggests that neither the 35 degree Celsius threshold nor a 2.2 degree Celsius temperature difference is indicative of inevitable tissue damage in this population in remission from DFU. Further investigation across larger cohorts is needed.

EP149 EFFICACY OF TOPICAL CONTROLLED OXYGEN THERAPY IN THE TREATMENT OF DIABETIC FOOT

Mohammad Mahbub Alam[1], Mafruha Nusrat Khan[2], Mahmud Sultan Sultan[3], Chowdhury Rashedul Mughni[4]

[1]Bangladesh Diabetic Wound & Footcare Limited., Diabetic Foot surgery, ঢাকা, Bangladesh; [2]BIRDEM General Hospital , General Surgery , Dhaka, Bangladesh; [3]Bangladesh Diabetic Wound & Footcare Limited., Diabetic Foot surgery, Dhaka, Bangladesh; [4]Bangladesh Diabetic Wound & Footcare Limited., Plastic Surgery , Dhaka, Bangladesh

Aim: Diabetes related foot ulceration (DFU) is one of the top causes of global disability (6.3%). Recurrence is more than 45% within 2 years and many remain unhealed with conventional therapies for extended period. Topical controlled oxygen therapy (TCOT) is proposed as a treatment for DFU by improving tissue oxygenation and collagen synthesis, promoting angiogenesis, enhancing the function of fibroblast and leukocytes, inhibiting microbial growth. This study is to evaluate the efficacy of TCOT in the management of DFUs.

Method: TCOT is applied cyclically at a controlled pressure (8-38 mm Hg) through a proprietary device connected to a stationary oxygen concentrator, for 45min /session, repeated on every 3rd alternate days for 4 weeks (10 sessions). All received standard wound care Wagner's grade2 and 3 patients were included.

Results: Among 50 patients, males are 68% and females are 32%. Complete wound closure achieved in 22% patients. Overall,62% had reduction of the wound area ranging from 15% to100%. None had major limb amputation and no recurrence at the ulcer site after 24 months follow up. Lost for follow up 5% of patients.

Conclusion: TCOT administered in conjunction with optimal wound care has significant benefits on healing rates of DFUs, lower recurrence rates and thus reduces hospital stay.

EP150 THE OUTCOMES OF A NEW REUSABLE FIBERGLASS AND POLYESTER COMBINED TOTAL CONTACT CAST SYSTEM (CELLACAST LOHMANN AND RAUSCHER) IN THE MANAGEMENT OF PLANTAR ULCERS

Alper Erkin[1], Taner Demirci[2], Ayse Gul Sahin[3], Ayse Hicret Kocabiyik[3], Ayse Celik Yilmaz[4]

[1]*Sakarya Üniversitesi* Tıp Fakültesi, Wound Care Clinic, Sakarya, Turkey; [2]*Sakarya Üniversitesi* Tıp Fakültesi, Endocrinology, Turkey; [3]*Sakarya Üniversitesi* Eğitim Ve Araştırma Hastanesi, Wound Care Clinic, Turkey; [4]*Duzce University, Nursing School, Duzce, Turkey*

Aim: To evaluate the outcomes of Cellacast® total contact cast (TCC) system (Lohmann&Rauscher Gmbh) in the treatment of plantar diabetic foot ulcers.

Method: From January 2020 to September 2022, a retrospective analysis was undertaken on all patients at our hospital who received Cellacast® TCC for ulcer therapy. 70 patients were detected.

Results / Discussion: Thirty-eight of 70 plantar ulcers (54,3%) were located in forefoot, eight (11,4%) were in midfoot and 24 (34,3%) were located in hindfoot. Median healing rate for forefoot ulcer (IQR) was 64.5 (41-100.75), midfoot ulcer (IQR) was 91,0 (47,0-182,0) and hindfoot ulcer (IQR) was 84,5 (63,5-115,5) consecutively (p=0,503). Seventeen ulcers didn't heal during treatment period.

Conclusion: These data support the utilization of this device as an alternative to conventional TCC or any other offloading device in the treatment of plantar diabetic foot ulcerations.

Table 1. Demographic Data.

	Results (n=70)
Age, year	57,3 ± 12,8
Gender, male, n (%)	47 (67,1)
BMI, kg/m2	29,4 ± 6,4
Duration of Diabetes, year	20,0 ± 8,3
GFR	83,7 ± 32,5
HbA1C, %	8,4 ± 1,8
LDL, mg/dL	118,5 ± 33,6

BMI; body mass index, GFR; glomerular filtration ratio.

Table 2. Chronic complications and Results

	Results (n=70)
Peripheral arterial disease, exist, n (%)	5 (7,1)
Peripheral neuropathy, exist, n (%)	38 (54,3)
Plantar ulcer localization, n (%)	
Forefoot	38 (54,3)
Midfoot	8 (11,4)
Hindfoot	24 (34,3)
Minor amputation, n (%)	9 (12,9)
Major amputation, n (%)	1 (1,4)
Mortality, n (%)	3 (4,3)

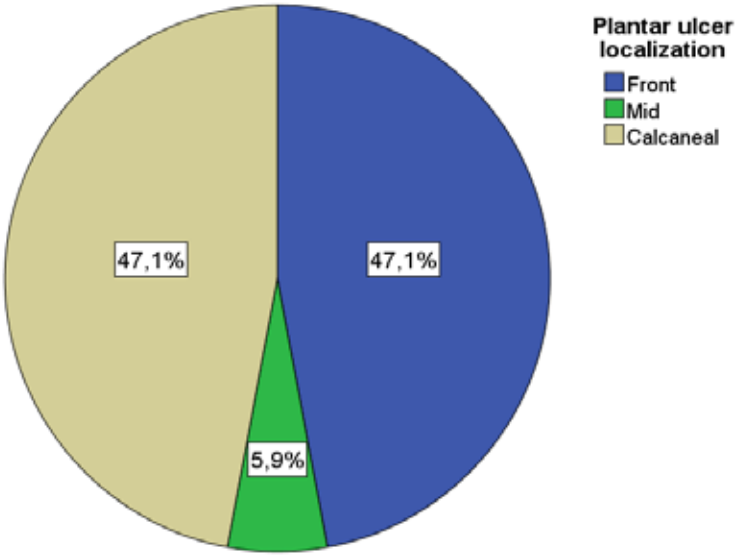


Figure 1. Localization of non-closure plantar ulcers.

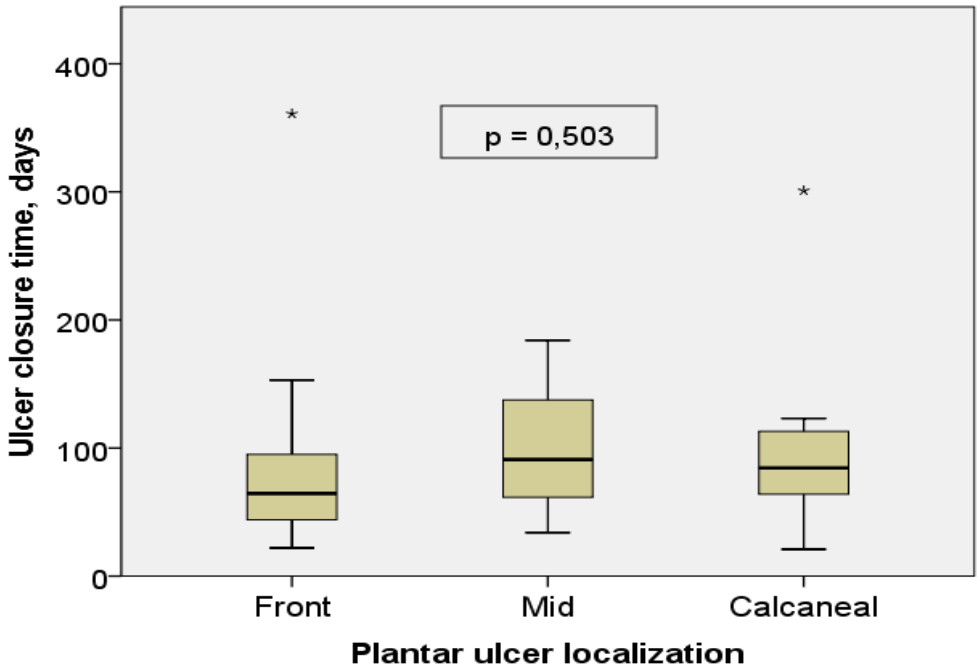


Figure 2. Comparison of ulcer closure times according to plantar ulcer localizations.

EP151 ADVANCED BIOMATERIALS AND TOPICAL MEDICATIONS IN TREATING DIABETIC FOOT ULCERS - A SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS

Dun Hao Chang[1 2]

[1]Far Eastern Memorial Hospital, Plastic and Aesthetic Surgery, New Taipei City, Taiwan; [2]Yuan Ze University, Information management, Toayuan, Taiwan

Aim: This study aimed to compare the efficacy of skin substitutes, biomaterials, and topical agents with standard care.

Method: A meta-analysis was conducted using Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. PubMed, EMBASE, and Web of Science were searched using the following keywords: diabetes mellitus AND skin graft OR tissue replacement OR dressing OR drug. Two independent reviewers performed data collection and quality assessment of the eligible studies. The primary outcome was the 12–16-week healing rates and the secondary outcome was recurrence rates.

Results / Discussion: Thirty-five randomized controlled trials, which included 3406 patients, were analyzed. The studies exhibited low heterogeneity ($\tau 2 = 0.08$) and no significant asymmetry (Egger's test, $P = 0.4122$). After pooling direct and indirect estimates, placenta-based tissue products exhibited the best wound healing probability (OR = 4.93, 95% confidential interval (CI) = 2.82–8.60), followed by skin substitutes with living cells (OR = 4.16, 95% CI = 2.83–6.12), acellular skin substitutes (OR = 3.17, 95% CI = 1.84–5.48), and advanced topical dressings (OR = 2.44, 95% CI = 1.75–3.40) compared with conventional care. The P-score ranking confirmed these results. The recurrence analysis, which included 11 studies, showed no significant improvement in the intervention group compared with the control group (11.21% vs. 15.15%).

Conclusion: This meta-analysis provides solid evidence to support the use of biomaterials and topical dressings in diabetic foot ulcer healing.

EP152 EFFECTIVENESS OF DEBRIDEMENT OF PLANTAR CALLUS IN PREVENTING DIABETIC FOOT ULCERS AT THE SEVERANCE HOSPITAL IN THE REPUBLIC OF KOREA

Han Eun jin[1]

[1]Severance Hospital, Diabetic foot clinic, Seoul, Korea, Rep. of South

Aim: This paper is the research to confirm the effectiveness of debridement of plantar Callus in preventing diabetic foot ulcers.

Method: High foot pressures are one of the important contributory factor. Callus can be a predictor of plantar foot ulceration and Removal of callus reduces high foot pressures. The study examined patients with diabetic who had visited the treatment room between January2019 and November 2022 and removed callus with/without ulcer. The effect was verified by checking the patient's medical record.

Results / Discussion: Before regular removal of the callus, the patients underwent an average of 1.65 minor amputation. 75% were neuropathy patients who did not need PTA. Patients removed callus every 3.2 weeks on average, with 9 (45%) being the most removed in 2 weeks. The most frequent visit was to the hospital every two weeks (45%). Twelve patients developed severe infections during regular visits to the hospital. Six out of eight patients developed sever infection were poor compliance of visit hospital, but nobody had major amputation. 2 patients were charcot and the two were treated well but were not enough to do off-loading for working.

Conclusion: Pressure relief must be addressed when treating diabetic foot ulcers and diabetic neuropathy. The wound care nurse plays a vital role as well in providing a gold standard when it comes to Diabetic patients with plantar callus.

EP153 IS PREVENTIVE OFFLOADING IN DIABETIC PATIENTS SUITABLE IN THE INDIAN SCENARIO?

Avinash Parmar[1]

[1]*P.D.Hinduja Hospital and Medical Research Centre, Surgery, Mumbai, India*

Aim: To address the contrasting view with regards to Preventive offloading in Diabetic patients for prevention of ulcers.

Method: Important Questions and Factors related to preventive offloading in Diabetic Foot patients formulated by the Multidisciplinary Diabetic Foot Management Team at our hospital. Systematic Review of literature done using PubMed, Scopus, and Google Scholar. Clinical practices and difficulties compared in Indian Scenario and the International Guidelines, including IWGDF guidelines.

Results / Discussion: India is labelled as "Diabetic capital of the world". Diabetic foot ulcers in India were found in 4.54% of patients newly diagnosed diabetes of these, 46.1% had neuropathic, 19.7% had ischemic, and 34.2% had neuroischemic foot ulcers which often lands up in unexpected amputation. Offloading of unperceived areas of plantar stress is critical for preventing and effectively treating diabetic foot ulcers. Evidence supports the use of Total contact casts (TCC) as the gold standard for offloading open wounds in addition to therapeutic shoes and insoles. Novel approaches in surgical techniques and advance in wearable technologies shows extension in remission and improve the quality of life.

Conclusion: Although there is a gap between the evidence-based guidelines and current practices in India, benefits are demonstrated for use of preventive offloading in the treatment of diabetic foot ulcers. Diabetes foot education programs should be implemented nationwide to create awareness regarding prevention and for improving the management of diabetic foot patients. This may reduce foot amputation rates and decrease the burden of diabetic foot throughout India.

EP154 IN SERVICE EVALUATION OF THE APPLICATION OF TLC-NOSF DRESSING TO SURGICAL WOUNDS IN PATIENTS WITH KNOWN VASCULAR DISEASE FOLLOWING SURGERY FOR CHARCOT NEUROPATHY

Raju Ahluwalia[1], Ines Riechert[2], Peter Kosa[2]

[1]*King's College Hospital, Trauma and Orthopaedic, London, United Kingdom*; [2]*Kings College Hospital NHS Foundation Trust, London, United Kingdom*

Aim: Charcot neuroarthropathy leads to deformity and chronic ulceration, reconstructive surgery offers the potential of limb salvage. Wound complications following limb surgery in diabetes can be problematic as rapid predictable healing is required to prevent bacterial colonisation, infection that can lead to failure. A comparative assessment of standard treatment with and without TLC-NOSF dressings as part of a in service quality improvement study in the management of post-surgical wound dehiscence/ breakdown following diabetic foot surgery.

Method: All patients with diabetes undergoing staged CN reconstruction with documented PAD, presenting with wound dehiscence or breakdown or reduced healing were included. Patients underwent standard treatment routine office-based debridement with standard dressings and total contact casting. From Aug 2021 4pts were also treated with a TLC-NOSF dressing was applied. All patients were prospectively followed up, to primarily assess wound healing, the time to complete healing, and secondarily treatment complications.

Results / Discussion: Fifteen patients were identified from May 2014 - August 2022 in a specialized diabetic foot unit undertaking limb preservation surgery. The overall time to healing was 16.8weeks, and the mean lesion size was 2.3cm^2, we observed the speed of healing improved with TLC-NOSF dressing from 0.11cm^2/week (n=11) to 0.14cm^2/week (n=4), leading to a possible reduction in healing time of 2 weeks for every 1cm^2. No patient required revascularisation during follow-up, but all were treated with bacterial specific antibiotics until wound healing.

Conclusion: Early results suggest, wound healing can be improved using TLC-NOSF dressings, allowing timely resolution of wound dehiscence for cost effective care.

EP155 EVALUATION OF THE APPLICATION OF A GEL WITH COPPER NANOPARTICLES IN 20 CHILEAN PATIENTS WITH DIABETIC FOOT ULCER

Maria Ines Diaz[1], Claudia Ramirez[2], Edgardo Rojas-Mancilla[3], Giselle Avila[4]

[1]*Escuela Ciencias de la Tierra/Biocellix, Innovacion, Chile*; [2]*Coaniquem , Chile*; [3]*Universidad Bernardo* O´Higgins, *Coordinador Escuela de Tecnología Medica , Chile*; [4]*Clinica CONSAN, Chile*

Aim: Over the last decade the rate of amputations due to diabetic foot ulcers (DFU) has increased by 28% and will continue increasing as diabetes does too. Despite the wide variety of products to treat them, it is still an unsolved problem, allowing the exploration of new solutions. Thus, the objective of our project is to evaluate the effectiveness of a gel made from natural active ingredients and supplemented with copper nanoparticles in the treatment of DFU.

Method: Twenty patients were recruited for the study, following these criteria: patients diagnosed with diabetes permanently monitored at the health center, with a first-time or single recurrence wound. Subsequently, after a signed an informed consent form the product was applied according to the instructions of the health personnel, followed up for 4 weeks. Photographic record and a drawing of the wound were obtained to determine the wound area. In some cases, proinflammatory interleukins were measured.

Results / Discussion: The average age of the treated patients was 60.2 years and 53% of them were women. The patients had an average of 14 years with diabetes. After four weeks product application it was observed that in most of the treated patients (90%), the wound area was reduced around 80%. Also, a reduction on proinflammatory interleukins was observed.

Conclusion: This preliminary pilot study shows promising results of the use of copper nanoparticles in reducing the area of DFUs. Patients with less reduction in wound area had deeper wounds and required 3-4 more weeks of product application. Further study is required to understand the cellular pathways involved in these results.

EP156 TREATMENT OF WAGNER 2 DIABETIC FOOT ULCERS WITH ACELLULAR FISH SKIN SAVES MONEY IN THE FIRST YEAR OF THERAPY

John Lantis[1], Callie Horn[1]

[1]Mount Sinai West Hospital and the Icahn School of Medicine, Surgery, New York, NY, United States

Aim: The overall cost of using of cellular or tissue-based therapies to close diabetic foot wounds is usually misrepresented. The cost of treating a cohort of patients must include the cost of success and the cost of failure.

Method: The real costs of treating 102 DFU's over 12 weeks of wound that were randomized to treatment with acellular fish skin (AFS) or a collagen alginate dressing (CAT) is assessed.

Results / Discussion: The real cost in 2022 U.S. Dollars is exhibited below.

	CAT	FSG
Product cost per application (x3 per week):	$ 15.00	$ 509.00
Cost of home nurse visit:	$ 177.53	--
Cost of outpatient visit (CAT only):	$ 57.45	$ 57.45
Cost of skin sub application (FSG only):	--	$ 164.38
Total weekly cost per application	**$ *279.98***	**$ *673.38***

Cost to heal (0r not) an ulcer = weekly cost x number of weeks x number of (un) healed patients

AFS cost = Total cost of care / 29 healed patients = $9235; CAT cost = Total cost of care / 16 healed patients = $6124.

According to Medicare*, the total cost of care for ulcer in 1 year = $29,347; weekly cost = $29,347/52 = $564.37. Assuming non-healed ulcers would stay open for the year. Cost of care for CAT = 35 patients x 40 weeks x $564.37 = $790,118 versus Cost of care for FSG = 22 patients x 40 weeks x $564.37 = $496,646

- Annual cost per therapy = total cost of care in study + cost of care rest of the year
- Annual cost per therapy per patient = Annual cost per therapy / 51
- FSG annual life cost per individual = $13,926
- CAT annual life cost per individual = $16,744

Conclusion: Including the cost of complications of the unclosed DFU, treatment of Wagner 2 DFUs with AFS saves $2818 in the first year of therapy.

EP158 USE OF A DISPOSABLE NEGATIVE PRESSURE DEVICE IN THE MANAGEMENT OF VASCULAR WOUNDS: INDICATIONS, OUTCOMES, AND EXPERIENCES OF A LONDON VASCULAR HUB

Siobhan Lookess[1], Mark Portou[2]

[1]3M Health Care Ltd., Loughborough , United Kingdom; [2]Royal Free London NHS Foundation Trust, London, United Kingdom

Aim: Negative pressure wound therapy (NPWT) provision post-discharge varies resulting in increased length of stay (LoS), reduced mobility, and delayed mobilisation. Use of disposable NPWT (dNPWT) as a strategy for admission avoidance, reduced LoS and early ambulation is presented.

Method: Data were obtained from a prospectively collected database between January 2019 and June 2022. All dNPWT patients with complete records were included and compared with an advanced wound dressing (AWD) group.

Results / Discussion: Wounds included hallux, metatarsophalangeal joint excision, and multiple-toe amputations. Mean wound severity (SINBAD) classification was 4.5 and wound area 1740 mm^2. Median dNPWT duration was 12.5 days. dNPWT was applied in 59% of patients as a bridge to outpatient NPWT, with a LoS reduction of 17.5 days. Subsequent NPWT application occurred in 36% of patients. NWPT use was discontinued in the remaining patients due to satisfactory granulation tissue development. All patients returned to baseline mobility upon dNPWT application. Compared to AWD, reduced time to 50% wound area reduction (8.4 weeks versus 11.4 weeks) and time to healing (20 weeks versus 23.4 weeks) was observed with dNPWT use.

Conclusion: dNPWT use resulted in reduction of LoS, rapid ambulation, and improved patient NPWT system tolerance in patients requiring NPWT post-discharge.

EP159 ACELLULAR FISH SKIN OUTCOMES WHEN USED AS AN ADJUNCT TO FILL DEAD SPACE IN PATIENTS UNDERGOING BONY RESECTION OF THEIR FOOT

John Lantis[1], Callie Horn[2]

[1]Department of Surgery, Mount Sinai St Luke's and West Hospitals; Icahn School of Medicine, New York, USSurgery, New York, NY, United States; [2]Icahn School of Medicine, Mount Sinai West Hospital, New York, NY, United States

Aim: Acellular fish skin (AFS) can be used to re-inforce suture lines, or cover bone in patients undergoing partial foot amputations or bone resections. Other utility is in the setting of a ray amputation. In all cases the post-surgical wounds have a portion of hard to fill potential space.

Method: Seventeen patients that underwent bone resection, debridement or amputation had AFS placed over the bone, filling the dead space prior to primary closure of the skin and soft tissue. These operations were done as single stage operations, all patients were maintained as in patients post operatively for at least 4 days (median 6 days).

Results / Discussion: Two of the 17 required further surgical intervention to close the wounds. However none of the patient's went on to further amputation or bone loss. Primary closure was obtained in 15 of the patients within 30 days of the primary index procedure. All patients regained ambulatory status in conjunction with appropriate accommodative footwear. Negative pressure wound therapy was not used in these patients.

Conclusion: Acellular fish skin appears to be a viable adjunct for filling dead space and patients undergoing bony resection of their weight-bearing foot. A randomized controlled trial may elucidate whether AFS is superior to other methods to fill that space.

EP160 THE APPLICATION OF MOIST EXPOSED BURN OINTMENT-REGENERATIVE METHOD ON THE MANAGEMENT OF SEVERE DIABETIC FOOT ULCERS

Ming-hua Ding[1], Xu-sheng Liu[2]

[1]The Central Hospital of the 12th Sino-Railway Bureau (China Railway 12th Bureau Group Central Hospital), Department of Wound Repair; [2]The First Affiliated Hospital of SUN YAT-SEN University, Department of Burns

Aim: To sum up and explore the experience and effects of the application of Moist Exposed Burn Ointment Therapy (MEBT) with other multiple measures on the management of severe diabetic foot ulcers (DFUs).

Method: 110 patients with severe DFUs evaluated III degree or above with wet, dry or mixed type of gangrene were treated by MEBT combined with ultrasonic cleaning, negative pressure wound therapy, endovascular intervention, debridement, skin grafting and systemic comprehensive treatment.

Results / Discussion: Among the 110 patients, 2 patients died of cardiac infarction, 5 patients died of cerebral infarction and 6 patients with the DFUs were discharged without wound healing. All the other 97 patients were treated and rescued with foot wound healing and with the result of self-care ability. The cure rate for this group of patients in total is 88.1% with the wound healing within 42 days (the shortest) and 203 days (the longest).

Conclusion: MEBT was employed in the management of severe DFUs in collaboration with other multiple techniques. The results were satisfactory with effective decrease of limb amputation, the preservation of foot function and the shortening of the patients' hospital stays.

MEBT: Moist Exposed Burn Therapy. It's a series of medical procedure involving standard use of Moist Exposed Burn Ointment, which provides a moist environment for wound healing.

EP161 THE EVALUATION AND MANAGEMENT OF DIABETIC FOOT WOUNDS DURING THE SYRIAN CRISIS

Abdul Razzak Abdul Aziz[1], Mhd Belal Alsabek[2]

[1]The General Assembly of Damascus Hospital, General Surgery, Damascus, Syria, Arab Rep.; [2]Al-Mowussat University Hospital, General Surgery, Damascus, Syria, Arab Rep.

Background: Diabetic foot patients in Syria faced many challenges during the recent long-term crisis; they were obviously at higher risk of neglect. In the absence of early detection of wounds, deformities, and peripheral occlusive artery disease (PAD); diabetic foot ulcers (DFUS) likely come to podiatrists in advanced stages. That will lead definitely to a high rate of (minor) amputation and long term of the healing. Low cost materials played an important role to avoid these two bad outcomes.

Methods: First trial: We studied 2006 lesions belong to 1630 diabetic foot patients. They were divided into: group A (outcome without amputation, n=1372), group B (outcome with minor amputation, n=528) and group C (final outcome with major amputation, n = 106). We predicted the independent risk factors of lower extremity amputation (LEA).

Second trial: We reviewed the healing time for 1747 neuropathic DFUs from the main diabetic foot clinic in Damascus (2014 - 2019). We predicted many variables that could prolong the healing time.

Results: First trial: The study recorded a degree of infection in (42.07%; n=844) of the cases. The amputation rate went up in this group of patients to 38.5% and 8.44% for minor and major amputation, respectively. The presence of peripheral occlusive artery disease (PAD) doubled the minor amputation incidence one time (44.02%), and major amputation incidence five times (15.16%). The heel ulcer showed a great tendency toward the major amputation (18.80%), while the incidence rate in the DFUs spared heel was (3.36%).

Second trial: The median healing time for DFUs was 8.00 weeks. Almost half of these ulcers healed between 3 to 12 weeks. The time of healing for men was significantly longer than that for women. The presence of infection doubled the median time of healing. The location of the ulcer acted as another independent risk factor.

The discussion/ approach of the management: The materials in the dressing and footwear prescription sections adjusted the low-economic status, while the relatively high cost of the imaging and interventional radiology was a reason to restrict their roles in the plan of the management.

Conclusion: The resource-poor environment led us to create low-cost facilities to improve diabetic foot care during the crisis. Non-Governmental Organizations (NGOs) and local institutions that work in crisis areas should pay attention for special care requirements of diabetic foot patients.

EP162 ACELLULAR FISH SKIN PARTICULATE AND THE MANAGEMENT OF DIABETIC FOOT ULCERS

Ian Barron[1], Tung Dao[2]

[1]Ohio Foot and Ankle Specialists; [2]Ohio Health Grant Medical Center

Aim: When treating chronic diabetic wounds, the provider often utilizes advanced allogenic or xenogenic skin graft substitutes for soft tissue coverage. We illustrate a case series where particulate fish graft was utilized to facilitate granulation and complete healing on complex diabetic ulcerations in difficult to graft areas.

Method: A total of eight patients with nine separate ulcerations were included in this initial retrospective case series. All patients had full-thickness ulcerations with depth, irregular contours and tunnelling. Deep and irregular defects were filled to the level of epidermal tissue with fish skin particulate graft.

Results / Discussion: The mean initial wound size was 15.5 cm^2 (range 2.85-58.9 cm^2). Four (57%) of the wounds had exposed bone, 1 (14%) had exposed joint capsule, and 2 (29%) were open amputation sites with exposed muscle and tendons.

Over a 6-week period the average percent decrease of the wound area was 79% to a mean of 4.2 cm^2 (range:64-96%, p =0.0025). The average time to heal was 101 days (range 69-138 days), approximately 14 weeks. All 7 wounds healed during the study period.

Skin substitutes are a good solution to chronic diabetic ulcerations. Fish skin grafts have been shown to reduce inflammatory responses and advance proinflammatory cytokines in wounds through the graft's natural source of omega-3 polyunsaturated fatty acids, EPA and DHA. The importance of this reduced inflammatory response is allowing the wound to transition from a chronic inflammatory state into an acute wound.

Conclusion: Early results from this small sample size suggest that fragmented fish grafts may be a promising option for promoting healing in deep and irregular DFUs. More extensive studies with a larger sample size are needed to evaluate the effectiveness of fragmented fish grafts in DFU healing.

EP163 AUTO-FLUORESCENCE IMAGING AS A PREDICTOR OF CONTAMINATED/INFECTED DIABETIC ULCERS' OUTCOMES

Nicola Riitano[1], Elisa Amato[1], Alberto Piaggesi[1]

[1]Pisa University Hospital, Diabetic Foot Section, Pisa, Italy

Aim: To evaluate the use of an auto-fluorescence imaging device* (AFI) in providing predictive and quantifiable parameters in the evolution of infected diabetic foot ulcers (DFU)

Methods: We studied all consecutive outpatients attending our clinic with a DFU (grade IB-IIB Texas University score), with ABPI ≥ 0.9 and no antibiotic therapy (ATB) May/June 2022 with AFI, before and after surgical debridement and after 3 weeks of ATB, rating the imaging from 1 (100% contamination) to 5 (no contamination), and compared them with Wound Ischemia Foot infection score (WIFi) that goes from 0 to 9 in which 9 is the worse condition and Wound Bed Score (WBS) that goes from 0 to 16 at the improvement of the wound.

We compared these results with the culture results performed before and after 3 weeks of ATB.

Results: We enrolled 20 patients, average age of 64.4±15.1 yrs, Diabetes duration 15.4±7.3 yr, all type 2 Diabetes, with a ABPi of 0.96±0.1.

After 3 weeks of ATB the AFI score improved from 2.5±0.7 to 3.9±0.8 ($p<0.05$), as well as WIFi and WBS [4.1±1.1 vs 2.6±1.1 and 8.2±1.3 vs 11.4±1.9, respectively ($p<0.05$)].

The number of multi-drug resistant strains decreased from 57 to 16 ($p<0.002$), the number of resistance per strain reduced from 1.16 to 0.52 ($p<0.0015$).

Bacterial resistance (BR) showed a ΔBR of -32.42±13.4% that correlated with the improvement of FID score ΔFID 1.32±0.18 ($p<0.035$).

Conclusions: Our data, although referred to only 20 patients, show how AFI can be useful in managing of DFU and in evaluating the outcomes of ATB in MDR infections.

* MolecuLight i:X, Moleculight, Toronto, Canada

E-POSTER SESSION: EDUCATION

EP164 EVALUATION OF THE EFFECTIVENESS AND IMPACT OF TRAINING ON THE PERFORMANCE AND SATISFACTION OF HEALTH PROFESSIONALS

Alexandre Rodrigues[1 2 3], Rosa Maria Linhares Nascimento[2 4], Joana Cachulo[2 5], Pedro Costa[2 6]

[1]University of Aveiro, Aveiro, Portugal; [2]Associative Group for Wounds Research (GAIF), Portugal; [3]Center for Health Studies and Research of the University of Coimbra (CEISUC), Portugal; [4]Centro Hospitalar Universitário de Santo António, Portugal; [5]Associação Fernão Mendes Pinto, Portugal; [6]Biofabics - 3D Biotissue Analogues, Portugal

Aim: To evaluate in Portugal the impact and effectiveness of continuing training taught by Associative Research and Wounds Group (GAIF) in the area of wound management and treatment, on the performance and satisfaction of health professionals and the respective organizations where they provide care.

Method: Longitudinal, transverse and explanatory evaluation of the effectiveness and impact of continuous training on the performance and satisfaction of health professionals and respective organizations using semi-structured questionnaires and application of quantitative and qualitative methodologies with a relational component based on a sample of 485 health professionals over a time horizon of 2016 to 2022. Use of descriptive, inferential statistics with significance values: $p<0.05$, factor analysis and multivariate logistic regression and non-parametric U-Man-Whitney and Qui-square tests and parametric Student's T tests performed in SPSS® version 25. Conducting a univariate sensitivity analysis to evaluate the robustness of the results.

Results / Discussion: The results show that the continuous training of health professionals makes it possible to increase the performance of health professionals in organizations where they subsequently apply new knowledge. The study clearly shows that there is a reduction in the variability of clinical practices and that the ability to respond to the needs of updated knowledge prevails. This subsequently which makes it possible to improve the results of clinical practices in patients. Generally, organizations present higher levels of performance where their professionals receive annual training. **Conclusion:** The continuous training of health professionals, given the constant change in clinical practices in terms of their evolution, has a direct and high impact on their level of performance, and on obtaining greater effectiveness in the care provided to patients. The effectiveness of these actions contributed for greater performance of health organizations. However, despite the fact that a growing body of empirical research on this topic currently prevails, the effectiveness and impact of this type of training remains insufficiently explored, and there is a need for a greater number of studies in this regard.

EP165 FACTORS INFLUENCING NURSING PERFORMANCE OF INCONTINENCE-ASSOCIATED DERMATITIS

Minkyung Kim[1]

[1]Samsung Medical Center, WOCN, Korea, Rep. of South

Aim: The purpose of this study is to provide basic data for developing various strategies in regard to enhancing the quality of nursing and nursing practice performance in clinical practice by identifying nursing knowledge and performance of incontinence-associated dermatitis of general hospital nurses and analyzing factors affecting nursing performance.

Method: It This study was conducted from May to July 2019 for 139 nurses working at S general hospital in G-gu, Seoul. It is designed as descriptive research. The collected data was processed through a SPSS WIN 25.0 program for analyzing percentages, frequency, mean, and standard deviation, t- test, one way ANOVA, Pearson's correlation coefficient, multiple regression analysis.

Results / Discussion: The results are as follows.
The correlation between nursing knowledge and nursing performance incontinence-associated dermatitis ($r=.347$, $p<.001$) showed a significant amount of correlation. Factors affecting nursing performance for incontinence-associated dermatitis are the service department ($\beta=.219$, $p=.006$), education experience related to wounds ($\beta=.274$, $p=.001$) and the ability to detect incontinence-associated dermatitis ($\beta=.661$, $p<.001$), assessment knowledge ($\beta=.274$, $p=.005$) among sub-regions of nursing knowledge showed statistically significant results.

Conclusion: Incontinence-associated dermatitis assessment knowledge and the ability to distinguish it are factors affecting nursing performance of incontinence-associated dermatitis. Education to improve the quality of incontinence-associated dermatitis nursing performance is important, especially education to improve the ability of nursing staff to visually distinguish incontinence-associated dermatitis. The choice of teaching methods or media for visual training is important for accurate identification of cases in clinical practice. The implementation of a standardised protocol alongside education programs are required to improve the identification of incontinence-associated dermatitis.

EP167 THE IMPACT OF PRESSURE ULCER PREVENTION EDUCATION ON HEALTH CARE ASSISTANTS' KNOWLEDGE AND SKILLS AND PRESSURE ULCER INCIDENCE IN LONG-TERM CARE SETTINGS

Noreen O'Brien[1], Tom O Connor[1]

[1]Royal College of Surgeons in Ireland University of Medicine and Health Science , Skin Wounds and Trauma centre (SWaT) centre , Dublin, Ireland

Aim: Pressure ulcers (PUs) are a significant clinical issue, and their prevention is a priority for health care settings. Older adult patients are susceptible to PUs due to the presence of co- morbidities and reduced mobility (Ousey 2015, Moore 2011). Health care assistants (HCAs) represent most of the workforce in long-term care settings and play a significant role in PU prevention and the provision of education is an integral component of PU prevention (EPUAP/NPIAP/PPPIA, 2019). The overall aim of this systematic review (SR) was to investigate the impact of education for health care assistants on their knowledge and skills in PU prevention and on the incidence of PUs.

Method: Using systematic review methodology and the PRISMA guidelines, in November 2021 key databases were searched, CINAHL, EMBASE, SCOPUS, MEDLINE and Cochrane Wounds Group Specialist Register and Cochrane Central Register of Controlled Trials, with no limitations on date of publication. The search yielded an initial 449 records, of which 14 met the inclusion criteria. The methodological quality of the studies was evaluated using the Evidence-based Librarianship checklist (Glynn, 2006). Data was analysed using narrative and meta-analysis.

Results / Discussion: Eleven studies (79%) reported outcome measures of HCA knowledge scores, with four studies reporting a statistically significant improvement in knowledge scores post education intervention. Nine studies (64%) found a statistically significant reduction in prevalence (OR 1.69, p= 0.01) and incidence rates (OR 2.20, 95%, p<0.0001) post-education intervention.

Conclusion: This SR affirms the benefits of education of health care assistants on knowledge and skills of PU prevention and on PU incidence. However, there was broad methodological heterogeneity and low-quality evidence within the included studies.

EP168 COMPRESSION THERAPY: A SCOPING REVIEW OF ITS EDUCATIONAL TAXONOMIES FOR MEDICAL DOCTORS

Wan Zuraini Mahrawi[1], Mohd Zurairie Mohd Zubir[2]

[1]Universiti Sains Malaysia, Medical Education Department, Kota Bharu, Malaysia; *[2]Raja Perempuan Zainab II Hospital, Kota Bharu, Wound Healing Unit, Kota Bharu, Malaysia*

Aim: This study's objective was to evaluate the recent academic studies on the compression therapy competency of future physicians.

Method: Using relevant key terms, a 10-year literature search was done across six search engines as the first step of the research methodology. The six search databases were World of Science (WOS), Scopus, Science Direct, PubMed, PubMed Central, and Ovid Medline. Inclusion and exclusion criteria were applied to each and every screened article. The final articles were being qualitatively analysed using Atlas.ti Version 2022 software for thematic analysis. In the second phase, the theme of compression therapy is extracted and analysed in accordance with Bloom's taxonomy of educational objectives and Miller's pyramid of clinical competency. The final result is best tabulated in a table figure.

Results / Discussion: From the final 10 articles, thematic analysis identified 142 open quotations that were afterwards organised into 241 codes. These learning outcome codes were classified as 92 cognitive, 96 psychomotor, and 53 affective. After further analysis, the theme of compression therapy was identified and extracted into one basic knowledge topic and seven practical clinical skills required to equip physicians with compression therapy competency.

Conclusion: In addition to identifying what basic compression therapy skills a doctor should have, the findings could be used to evaluate and contribute to doctors' overall level of competency in wound healing medicine. In addition, these results will provide the groundwork for future studies on medical students' wound care competence due to significant body of data showing that medical students must meet particular skill and knowledge standards of compression therapy in wound healing.

EP169 OPINION TOWARDS CHRONIC WOUNDS AND COMPRESSION THERAPY DEVICES

Tamara Sinožić[1 2], Jadranka Kovačević[1], Ksenija Baždarić[3]

[1]Private practice of General Medicine Tamara Sinozic, GP, Moscenicka Draga, Croatia; [2]Department of Family Medicine, Faculty of Medicine, Rijeka University, Rijeka, Croatia; [3]Department of Basic Medical Sciences, Faculty of Health Studies, Rijeka University, Rijeka, Croatia

Aim: To examine opinion towards chronic wounds and compression therapy devices.

Method: the research was conducted among patients of 10 family medicine practices in Primorsko-goranska County in Croatia, between 20 Oct-20th Nov 2022. The research was based on anonymous questionnaire (25 questions and three figures) where participants had to assess the wound and patient's devices.

Results / Discussion: There were 281 patients in the study (67% female). Most of the participants were 51±17 years old living in a city (59%) with families (80%), employed (52%), with a high school degree (59%), and of an average financial situation (83%). More than half (58%) have never come across patients with a chronic wounds. When shown a figure of a chronic wound, the largest part of participants expressed concern (54%), compassion (30%), discomfort (29%); the patient's pain was perceived as strong (63%). The negative impact of chronic wound on the quality of life of patients is considered significant in 87%. The participants would use compression therapy devices (>80%) if needed. Majority of participants (83-84%) would willingly share a hospital room or a working space with such a patient and they believe such patients are to be treated in hospitals (44%) and specialized wound centers (41%).

Conclusion: Half of the participants have never come across chronic wound patients, but nevertheless just looking at the figures has caused concern, and lower quality of life of such patients. Further activities are essential for raising awareness of general population for problems of chronic wound patients.

EP170 WOUND CARE UNCERTAINTIES AMONG NURSING PROFESSIONALS' IN SLOVENIA – A DESCRIPTIVE STUDY

Ljubisa Paden[1]

[1]University of Ljubljana, Faculty of Health Sciences, Division of Nursing, Ljubljana, Slovenia

Aim: The aim of this study was to identify the wound care uncertainties among nursing professionals.

Method: A descriptive study was carried out during one educational event for nurses who are wound care providers. A convenience sample of 78 nursing professionals working in health and social care services in Slovenia was used. Nursing professionals were asked to write on a sheet their uncertainties related to wound care. Data was analyzed with a content analysis.

Results / Discussion: Data was grouped into four categories: populations (subcategories: age, co-morbidities, underlying etiology, wound and wound related factors), interventions (subcategories: wound assessment, topical treatment – dressings, antimicrobials and different types of debridement, advanced interventions – regenerative methods, psychosocial and educational support), outcomes (subcategories: time of healing, wound bed – granulation, infection and epitelization, peri-wound skin, wound and surrounding tissue pain, quality of life and well-being, cost-effectiveness, non-adherence) and decision making (subcategories: clinical reasoning, clinical judgment, care model, lack of knowledge and competencies).

Conclusion: This study has identified the areas of wound care uncertainties among nursing professionals. It is important that practice and university educators target these areas in preceptorship and curriculums in order to improve knowledge and skills of nursing professionals. Furthermore policy makers in Slovenia should enable implementation of evidence based care and guidance across a range of health and social care services which would reduce healthcare professionals uncertainty, improve patient care and benefit the healthcare system.

EP171 PATIENT ENGAGEMENT IN WOUND CARE

Diego Ceci[1], Elisa Figura[2]

[1]Azienda Ospedaliero - Universitaria Sant'Andrea, U.O.C. Professioni Sanitarie, Roma, Italy; [2]Podologia Figura, Milano, Italy

Aim: To improve the efficacy and sustainability of processes of care is certainly useful to enhance more participation of people treated. The "Care Team" in addition to doctors, nurses or other social and health figures should therefore also be made up of the sick person himself, who would thus be co-responsible for the process.

Method: For this purpose, scientifically validated anonymous questionnaires were administered: the Patient Experience Questionnaire (PHE), the Patient-Doctor Depth of Relationship Scale and the Patient Health Engagement Scale (PHE-s). The study was conducted on a total of 30 patients located between the Sant'Andrea Hospital in Rome and different podiatry clinics in Milan. The results obtained show that the current level of engagement, although quite high, is still unsatisfactory and could be strengthened.

Results / Discussion: The approach that focuses on strengthening Patient Engagement seems well suited to people living with a chronic wound. On the basis of this observation the need arises to study and develop guidelines that allow for the correct training of caregivers. Such staff will have to be trained to become a "care team" in which the patient will also actively participate.

Conclusion: It is therefore a question of setting up a "rope team" in which, as in case of mountain excursions, each member moves safely and consciously to achieve the goal, as a result of the global improvement of the engagement system, provided that everyone is actively responsible for the own job.

EP172 KNOWLEDGE AND ATTITUDES OF OUR STUDENTS ABOUT CHRONIC WOUNDS

Jelena Kevrić[1], Oliver Juric[2]

[1]Secondary Medical School Ante Kuzmanic Zadar, Zadar, Croatia; [2]General Hospital Zadar, General Surgery Department, Zadar

Aim: Chronic wounds are a public health problem that nurses encounter in their daily work. Continuous education of nurse's results in knowledge to achieve, maintain and increase the quality of health care and increase patient safety. The aim of this research is to assess knowledge and attitudes about chronic wounds of students at the secondary medical school.

Method: The research was conducted in the period from 2018. until 2022. An anonymous questionnaire with 31 questions was used. The first four questions refer to general information. The remaining questions refer to checking the knowledge and attitudes about chronic wounds.

Results / Discussion: Most students believe that a chronic wound causes pain to patients, and associate smoking with wound healing. The majority of students emphasize proteins as the most important ingredient in the diet of patients and recognize the importance of a moist environment and the use of modern supportive dressings, as well as the important role of patient education. The students believe in the importance of prevention, that chronic wounds are a disease of the elderly population, they would apply a holistic approach. They recognize the impact of chronic wounds on the quality of life, and the impact of nurses' knowledge on the quality of care for patients. Students show a positive attitude towards investing money and time in the prevention of chronic wounds.

Conclusion: The students showed a high level of knowledge and a positive attitude about the diagnosis, treatment and health care of patients with chronic wounds.

EP173 A NEW WAY OF RAISE AWARENESS

Roberta Vacchelli[1], Anna De Luigi[2], Valentina Biglio[3]

[1]Anestesia e Rianimazione, Area Chirurgica ed Intensiva, Sanatorio San Luigi, Italy; [2]AOU san Luigi Gonzaga, Direzione Professioni sanitarie, Orbassano, Italy; [3]Ortopedia e Traumatologia, Area Chirurgica ed Intensiva, Orbassano, Italy

Aim: Awareness on pressure ulcer is poor in the general population. The best *wound care practice* requires healthcare organizations to raise awareness among actors involved in treatment and prevention of pressure ulcers (PU), using innovative models and by organizing educational activities to share knowledge and experiences among people and operators.

Method: In November 2022, on the Stop Pressure Ulcers Day, promoted by the EPUAP, initiatives were activated to raise healthcare professionals' and customers' awareness on PU. Doctors and nurses were invited to attend a blended course. Presentations were screened in a dedicated room (links published on company websites) and wound care companies' stands were set up to present and inform healthcare professionals about prevention and treatment products, in order to increase their appropriateness of use. A prevalence survey was conducted in the hospital. To raise awareness among citizens, movies on the subject were screened (from the EPUAP and one from the wound care group). Volunteers and Nursing Students proposed a questionnaire to customers to investigate knowledge of the problem and highlight critical issues in the event of a family member with a PU.

Results: 130 professionals showed up at the stands. For the 313 questionnaires filled out by users, 40% said they had a family member with a pressure ulcer; 53% would have liked to receive more information. The prevalence in hospital of PU is 5%. 309 views are obtained with one post on Twitter.

Conclusion: The awareness-raising activities were appreciated and allowed for the circulation of information.

EP174 KNOWLEDGE, ATTITUDES AND MOTIVATION OF NURSES TOWARDS WOUND MANAGEMENT

Beata Gress Halasz[1], Lucia Dimunová[2]

[1]Pavol Jozef Šafárik University, Faculty of Medicine, Department of Nursing, Košice, Slovakia; *[1]Pavol Jozef Šafárik University, Faculty of Medicine, Department of Nursing, Košice, Slovakia*

Aim: Chronic/hard-to-heal/non-healing wounds are a global problem. An important prerequisite for comprehensive and high-quality multidisciplinary care are motivation, attitude, and knowledge of healthcare professionals. The aim was to evaluate the motivation for professional growth through education, the attitude towards current wound management, and the level of knowledge of nurses caring for patients with chronic wounds during their daily practice.

Method: This quantitative exploratory study uses a self-designed evaluation tool distributed to nurses in February 2022. The total of 94 nurses participated.

Results / Discussion: The overall motivation reached 73 %, attitude 53 % and knowledge 54 %. Significant differences were found in motivation between departments/settings with the highest levels in the oncology ward ($F = 2.118$; $p = 0.05$). A significant positive correlation was found between knowledge and level of education (Corr. coef. = 0.208; $p = 0.45$). Significantly positive attitudes were found in the group of nurses with specialization ($t = -2.621$; $p = 0.01$). Nurses lack competencies. They find important to use clinical guidelines, they are interested in further education, wish to gain knowledge and skills, and raise status of nurses.

Conclusion: The insufficient knowledge is linked to the absence of structured nursing education in wound management. We expect that nurses´ will for further education and the currently ongoing certification program in Slovakia will significantly contribute to positive outcomes.

EP175 WOUNDCARE AND CHOOSING THE RIGHT DRESSING. KEEP IT SIMPLE!

Camilla Leerskov Sorensen[1]

[1]Aalborg University Hospital South, Department for Quality and Coherence, Aalborg, Denmark

Aim: Woundcare is partly a task for specialists. Also wounds are treated daily as common nursing skill. My aim was to standardize selection of dressings across the hospital. Thereby give the staff an easier way when choosing dressings. Also increase the staff competencies on woundcare.

I am a woundcare nurse, employed across all sections. We have woundcare specialists in 6 different clinical specialties. We cannot manage look to all the patients with wounds. We must depend on the staff at the wards, to take care of the uncomplicated wounds.

The woundcare often is seen as a complicated task. The staff is often unsecure. Woundcare is perceived as complex and to many dressings to choose from.

Method: The clinical specialties were asked which dressings was required as a minimum selection. With their recommendation, 10 wards got their local depot organized with the minimum required dressings. A system with color was developed, to systemize the dressings in different groups, compared to both function and absorption capacity. Along this standardization I went onbed-side education in woundcare seances, together with the staff on the wards.

Results / Discussion: Wards reduced their selection of dressings into a minimum, but still cover both function and absorption. Qualitative questionnaire to measure the staff competencies and perception on woundcare and dressings.

Conclusion: The woundcare was simplified. The staff reported that their competences increased. Difficult to say if wound healing was delayed. Patient security was increased as the staff increased knowledge in woundcare and function of the chosen dressing.

EP176 WOUND CARE EDUCATION IN LAAKSO HOSPITAL OF HELSINKI

Trang Pham[1]

[1]*Laakso Hospital, Wound Care Ward 9, Helsinki, Finland*

Aim: Encourage healthcare staffs to learn more about woundcare.

Raise awareness of wounds effects on prolonged hospital stay and patient's quality of life.

Awake the motivations and interests in improving/maintaining woundcare know-how.

Improve staff's clinical skills and wound care knowledge, hence improve quality of care.

Method: Quick "fact sheets" sessions of 15mins once a week on TEAMS for all wards of Helsinki hospitals (including Laakso, Malmi and Haartman hospitals).

Small group in-person sessions of 45 mins once a week in Laakso hospital. Sometimes nurses from Haartman and Malmi hospitals also join in.

Workshops for wound cleaning procedures. 45 mins once a week in Laakso hospital.

Woundcare specialists visit wards to give on site training with difficult wound cases.

Results / Discussion: Both doctors and nurses have realized the importance of wound care.

Doctors and nurses from non-wound care specialized wards are more willing to consult wound care specialists for advices.

Appropriate wound care treatments and preventions have been saved times and improve quality of care for patients in the whole hospital.

Nurses are more motivated. Some have said after workshops that they "now look forward to training and learning".

Incentives for nurses to commit to long-term working contracts.

Conclusion: Wound care knowledge and clinical skills should be shared among health care workers in order to give patients the best care. With the generation getting older, more and more patients have one or more wounds. Wound care is an essential skill that health care staffs need to know. It requires continual learning and clinical training to improve and maintain wound care knowledge and skills.

EP177 CHRONIC WOUNDS AS A CHALLENGE FOR CROATIAN DOCTORS

Oliver Juric[1], Jelena Kevrić[2], Vanja Žufic[1]

[1]*General Hospital Zadar, Department of General and Pediatric Surgery, Zadar, Croatia*; [2]*Secondry Medical School Ante Kuzmanic, Zadar, Croatia*

Aim: Chronic wounds, their diagnosis and treatment, present a challenge for the patients and their families as well as doctors. The purpose of this research was to find out how often doctors encounter patients suffering from chronic wounds in their daily work and how much knowledge and skills they have in treating chronic wounds.

Method: An anonymous questionnaire with 24 questions was used in the research. The first eight questions refer to general information. Other questions relate to the proportion of patients with chronic wounds, the assessment of how much of a challenge is their treatment and impact on the budget. The remaining questions refer to self-assessment of knowledge of chronic wounds, their treatment, sources of information and interest in participating in the congress on chronic wounds.

Results / Discussion: Most of the respondents work in primary health care and encounter chronic wounds. For most respondents, chronic wounds represent a medium-sized challenge, their impact on the budget is rated as large. In the treatment of chronic wounds, most respondents use modern supportive dressings and saline solution and recognize the importance of nutrition. As a source of relevant data, most respondents point to professional associates, and they would participate in training courses.

Conclusion: Chronic wounds are encountered by the majority of respondents, and they represent a medium-sized challenge in their work. They rate their knowledge as a C and would respond to education on this issue if they had the opportunity.

EP178 BEST FOOT FORWARD: RESKILLING AND UPSKILLING HUMAN RESOURCES FOR HIGH-RISK FOOT CARE

Nicola Bartley[1 2], Munira Abdulwasi[1], Andrea Etherington[1 2], Brian Hodges[1 2], Hei-Ching Kristy Cheung[1 3], Samah Hassan[1], Nicole Woods[1 2], Patti Leake[1 2], Saul Cobbing[1 4], Catharine Gray[1 2]

[1]University Health Network, TIER, Toronto, Canada; *[2]The Michener Institute of Education @ University Health Network, Toronto, Canada*; *[3]University of Toronto, Institute of Health Policy, Management and Evaluation, Toronto, Canada*; *[4]University of Toronto, Physical Therapy, Toronto, Canada*

Aim: Structurally disadvantaged Canadians are disproportionally affected by diabetic foot complications, with an increased risk of amputation and death due to the current shortage of foot care specialists (1,2,3). This project aims to develop and evaluate educational modules to train non-regulated healthcare workers who serve various socioeconomically disadvantaged populations in providing diabetic foot assessment and education, in hopes to reduce the risk of lower limb amputation.

Method: Employers, educators and regulated healthcare workers collaborated to codesign educational modules and education pathways to equip non-regulated healthcare workers with the skills necessary to deliver high quality foot care education and baseline assessments. The educational program will soon be evaluated through surveys, focus groups, and interviews.

Results / Discussion: Six educational modules were developed that focused on the identification of diabetic foot problems, proper screening, and suggestions on what to do and where to refer patients. The education modules targeted competency gaps and provided education to non-regulated healthcare workers in a comprehensive model sensitive to the needs of at-risk communities.

Conclusion: Re-skilling and upskilling non-regulated health care workers can help meet the demand for evidence-based intervention, prevention and assessment of diabetic foot ulcers leading to referral, early detection, reduction of amputations, and addressing a growing need in the workforce. If scaled nationally, this project has the potential to significantly reduce diabetic foot complications, particularly in vulnerable populations.

References:

1. Evans, R., Kuhnke, J. L., Rosenthal, S., Alleyne, J., & Costa, I. (2022). A Foot Health Pathway for People Living with Diabetes. Diabetic foot, 13.
2. Walker, J. D., Slater, M., Jones, C. R., Shah, B. R., Frymire, E., Khan, S., ... & Green, M. E. (2020). Diabetes prevalence, incidence and mortality in First Nations and other people in Ontario, 1995–2014: a population-based study using linked administrative data. Cmaj, 192(6), E128-E135.
3. Lu, S. H., McLaren, A. M., & Pinsker, E. (2022). Impact of COVID-19 pandemic on foot care services in Ontario, Canada. Journal of Foot and Ankle Research, 15(1), 1-8

EP179 A GLOBAL DOCUMENT ANALYSIS OF MEDICAL GRADUATE COMPETENCIES IN WOUND HEALING MEDICINE

Wan Zuraini Mahrawi[1]

[1]Universiti Sains Malaysia, Medical Education Department, Kota Bharu, Malaysia

Aim: The study sought to determine the wound care competency of medical students by conducting a literature and document review of available online medical accredited documents from six global regions, representing 194 subregions/countries worldwide.

Method: The study used a rigorous methodology, including a 10-year literature search across six search engines (WOS, Scopus, Science Direct, PubMed, PubMed Central, Ovid Medline), in which inclusion and exclusion criteria were applied to screen for relevant articles. For document analysis, using a predetermined search strategy and application of inclusion and exclusion criteria, the search is conducted sequentially for each country. The data extracted from relevant documents will then be translated, extracted, and qualitatively analysed using the thematic software, Atlas.ti Version 2022.

Results / Discussion: The scoping review identified 142 open quotations from 10 articles, which were subsequently organized into 241 codes, categorized according to three Blooms Taxonomy educational domains: cognitive, affective, and psychomotor. It was further categorized into 92 cognitive, 96 psychomotor, and 53 affective domains. The global document analysis identified 78 open quotations, organized into 169 codes and categorized into the same three domains. The study found that medical students must possess competencies in 20 basic science topics and 27 clinical skills areas.

Conclusion: This study showed that medical students must possess specific skills and knowledge in wound healing, and the findings suggest that certain wound care competencies should be included in medical curricula. The study's findings also may have significant implications for medical licensing organizations to develop standardized documents on wound healing competency for medical graduates.

EP180 HOMOGENEITY IN WOUND HEALING LEARNING ENVIRONMENT : A MALAYSIAN EXPERIENCE

Wan Zuraini Mahrawi[1], Vilvkumaran Karupayah[2]

[1]Universiti Sains Malaysia, Medical Education Department, Kota Bharu, Malaysia; [2]Tengku Ampuan Rahimah Hospital, Klang, Wound Healing Unit, Klang, Malaysia

Aim: This study's objective was to evaluate the outcome of homogenous learning environment in wound healing.

Method: This is a two-day longitudinal cross-sectional study. Standard and consistent themes in wound healing were presented in a traditional manner to a wide group of diverse and heterogeneous healthcare professionals. There were 31 physicians, 23 nurses, and 11 medical assistants in the group. Later, based on their particular professions, these groups were subdivided homogeneously and provided with hands-on teaching in small groups. The topics addressed in the hands-on training were tailored to the practitioner's level of competency. All participants were requested to complete a questionnaire at the conclusion of the event, and the collected data were analysed using Microsoft Excel.

Results / Discussion: The questionnaire analysis revealed that 88% of physicians, 92% of nurses, and 87% of medical assistants favored homogeneous learning. An open-ended questionnaire provides opinions such as it enhances the learning process and boosts the confidence of healthcare practitioners.

Conclusion: Current wound healing education is heterogeneous, which encourages cooperation and teamwork since students must collaborate to achieve group goals. However, learners at different educational levels may have varying learning styles, making heterogeneous learning a problem. Consequently, a homogeneous learning environment may be more effective, as the instructor may tailor training to the specific content. This research shown that a homogeneous group can enhance learning empowerment and wound healing comprehension.

EP181 WOUND CARE IN A CROSS-SECTORAL COOPERATION BETWEEN HOSPITAL AND MUNICIPALITY

Britt Hansen[1]

[1]Odense University Hospital, Department of Plastic Surgery, Wound Department, Odense C, Denmark

Introduction: The last five years the Department of Plastic Surgery at Odense University Hospital in Denmark had a wound specialist nurse with an out-reach function. The function is a cross-sectoral cooperation between the hospital and municipality.

The purpose with the out-reach function is to support the home care nurses in the municipality within complex wound treatment.

A number of 25 patients in 11 different municipalities have been visited in their own home or homecare units in 2022 (from January to November).

Aim: To explore the cooperation in wound care and the knowledge and competences in wound care within the home care nurses according to the visit.

Method: The questionnaire was prepared to investigate the significance of the visit, from the perspective of the home care nurses. Nurses in the municipality who have participated in a visit from the hospital, answered the questionnaire.

Six different questions were prepared and the responders should specify their level of agreement to a statement in a five-point scale from strongly disagree to strongly agree.

In total ten persons answered the questionnaire.

Results: 90 % of the responders did agree and strongly agree that a visit did increase the quality in the wound treatment. 10 % neither agree nor disagree.

All the responders did agree or strongly agree that the visit from the wound specialist nurse increases the corporation between the hospital and the municipality.

The results indicate that the out-reach function could have a positive effect in complex wound treatment within patients in own home.

E-POSTER SESSION: INFECTION

EP182 PERFORMANCE OF TLC-AG WOUND DRESSINGS FOR DIABETIC FOOT ULCERS WITH RISK OR SIGNS OF LOCAL INFECTION: RESULTS OF A MULTICENTRIC, PROSPECTIVE, NON-INTERVENTIONAL OBSERVATIONAL TRIAL

Claas Lüdemann[1], Michael Dietlein[2], Steffen Luetzkendorf[3], Arthur Grünerbel[4], Joachim Dissemond[5], Serge Bohbot[6], Laetitia Thomassin[6], Elisa Becker[7], Udo Möller[7]

[1]Hospital Brixen, Internist and angiologist, Brixen, Italy; [2]Diabetology Practice, Stadtbergen, Diabetology , Stadtbergen, Germany; [3]Surgical Practice, Surgeon, Helbra, Germany; [4]Diabetes Center Munich South, Diabetologist, Munich, Germany; [5]University Hospital, Dermatologist, Essen, Germany; [6]Laboratoires Urgo, Global Medical Affairs, Paris, France; [7]URGO GmbH, Medical Affairs and Clinical Research Department, Sulzbach, Germany

Aim: Evaluation of the performance of wound dressings with TLC-Ag matrix* in local treatment of diabetic foot ulcers (DFU) with risk or clinical signs of local infection under real-life conditions.

Method: Large, prospective, multicentre (n=39) observational study with two TLC-Ag wound dressings* conducted in Germany (May 2020 and May 2021; in total n=728 patients). Main outcomes: description of patients and wound management, changes in wound infection, wound healing outcomes over a maximum period of four weeks, and a general clinical assessment of their performance, local tolerability and acceptability.

Results / Discussion: Ninety patients with DFU were treated with the TLC-Ag wound dressings* for 28±18 days (interim follow-up after 13±8 days). At baseline, all patients were at risk of wound infection, 93.3% had clinical signs of wound infection and 80.0% were diagnosed with wound infection. All parameters of wound infection decreased steadily. Wounds with surgical sepsis showed the most rapid decrease in wound deterioration, pus and exudate-related clinical signs. At final visit, a decrease of 84.7% in local wound infections and 78.6% in wounds with clinical signs of infection was observed. 92.2% of wounds healed/improved, 3.3% remained unchanged and 1.1% worsened (3.3% missing data). Both wound dressings were predominantly 'very well tolerated' by patients, 'very well accepted' and rated as 'very useful' by clinicians.

Conclusion: These results are consistent with previous clinical findings on TLC-Ag wound dressings. They support the good efficacy, tolerability and usefulness of these antimicrobial wound dressings in DFU when used in conjunction with appropriate standard treatment.

EP183 NANORDICA MEDICAL SILK FIBROIN WOUND DRESSING WITH SYNERGISTIC ANTIBACTERIAL EFFECT SHOWED BETTER WOUND HEALING COMPARED TO POPULAR PRODUCT ON THE MARKET

Grigory Vasiliev[1 2], Anna-Liisa Kubo[1 2], Olesja Bondarenko[1 2], Andres Valkna[2]

[1]National Institute of Chemical Physics and Biophysics, Tallinn, Estonia; [2]Nanordica Medical, Tallinn, Estonia

Aim: Chronic wound infections can have serious implications, including gangrene, limb amputation and, if treated incorrectly, death due to sepsis. Current wound infection treatment which relies on antibiotics and antibacterial wound dressings are not efficient enough, causing about 2 mln amputations annually worldwide. We developed antibacterial wound dressings using silver nanoparticles and enhanced their antibacterial effect with copper nanoparticles. This enables to eliminate infection faster, support wound closure and reduce the usage of antibiotics.

Method: In collaboration with the largest Estonian hospital, we showed that our technology is effective against a wide range of antibiotic-resistant bacteria including challenging bacterial strains that often lead to amputations: E. coli ESBL(+), P. aeruginosa, E. faecalis VRE(+), K. pneumoniae ESBL(+) and S. aureus MRSA(+). Next, we tested our dressing in animal surgical wound infection model. We treated infected wounds of rats (n=30) for 7 days with placebo (non-antibacterial dressing), our wound dressing or antibacterial wound dressing AQUACEL® Ag+ Extra.

Results / Discussion: Our wound dressing demonstrated 26 times better inactivation of bacteria compared to the placebo dressings and 7.6 times better compared to AQUACEL® Ag Extra. Blind histology of tissue biopsy demonstrated that our dressing caused better wound re-epithelialization, less inflammation and more mature collagen tissue in wound site.

Conclusion: Encouraged by this highly promising data, we started clinical trials with our wound dressing in the North Estonia Medical Centre. 30 patients with chronic infected diabetic ulcers were enrolled and divided into two groups (our wound dressing vs AQUACEL® Ag Extra), and the primary endpoint was safety and bacterial counts and wound closure. The results of trial will be available in April 2023.

EP184 WOUND HEALING EFFECT OF GENTA-COLL (GENTAMICIN COLLAGEN SPONGE) AND EFFECTIVENESS OF GENTA-COLL IN NOSOCOMIAL BACTERIA: AN IN VIVO STUDY

Young Cheon Na[1], Eun Suk Heo[1], Hye Mi Lee[1], Se Oul Lee[2]

[1]Wonkwang University Hospital, Plastic & Reconstructive Surgery, Iksan, Korea, Rep. of South; [2]Wonkwang University Hospital, Pharmacology, Iksan, Korea, Rep. of South

Aim: Topical hemostatic agents can interfere with the wound healing process by causing foreign body reactions, inflammation, and infection since they are foreign entities. We analyzed the effect of Genta-Coll on wound healing by inducing muscle defects in the rectus abdominis muscle of rats. We also assessed the effectiveness of Genta-Coll in preventing surgical site infections (SSIs) by countering nosocomial bacteria and performed a zone of inhibition test to determine the sensitivity of pathogenic bacteria.

Method: We created an 8× 8 mm muscle defect in both rectus abdominis of 15 white Sprague-Dawley rats and divided them into two groups: Control (no care) and Group A (Genta-Coll). We performed three biopsies for histologic analysis (3rd, 7th, and 27th). In the second study, we placed Genta-Coll on Mueller–Hinton agar plates seeded with pathogenic microorganisms commonly responsible for SSIs. The zone of inhibition was measured after 24 and 48-hours of incubation.

Results / Discussion: Group A showed a slightly higher score for foreign-body giant cells and inflammation, with no significant difference. Granulation and neovascularization were constantly high in Group A, and muscle regeneration was also high in group A. Extracellular matrix formation advanced at a similar pace in both groups (Table 1-3). Genta-Coll created a zone of inhibition against all microorganisms, except for C. albicans. The effect lasted without change between 24-hours and 48-hours (Table 4).

Conclusion: While foreign body reactions and inflammation increased in the Genta-Coll group, wound healing was unaffected. Genta-Coll can promote faster wound healing with an anti-bactericidal effect against SSI pathogens.

Table 1. Parameters of wound healing (Day 3)

	Control group	Group A (Genta-Coll0
Foreign body giant cell	0.000±0.00	0.00±0.00
Inflammatory cell infiltration	2.50±0.50	2.70±0.45
Granulation tissue	1.60±0.55	2.00±1.00
Fibroblast proliferation	2.00±0.00	2.00±0.00
Neovascularization	2.60±0.55	2.80±0.45
ECM formation	1.20±0.45	1.20±0.45
Striated muscle repair	1.00±1.00	0.60±0.55

The result are expressed as mean±standard deviation.

Extracellular matrix = ECM

Semi-quantitative scoring system were used:

(absent=0; slight=1; moderate=2; extensive=3.)

Table 2. Parameters of wound healing (Day 7)

	Control group	Group A (Genta-Coll0
Foreign body giant cell	2.20±0.84	1.80±0.45
Inflammatory cell infiltration	1.50±0.50	1.90±0.55
Granulation tissue	2.00±1.00	2.40±0.55
Fibroblast proliferation	2.80±0.45	2.60±0.55
Neovascularization	2.00±1.00	2.40±0.55
ECM formation	2.00±0.71	2.00±0.71
Striated muscle repair	1.20±1.64	2.75±0.50

The result are expressed as mean±standard deviation.

Extracellular matrix = ECM

Semi-quantitative scoring system were used:

(absent=0; slight=1; moderate=2; extensive=3.)

Table 3. Parameters of wound healing (Day 27)

	Control group	Group A (Genta-Coll)
Foreign body giant cell	1.80±0.84	2.40±0.89
Inflammatory cell infiltration	0.10±0.22	0.20±0.27
Granulation tissue	1.20±0.45	1.20±0.45
Fibroblast proliferation	1.60±0.55	1.40±0.55
Neovascularization	1.80±0.45	2.00±0.00
ECM formation	3.00±0.00	3.00±0.00
Striated muscle repair	0.60±0.89	1.00±1.41

The result are expressed as mean±standard deviation.

Extracellular matrix = ECM

Semi-quantitative scoring system were used:

(absent=0; slight=1; moderate=2; extensive=3.)

Table 4. Zone of inhibition test

Bacteria	Average zone diameter (in mm)	
	Genta-Coll	
	24 hrs	48 hrs
MSSA ATCC 29213	38.54	38.54
MRSA	36.26	36.26
A. baumannii	23.38	23.38
E. Coli (ATCC 25922)	33.54	33.54
E. faecalis (ATCC 29212)	26.22	26.22
P. aeruginosa (ATCC 27853)	35.46	35.46
C. albicans (ATCC 14053)	0	0

EP185 CHRONIC WOUND INFECTION: SWAB OR BIOPSY?

Tanja Planinšek Ručigaj[1], Mark Bartenjev[1], Gašper Jelen[1], Jelena Todorović[1]

[1]*University Medical Centre Ljubljana, Dermatovenereological Clinic, Ljubljana, Slovenia*

Aim: The aim of the study was to compare microbial isolates of the swab and biopsy from the same place of chronic venous leg ulcers.

Method: At 28 patients with venous leg ulcers treated at Dermatovenereological Clinic, University Medical Center Ljubljana after cleaning the wound at the same place first swab by Levine technique than 0.2 cm punch biopsies were taken and sent to microbiological analysis.

Results: At 19 wounds (67.9%) identical culture results in both swab and biopsy were found. In 9 wounds (32.1%) swab and biopsy did not show identical culture results, there was a difference of one isolate. Most frequently identified organisms were *Pseudomonas aeruginosa* (89%), *beta-haemolytic group B streptococci* (61%), *Staphylococcus aureus* (50%) and *Fuscobacterium nucleatum* (29%). For these bacteria there were 2 wounds (7.1%) that did not show identical culture results.

Conclusion: The microbiological results of a correctly taken ulcer swab using Levin's technique are practically identical to the results of taken biopsies. In many cases, especially in the field, swabs are more accessible and easier to perform than biopsies to demonstrate bacteria in chronic wounds

EP186 MEDICAL GRADE HONEY, AN ALTERNATIVE TO DECREASE BACTERIAL LOAD IN THE WOUND BED

Daniela Chrysostomou[1], Andrea Pokorna[2], Niels Cremers[3 4]

[1]Wound Clinic Health@45, Johannesburg, South Africa; *[2]Masaryk University, Department of Health Sciences, Faculty of Medicine, Brno, Czech Republic*; *[3]Triticum Exploitatie BV, Maastricht, Netherlands*; *[4]Maastricht University Medical Centre+, Maastricht, Netherlands*

Aim: Honey has been favoured as a healing substance since antiquity for all kinds of skin conditions. Following on guidelines of the World Health Organisation regarding antibiotic stewardship, the role of medical grade honey (MGH) as an effective antimicrobial in wound care exponentially increased. The aim of this study is to ascertain the effectiveness of MGH against various bacteria present in chronic wounds.

Method: Fifteen patients with different chronic wounds, of variable chronicity, clinically presenting with signs of infection were chosen for this study. Wounds were swabbed and analysed by a reputable testing laboratory for microscopy, culture, and sensitivity (MC&S). After obtaining the sample, local treatment with MGH in various forms, such as gel, impregnated tulle, or foam has commenced, according to the wound requirements. The results of the laboratory testing were recorded, and various bacteria were identified and quantified. Wound photography and measurements were recorded in the study, along with the pathology reports. Clinical changes in the wounds were the prompting factor for a repeat of the wound swab to evaluate the presence and quantity of bacteria.

Results / Discussion: The following bacteria were identified in the fifteen patients: *Pseudomonas aeruginosa*, *Staphylococcus epidermidis*, coagulase-negative staphylococci, *Klebsiella pneumoniae*, *Escherichia coli*, *Enterococcus faecalis*, *Staphylococcus aureus*, including multiple resistant strains. After local treatment with MGH, bacterial load decreased, and in some cases, sterile cultures were obtained. The wound evolution and practical guidelines for the use of MGH will be presented.

Conclusion: MGH is a cost-effective, easy-to-use alternative to treat chronic wound infections.

EP187 IS POLIHEXANIDE EFFECTIVE IN REDUCING INFECTIONS IN PATIENTS WHO UNDERWENT SURGICAL PROCEDURES? A SYSTEMATIC REVIEW AND META-ANALYSIS

Gianluca Castiello[1], Giuseppe Caravella[1], Greta Ghizzardi[2 3], Gianluca Conte[1], Arianna Magon[1], Tiziana Fiorini[1], Laurenzia Ferraris[1], Simona De Vecchi[1], Veronica Calorenne[1], Andreea Andronache[1], Antonio Saracino[1], Rosario Caruso[1 4]

[1]IRCCS Policlinico San Donato, San Donato Milanese, Italy; *[2]ASST di Lodi, LODI, Italy*; *[3]ASST di Lodi, Bachelor's Degree Programme in Nursing, Directorate of Nursing and Allied Health Professions, LODI, Italy*; *[4]Università degli Studi di Milano, Milano, Italy*

Aim: The advantages of polyhexanide in clinical practice are mainly described in relation to its broad antibacterial spectrum, high cell and tissue tolerability, and wound healing-encouraging impact. Some experimental studies tested the efficacy of polyhexanide in preventing infections (i.e., bloodstream infections). Still, no meta-analysis has been performed thus far. Concerning infections in patients who underwent surgical procedures, this study aimed at determining the relative risk difference (RR) with its 95% confidence interval (95%CI) between polyhexanide and controls, summarizing evidence using a systematic review.

Method: A systematic review with meta-analysis (random-effect models) was performed in PubMed, Web of Science, Scopus, Embase, and CINAHL, including randomized controlled trials (RCTs) up to November 2022. The "population, intervention, comparison, outcome, study design" (PICOS) guided the search.

Results / Discussion: Ten RCTs were included (patients involved=2,330), and 12 comparisons (Polihexanide vs. controls) were feasible for pooling the infection rates into RR. In the control groups, there was a 4% increased risk of having an infection (RR=0.04; 95%CI=0.01-0.08; I2=40.65%) (Figure 1). When a saline solution was used in the control group, there was a nonsignificant trend towards an increased risk of infections (RR=0.013; 95%CI=-0.01–0.026; I2=48.65%) (Figure 2). No substantial decreased risk differences emerged in using polyhexanide for application, irrigation, or dressings (Figure 3). The likelihood of publication bias is small (Figure 4), and the overall quality of evidence ranges from moderate to poor.

Conclusion: There is evidence that Polihexanide is effective in reducing infection rates compared to active (e.g., Chlorhexidine, Povidone-iodine) and non-active (e.g., saline solution) controls. Future well-designed and real-world trials are required to determine in which setting and population Polihexanide is more effective.

EP188 A SYSTEMATIC REVIEW AND META-ANALYSIS ON THE IMPACT OF PREOPERATIVE HAIR REMOVAL ON THE INCIDENCE OF SURGICAL SITE INFECTIONS IN ADULT NEUROSURGICAL PATIENTS IN AN ACUTE SETTING.

Annamma Mathew[1], Aglécia Budri[1], Zena Moore[1], Declan Patton[1], Tom O'Connor[1], Linda Nugent[1], Pinar Avsar[1]

[1]Royal College of Surgeons in Ireland University of Medicine and Health Sciences, School of Nursing and Midwifery, Dublin, Ireland

Aim: This systematic review aimed impact of preoperative hair removal on the incidence of surgical site infection (SSI) among neurosurgical patients in the acute setting.

Method: The link between hair removal and SSI is still debated in the literature and clinical practice. Hair is often considered as unclean and hence surgeons insist on the removal of hair preoperatively to prevent infection. Hair shaving is a practice that is more of a tradition than a preoperative preparation.

Results / Discussion: Of 348 potential studies identified, 7 met the inclusion criteria. A meta-analysis of the primary outcome found a statistically significant difference between hair removal and the non-hair removal (SSI incidence intervention group 4.2%, 84/1983; SSI incidence control group 2.7% 53/1920; p= 0.02). The group that did not have the hair removed were around 1.5 times less likely to develop SSI compared to those that had the hair removed with various techniques (OR= 1.55; 95% CI: 1.09, 2.20).

Conclusion: The meta-analysis presents some evidence that unshaved patients were at a lower risk of developing SSI. However, according to the quality appraisal, some studies were deemed invalid, and there was considerable variation among the interventions used in the included studies. This review highlights the need for more robust studies comparing different interventions to identify which would be the best evidence-based practice around hair removal techniques (including non-hair removal) prior to neurological procedures.

EP189 THE IMPACT OF CARE BUNDLES ON THE INCIDENCE OF SURGICAL SITE INFECTION IN PEOPLE BIRTHING BY CAESAREAN SECTION –A SYSTEMATIC REVIEW

Shonagh Strachan[1], Zena Moore[1], Denise Blanchfield[1], Aglécia Budri[1], Declan Patton[1], Tom O'Connor[1], Linda Nugent[1], Pinar Avsar[1]

[1]Royal College of Surgeons in Ireland University of Medicine and Health Sciences, School of Nursing and Midwifery, Dublin, Ireland

Aim: A care bundle is a group of at least three evidence-based interventions which are introduced together as a package. Currently, there is no standard professionally endorsed bundle for CS surgery. A previous systematic review (SR) was published in 2017, but since then, many more trials have been published, thus, this SR updated the 2017 SR. To determine the effect of care bundles on the incidence of surgical site infection (SSI) in people who give birth via caesarean section (CS).

Method: A SR following PRISMA guidelines. Medline, CINAHL Plus, EMBASE, Cochrane and CENTRAL were searched between 2017 to 2022. The Primary and secondary outcomes of interest were rates of SSI, grade of SSI and care bundle content. Analysis and quality appraisal was undertaken using RevMan the Quality appraisal of included studies was performed using the EBL, respectively.

Results / Discussion: All analysis identified a statistically significant difference in outcomes in favour of the care bundle group as follows, OR of SSI development: 0.35 (95% (CI=0.31 to 0.40; p<0.00001); OR of superficial SSI development: 0.23 (95% CI=0.18 to 0.29; p<0.00001); OR of deep incisional SSI development: 0.40 (95% CI=0.17 to 0.94; p=0.03); OR of Organ/Space SSI development: 0.44 (95% CI=0.31 to 0.62; p<0.00001). The care bundles included encompassed 51 different elements.

Conclusion: Use of a care bundle reduces the incidence of CS SSI of all grades. However, heterogeneity of the care bundles limits the precise recommendations which can be made pertaining to which bundle, or elements of a bundle should be used.

EP190 CLINICAL SIGNS, SYMPTOMS AND BIOMARKERS INDICATING PRESENCE OF BIOFILMS IN CHRONIC WOUNDS: A SCOPING REVIEW

John Ivory[1 2], Akke Vellinga[2 3], Duygu Sezgin[1 2], Chloe Hobbs[4], Cathal Ffrench[1 2], Patricia Coutts[5], Georgina Gethin[1 6 7]

[1]University of Galway, School of Nursing & Midwifery, Galway, Ireland; [2]Alliance for Research and Innovation in Wounds (ARIW), University of Galway, School of Nursing & Midwifery, Galway, Ireland; [3]University College Dublin, School of Public Health Physiotherapy and Sports Science, Dublin, Ireland; [4]University of Galway, Microbiology, School of Biological & Chemical Sciences, Galway, Ireland; [5]Wounds Canada, North York, Canada; [2]Alliance for Research and Innovation in Wounds (ARIW), University of Galway, School of Nursing & Midwifery, Galway, Ireland; [7]Monash University, School of Nursing & Midwifery, Melbourne, Australia

Aim: To identify clinical signs, symptoms and biomarkers reported in the literature as being indicative of biofilm presence in chronic wounds.

Method: The Joanna Briggs Institute Manual for Evidence Synthesis and the Preferred Reporting Items for Systematic Reviews extension for Scoping Reviews (PRISMA-ScR) guided this review process.

Medline, Embase, CINAHL, Cochrane CENTRAL and BASE were searched from inception for studies of any design that included adult patients with diabetic, venous, mixed arterial-venous or pressure ulcers and reported data on clinical signs/symptoms or biomarkers of biofilm in any setting. No language limits were applied.

Pairs of reviewers independently screened titles/abstracts and full-text articles. Discrepancies were resolved by discussion between reviewers or through third-party intervention. Data was extracted by one reviewer and verified by a second.

Results / Discussion: Searches returned 6,556 titles and abstracts. Post de-duplication, 3,650 titles and abstracts were screened and 259 were included for full text review. Full-text screening is underway.

Signs and symptoms of biofilm in wounds reported in three eligible articles include: presence of slough and exudate, poor quality granulation tissue, culture negative results despite suspicion of clinical infection, failure to heal with wound waxing and waning, excessive moisture, shiny appearance on parts of the wound, signs of local infection, and opaque, loosely attached patches in some parts of the wound.

Conclusion: Signs and symptoms in the literature indicating biofilm in chronic wounds appear to be based on subjective opinion. This review is contributing data to a project that aims to determine if a validated clinical signs and symptoms tool to detect biofilm in chronic wounds can be developed.

EP191 DIAGNOSIS AND TREATMENT OF THE INVASIVE EXTENSION OF BACTERIA (CELLULITIS) FROM CHRONIC WOUNDS UTILIZING POINT-OF-CARE FLUORESCENCE IMAGING

Charles Andersen[1], Katherine McLeod[1], Rowena Steffan[1]

[1]Madigan Army Medical Center, Joint Base Lewis-McChord, United States

Aim: Cellulitis can originate from chronic wound bacteria that invades adjacent dermal and subcutaneous tissue. It can be asymptomatic at first and/or mistaken for other conditions, including chronic stasis dermatitis. Point-of-care fluorescence (FL)* imaging detects and localizes elevated bacterial burden in and around wounds independent of clinical signs, leading to proactive treatment. This study examines the impact of FL-imaging as a diagnostic technology to guide the treatment of wound-related cellulitis.

Method: A prospective observational study that included patients (n=236) visiting an outpatient wound-care centre between January 2020 and April 2021. Patients underwent routine fluorescence scans for bacteria (range: 1 to 33 scans/patient). Analysis of the data collected was undertaken.

Results / Discussion: Wound-related cellulitis occurred in 6.3% (15/236) of patients. Of those, FL-imaging revealed bacterial presence that was undetected on clinical evaluation alone, with an irregular pattern of red (bacterial) fluorescence extending well beyond the wound bed and peri-wound into adjacent tissue. This could not be removed through traditional strategies to eradicate bacterial burden (debridement, vigorous antiseptic cleansing). In cases where red fluorescence signals persisted after fluorescence-assisted debridement, systemic antibiotics were initiated. Imaging at subsequent visits evidenced the resolution of the invasive bacterial extension.

Conclusion: These findings demonstrate the utility of point-of-care FL-imaging in supporting the efficient detection and treatment of wound-related cellulitis. Based on these findings, a clinical workflow was developed to aid clinicians in distinguishing invasive extension of bacteria on fluorescence scans from other sources and patterns of wound bacteria, and from stasis dermatitis.

EP193 NATIONAL STUDY ON HEALTH PROFESSIONALS PERCEPTIONS: THE USE OF POLY-ABSORBENT DRESSING WITH TLC-AG FOR THE TREATMENT OF WOUNDS

Natália Maximo[1], Mariana Santo[1], Mariana Ferreira[1], Vanessa Azevedo[1]

[1]*Master Nurse Registered and Stomatherapist, Brazil*

Aim: Describe professionals' perception regarding healing process and reduction of wound infection signs using a poly-absorbent dressing with technology TLC-Ag for the wound clinical cases and their participation in a scientific event.

Method: Cross-sectional study of 27 clinical cases in the 1st Regional Infection Forum, developed by professionals in different Brazilian states for 40 days. The included clinical cases presented risks or signs of infection, having the poly-absorbent dressing with TLC-Ag. Each professional chose the treatment according to each wound and infection. They also evaluated clinical signs of infections, wound healing progression and dressing acceptance. Regarding the Forum and participation, the professionals answered a questionnaire containing 21 questions.

Results / Discussion: After starting treatment, 98% of the cases showed a reduction in infections. Their factors were reduced in all cases, with a rate of 95% for slough and 97% for exudate. 98% reported a decrease in lesions and the dressing was tolerated and accepted by patients and healthcare professionals in all cases. Concerning professional's experience in the Forum, 95% responded that, after the event, their institutions expanded the dressing use. The "relevance of clinical cases presentation", obtained an average of 8.7(10 as extremely relevant).

Conclusion: These results corroborate the cleaning properties, infection reduction, healing capacity and safety profile of the dressing with TLC-Ag in the management of wounds or infections. The relevance of events for health professionals was assessed positively in the Forum.

EP195 FACTOR ASSOCIATING WITH IN-HOSPITAL MORTALITY IN NECROTIZING FASCIITIS PATIENTS IN SONGKLANAGARIND HOSPITAL, A RETROSPECTIVE STUDY

Atthawit Mongkornwong[1], Nichkamon Huntragoon[1]

[1]*Songklanagarind Hospital, Surgery, Tambon Kho Hong, Thailand*

Aim: The aim of this study was to identify risk factors that increase the mortality rate and created nomogram for clinical practice tool.

Method: A retrospective study was performed at Prince of Songkhla university located in Southern Thailand. All medical records of patients between January 1,2006 and December 31, 2021. Clinical predictors for mortality were analyzed using multivariate analysis with stepwise logistic regression model.

Results / Discussion: Of a total 211 patients with diagnosis of NF, 30.8%(n=65) died in hospital and 69.2%(n=146) survived. From multivariable analysis, BMI25-29.9(P-value 0.004, 95%CI=11.06[2.12-57.84]); length of hospital stay(P-value 0.002, 95%CI=0.93[0.89-0.98]); cirrhosis (P-value <0.001, 95%CI=28.13[5.07-156.07]); hematocrit at admission (P-value 0.012, 95%CI=0.79[0.65-0.95]); and band count at admission (P-value <0.001, 95%CI=1.38[1.19-1.62]) were risk factors for mortality.

Conclusion: Prognosis factors for mortality in NF patients included BMI25-29.9; length of hospital stay; cirrhosis; hematocrit at admission; band count at admission. Nomogram was developed from these risk factors for predict the mortality rate of NF patients. Thus disease progression to mortality may predict from this nomogram.

EP196 INTEGRATING WHOLE-GENOME SEQUENCING DATA AND MICROBIOLOGICAL PROFILE OF MULTIDRUG-RESISTANT ACINETOBACTER BAUMANNII INFECTIONS IN SKIN ULCERS

Ilaria Cavallo[1], Sivori Francesca[1], Mauro Truglio[1], Luigi Toma[2], Fulvia Pimpinelli[1], Enea Gino Di Domenico[3]

[1]San Gallicano Dermatological Institute, IRCCS, Microbiology and Virology, Rome, Italy; [2]IRCCS Regina Elena National Cancer Institute, Department of Research, Advanced Diagnostics, and Technological Innovation, Translational Research Area, Rome, Italy; [3]Sapienza University of Rome, Department of Biology and Biotechnology "C. Darwin", Rome, Italy

Aim: *Acinetobacter baumannii* is a leading nosocomial pathogen worldwide and a significant threat in skin ulcer. The therapeutic options are limited due to high rates of antibiotic resistance and virulence factors. This study investigates the clinical impact of *A. baumannii* isolates in patients with chronic leg ulcers.

Method: Antibiotic resistance, a comprehensive bioinformatic analysis, and the biofilm-forming ability of 18 *A. baumannii* isolates were examined.

Results: Most of the isolates were resistant to fluoroquinolones (66.7%), aminoglycosides (55.5%), and carbapenems (44.4%). In addition, many genes encoding for virulence factors, (*adeF*, *bfmS*, *bfmR*, and *bau*) and iron uptake, were highly prevalent in *A. baumannii* isolates. Moreover, genes responsible for fimbriae production (*csu*), early adhesion (*ompA*), and biofilm formation (*pgaB, pgaC, pgaD, ageG, adeH,* and *bap*) were reported in more than 89% of the strains. Sequence type (ST) 2 was the most prevalent (44.4%). It was associated with high rates of antimicrobial resistance, low biomass production, and poor adhesion than other STs and *A. baumannii* ATCC 19606. The median MIC_{90} values for these isolates were 0.5 µg/mL (0.25-32 µg/mL) for colistin and 1.0 µg/mL (0.125–4 µg/mL) for cefiderocol. In contrast, the minimal biofilm eradication concentration ($MBEC_{90}$) for cefiderocol and colistin was 2 µg/mL (0.25-64 µg/mL) and 2 µg/mL (0.25-128), respectively.

Conclusion: This study provides significant information about the genetic determinants and virulence factors of *A. baumannii* isolates to optimize antibiotic prescribing and stewardship programs and to improve the treatment of these infections among patients with chronic leg ulcers.

E-POSTER SESSION: WOUND ASSESSMENT

EP197 A SMART WOUND DRESSING TO ENABLE DIGITAL HEALTH IN CHRONIC WOUNDCARE

Adam Collins[1], Hendrik Muller[1], Jo Ann Glynn[2], Harry Cabalan[2], Mark Fleming[3], Gerard O'Connor[1 2], Georgina Gethin[1 2]

[1]Cúram SFI Research Centre for Medcial Devices, Ireland; [2]University of Galway, Galway, Ireland; [3]Fleming Medical, Ireland

Aim: Treating chronic wounds is challenging. An objective measurement of wound condition and a remote monitoring tool are needed to assist clinical decision making. The accelerated uptake of digital health solutions during the covid-19 pandemic has further highlighted the lack of a remote monitoring tool for woundcare. A 'smart wound dressing', which monitors key wound parameters such as temperature and pH, is under development to address this gap.

Method: Stakeholder feedback has guided the design and function of the dressing. A key consideration focuses on the injury risk for a neuropathic patient, the device must be flexible and low profile to minimise injury risk when applied to a weight-bearing area. Advanced printing technologies have been used to produce a low-profile flexible device. The performance of the pH and temperature sensors have been validated by *in vitro* trials using wound exudate samples.

Clinicians require evidence to interpret the readings taken from the device. Clinical measurements of wound temperature and pH were conducted.

Results / Discussion: A flexible patch containing printed sensors was developed, the components on the patch are <1mm in height. The device was integrated into a polyurethane foam wound dressing.

The sensors have been effective for *in vitro* studies using wound exudate samples. The functionality has been tested in healthy volunteer trials. Key opinion leaders have given positive feedback on the concept.

A wound database of over 140 temperature measurements has been collected and analysed giving context to the wound measurements.

Conclusion: The smart wound dressing is a promising tool for improving patient outcomes through reduced healing times. Additionally, there are potential cost savings through reduced clinical workloads.

EP198 VIRTUAL WOUND CLINIC SYSTEM WITH THE ABILITY TO CREATE ELECTRONIC FILES AND VIRTUAL ANALYSIS OF WOUND TEXTURE BY ARTIFICIAL INTELLIGENCE

Masoud Fallahi[1 2], Mehdi Haidarian[2], Somayeh Mahdavikian[1]

[1]Kermanshah University of Medical Sciences, Kermanshah, School of Nursing and Midwifery, Kermanshah, Iran; *[2]Razi University, Kermanshah, Department of Electrical and Computer Engineering, Kermanshah, Iran*

Abstract: One of the problems of wound specialists is that they may not have enough time to assess the length and width of the wound. This problem is aggravated when they have to visit the wounds virtually. This paper presents a novel AI-based method for evaluation of the wound healing process. In this algorithm, a neural network is used to detect a combination of color spectra next to each other and a neural network is used to detect the distance of the wound from the camera via hand detection. Finally, the dimensions of the wound are obtained along with the analysis of its texture. The neural networks used are a deep networks and use intensive learning algorithms with less computational complexity than deep networks, which can be implemented on mobile processors as well. Networks are modified in a way that the additional connections between different nodes are removed without any change in performance. In this way, time and computational complexity are reduced. Then through the server, images of the wound and its analysis can be sent to different users, including doctors and medical centers.

Keywords: Image processing; Partial Connection; Deep learning; Firing rate optimization; Hand detection.

EP199 INTRA- AND INTERRATER RELIABILITY OF SPLIT-WOUND DESIGN ALGORITHM – AN INNOVATIVE METHOD FOR THE FUTURE OF WOUND STUDIES

Paul Georg[1], Simon Bossart[1], Meret Schmid[2], Sebastian Probst[3], Sofia Zahia[3]

[1]Inselspital, Dermatology, Bern, Switzerland; *[2]University of Bern, Medical School, Bern, Switzerland*; *[3]Geneva School of Health Sciences (HEdS - Geneva), Genève, Switzerland*

Aim: To compare the effectiveness of a wound treatment, multiple factors have to be evaluated especially in matched pair case-control wound studies. To overcome the shortcoming of comparability of wounds in case-control studies our group has tested and effectively implemented an objective split-wound design for wound studies. To validate this method we have conducted a reliability study that analyzes intra- and inter- rater reliability of this new method. The method is aiming to objectify wound halving and measurements in split-wound design studies, a new approach to head-to-head studies for wound products and operative procedures.

Method: We collected 20 images of chronic leg ulcers from open source database. 1. Three wound experts run a wound boarder segmentation protocol using and open source image annotator to define the wound boarder. 2. Our algorithm calculates a ground truth halving line, splitting the wound into two equally surfaced parts along the longest side of the wound. 3. Five operators (3 wound specialists, one statistician and one medical student) are asked to mark their subjective halving line without the help of the algorithm-calculated halving line. 4. In a second analysis set, operators marked the halving line with the help of an image of the ground truth halving line as a reference.

Results / Discussion: The relative difference of corresponding wound sides from the ground truth for all 5 operators was calculated for two sessions two weeks apart with and without the help of the algorithm-calculated halving line.

Conclusion: Our method showed a high inter- and intra-rater reliability for all operators with different backgrounds. This method is an objective wound-splitting algorithm and usable in clinical studies.

EP200 DECISION SUPPORT SYSTEM IN CHRONIC WOUND CARE

Lorena Casanova Lozano[1]

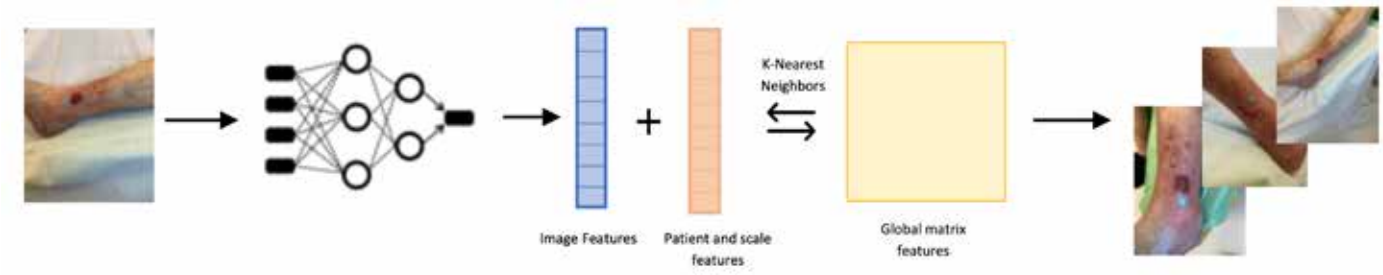
[1]*Carrer de Veneçuela, Barcelona, Spain*

Aim: A solution is proposed that consists of supporting the professional in deciding how to act on the wound by offering a diagnosis and treatment proposal. Artificial intelligence and machine learning algorithms have been developed to allow the extraction of the most relevant wound characteristics through an image and providing similar successful wounds from the health center itself. In this way, the professional would have a diagnostic reference of other wounds similar to the one being evaluated and thus be able to make the right decision. The solution is embedded in software as a medical device, which is CE marked and is also capable of tracking wounds through images and data.

Method: A total of 600 images were processed and analyzed in order to obtain their most identifying morphological and textural characteristics. From each of the images, the five most similar in terms of characteristics were searched for and clinically validated by comparing them using an objective scale called RESVECH 2.0. This scale is a questionnaire with questions that assess the wound at a physical level.

Results / Discussion: The results showed an overall accuracy of 73.71%, calculated as the weighting of the RESVECH 2.0 scale match of similar images to the original.

Conclusion: With this solution, clinicians improve their confidence in clinical practice by having support in decision making, observing favorable outcomes and progression of chronic wounds.



EP201 FLUORESCENCE IMAGING PROMPTS MORE THOROUGH DEBRIDEMENT OF BACTERIA & BIOFILM: REAL-WORLD DATA FROM 1000 WOUND ASSESSMENTS ACROSS 36 STATES

Ashley Jacob[1], Laura Jones[1], Raymond J. Abdo[2], Sebastian Cruz-Schiavone[3], Nathan Krehbiel[1], Audrey Moyer-Harris[2], Alyssa McAtee[1], Isabel Baker[1], Micaela Gray[1], Monique Rennie[1]

[1]*MolecuLight, Toronto, Canada*; [2]*St. Louis Foot and Ankle Institute, St. Louis, United States*; [3]*Pittsburgh, PA, United States*

Aim: High bacterial loads in chronic wounds increase infection and complication risk. This analysis aims to illustrate how the objective detection and localization of bacterial loads through point-of-care fluorescence (FL) impacts treatment decisions.

Method: A retrospective single time-point analysis of treatment decisions from 1000 chronic wounds (DFUs, VLUs, PIs, surgical wounds, burns, and others) assessed by clinicians at 211 facilities across 36 US states. No exclusion criteria were applied. Clinicians proposed treatment plans for each wound before and after FL imaging (MolecuLight) were recorded, including clinical signs and symptoms of infection (CSS), FL-imaging findings, and any treatment plan changes.

Results / Discussion: FL signals indicating elevated bacterial loads were observed in 701 wounds (70.8%), but CSS were present in only 293 (29.6%). Post FL-imaging, treatment plans changed in 528 wounds, types of changes included: change in dressing selection (3.2%), more extensive hygiene (17.2%) or debridement (18.7%), FL-targeted debridement (17.2%), FL-guided sampling for microbiological analysis (6.2%), new topical therapies and systemic antibiotic prescriptions (10.1% and 9.0%, respectively).

Conclusion: These real-world findings of asymptomatic bacterial load/biofilm prevalence, and of the frequent treatment plan changes post-imaging, are in keeping with clinical trial findings on this technology. These data, from a range of wound types, facilities, and clinician skill sets, suggest that point-of-care FL-imaging information enhances bacterial-infection management and allows for more proactive and custom-tailored therapeutic options. Combined with U.K. randomized controlled trial evidence of improved healing rates, our findings demonstrate the potential of proactive, FL-guided care to improve wound outcomes at a reduced cost.

EP202 ACCURACY AND REPRODUCIBILITY OF A DEVICE-BASED STEREOSCOPIC (STICKERLESS) DIGITAL WOUND MEASUREMENT SOFTWARE

Laura Jones[1], Danielle Dunham[2], Monique Y Rennie[2], Nicola Andric[2], Liis Teene[2], Rose Raizman[3]

[1]MolecuLight Inc, Toronto, Canada; [2]MolecuLight, Toronto, Canada; [3]Scarborough and Rouge Hospital, Toronto, Canada

Aim: To test the accuracy and reproducibility of a digital measurement application on a wound imaging device* that leverages stereoscopic imaging and advanced algorithms to eliminate the need for calibration markers. This device uses fluorescence imaging to detect regions with high bacterial loads.

Method: Two-part, adequately powered, validation of the wound measurement software. Includes imaging of benchtop wound models and clinical wound images. Part 1) 17 wound models (flat, sloped, and convex surfaces); Part 2) 17 clinical wounds measured. All wounds were measured 3 times by 5 clinical users to validate the absolute accuracy and inter and intra-user variability in measurements.

Results / Discussion: Part 1 testing of wound models found that the mean measurement errors for wound area, length, and width were all <4%, the intra-user variability <4% and the inter-user variability <6%, therefore demonstrating highly accurate and reproducible measurements. Part 2 revealed that the intra-user variability for wound area, length, and width of clinical wound images was also <4% and the inter-user variability was <6%. Thus, this digital wound measurement is equally reproducible between users for real clinical wounds.

Conclusion: These results validate the accuracy and reproducibility of the wound measurement software and demonstrate that the implementation of software in clinical practice can be used to improve the tracking of patients' wound size, in addition to their bacterial loads. It also removes the need to interrupt workflow and patient contact by eliminating the need for calibration markers such as stickers.

EP203 USE OF A PVA GELLING FIBER TO HEAL COMPLEX WOUNDS, REDUCE PAIN & SUFFERING, AND SAVE TIME: A RETROSPECTIVE REVIEW

Rhonda Sullivan[1], Shana Gaynor-Champion[1]

[1]Mölnlycke Health Care, Norcross, United States

Aim: The aim of this study was to assess the healing capacity of a PVA Gelling Fiber, by analyzing patient and wound outcomes across a diverse sample of wound cases.

Method: A retrospective review of published case studies was undertaken. Inclusions were all cases where a PVA Gelling Fiber was used as the only primary dressing. A data collection form was designed and automated. Patient, wound, and dressing performance data was collated, analyzed in aggregate form, and pre- and post-PVA gelling fiber outcomes reported.

Results / Discussion: Thirty-four wound cases from 10 clinicians, across the care continuum in 5 countries over 5 years were included. Patients ranged from 25 to 96 years old and presented with complex medical histories. Eight wound types were represented. Delayed healing was reported in 85% of the wounds, with a mean duration of 8.5 years.

For all patients, a silver or non-silver PVA gelling fiber was used as a primary dressing and changed based on local protocols. 64.7% of the wounds completely healed (n=22) in an average of 7 weeks. The overall condition of all wounds improved based on a mean area reduction of 95%, depth reduction of 91%, 142% increase in granulation, and 74.6% decrease in slough/eschar. Exudate levels for 88% of the wounds reduced to light to none. All care complications resolved, and pain scores reduced to zero.

Conclusion: In this study, the use of a PVA gelling fiber reduced treatment time and pain, alleviated complications of care, and healed complex wounds.

EP204 ASSESSMENT OF HEALING OF 3D RECONSTRUCTED WOUND SKIN IN RESPONSE TO A WOUND WASH, DEBRIDEMENT AGENT AND CLEANING SOLUTION OVER 7 DAYS

Kristian Daly[1], Chris Ball[1], Hannah Thomas[1], Samantha Westgate[1], Ranjeni Krishnen[2], Stefania Fabbri[1]

[1]Perfectus Biomed, Cheshire, United Kingdom; [2]Bactiguard AB, Sweden

Aim: To track wound healing in response to a wound care solution[1] using a full thickness wounded skin tissue model.

Method: Wounded full thickness tissue models containing viable cells were treated with either a wound care solution[1] or DPBS every 48 hours for 7 days. On days 1, 2, 5 and 7 models were processed for immunostaining, fluorescent confocal microscopy and measurement of wound closure. Pro-inflammatory markers (IL-1β, TNFα, IL-6) were quantified using an ELISA. ANOVA was used to determine statistical differences.

Results / Discussion: Following 2 days treatment, the average wound diameter of models treated with a wound care solution[1] was significantly reduced compared to controls, indicating an increased wound closure response. At Days 5 and 7, models treated with a wound care solution[1] showed complete coverage of the wounded area with fresh keratinocytes leaving no exposed dermal fibroblasts visible. Tissue models treated with a wound care solution[1] produced comparable levels of IL-1β, TNF-α and IL-6 to models treated with DPBS.

Successful and timely wound healing requires a balance of both fibroblast and keratinocyte growth. A lack or imbalance of either cell type can lead to increased inflammatory responses and prolonged wound healing[2]. The wound model used mimics this scenario closely by removing the top keratinocyte skin layer of a full thickness *in vitro* human skin model, exposing the dermal fibroblast layer underneath and can therefore provide an indication of performance in patients.

Conclusion: In conclusion, the wound care solution[1] showed more rapid wound closure compared to the DPBS control and pro-inflammatory effects were not significantly different.

EP205 A CLINICAL SUPPORT APP FOR ROUTINE WOUND MANAGEMENT: REDUCING PRACTICE VARIATION, IMPROVING CLINICIAN CONFIDENCE AND INCREASING FORMULARY COMPLIANCE

Zena Moore[1], Georgina Aynge[2], Caryn Carr[3], Andrea Horton[4], Hayley Jones[5], Nina Murphy[6], Matthew Payne[5], Catherine McCarthy[7], Julie Murdoch[7]

[1]School of Nursing & Midwifery RCSI, Ireland; [2]School of Nursing and Midwifery, Newnham, Australia; [3]; [4]School of Medicine, Cardiff University, United Kingdom; [5]Southern Health N H S Foundation Trust, Colden Common, United Kingdom; [6]North East London N H S Foundation Trust, United Kingdom; [7]Smith & Nephew, Global Clinical Strategy-AWM, Kingston upon Hull, United Kingdom

Aim: Wounds continue to be of a global concern. Therefore, a more focused, evidence-based approach to wound assessment and management is required. The Clinical Support App is designed to support the health care professional with wound assessment and management at the point of care. This real-world pilot study aimed to determine the utility of the Clinical Support App during routine wound management, in multiple care settings.

Method: A noninterventional, real-world pilot program of the Clinical Support App was conducted at four sites. Patients received routine wound management. The Clinical Support App was programmed to replicate the site's formulary for evidence-based wound management. Anonymized pre- and post-pilot clinician opinion surveys on useability and impact of the Clinical Support App were collected and reported.

Results / Discussion: Wound Specialists (WS) (n = 7 [100%]) and Non-Wound Specialists (NWS) (n = 58 [82%]) indicated that competence and confidence in wound assessment were enhanced with use of the Clinical Support App (100%; 82%). Furthermore, practice variation was reduced because of a greater compliance to their local formulary (n = 7 [100%]; 79% [54%]).

Conclusion: This real-world pilot shows the positive impact of the Clinical Support App, and the improvements that can be potentially realized via reduction in practice variation, improvement in NWSs confidence when managing wounds and increased formulary compliance.

EP206 INFRARED THERMAL IMAGING IN MONITORING SKIN GRAFT

Yong Seon Hwang[1], Hwanjun Choi[1]

[1]*Soonchunhyang University Cheonan Hospital, Plastic and reconstructive surgery, Cheonan, Korea, Rep. of South*

Aim: It is known that angiogenesis occurs in skin grafts. We analyzed infrared thermal imaging of the skin graft to evaluate the engraftment process in full-thickness skin graft (FTSG) and split-thickness skin graft (STSG) both.

Method: A study was conducted on 18 cases of skin graft from May to August 2022 at Soonchunhyang University Cheonan Hospital. They were divided into three groups: FTSG-taken (5 cases), STSG-taken (10 cases), and STSG-total loss (3 cases) group. Negative pressure wound therapy was applied after grafting and changed every 2 days. Thermal images were taken by FLIR® C5 model (Teledyne FLIR LLC, US) every 2 days until postoperative day 8. We analyzed difference of adjacent normal skin temperature and average of entire skin graft temperature by FLIR® Tools. (Teledyne FLIR LLC, US) (Fig. 1)

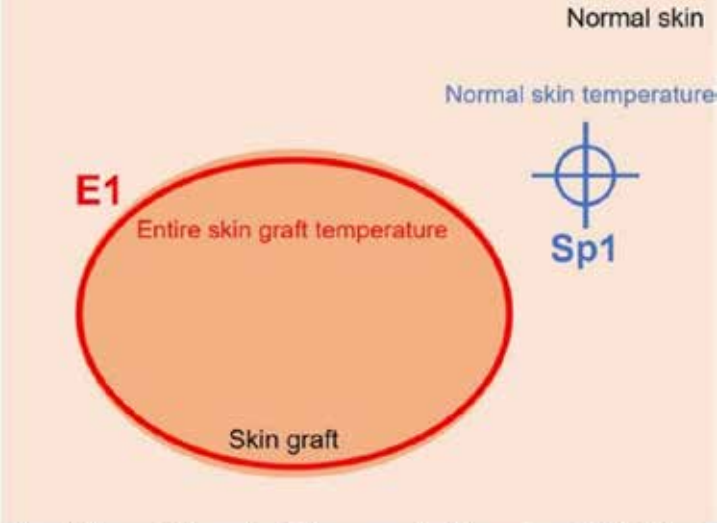


Fig. 1. The analysis method. The orange is skin graft, and light pink is normal skin. The entire area of skin graft was set to E1, and the normal skin temperature was set to Sp1. The temperature difference of Sp1 from the average temperature of the E1 area was set as the end-point.

Results / Discussion: In FTSG-taken and STSG-taken group, the temperature difference became positive between postoperative day 4 and 6. (Fig. 2, 3) It was the peak on postoperative day 6, and coverged to 0 on postoperative day 8. In STSG-total loss group, the temperature differences were not positive until postoperative day 8. (Fig. 4)

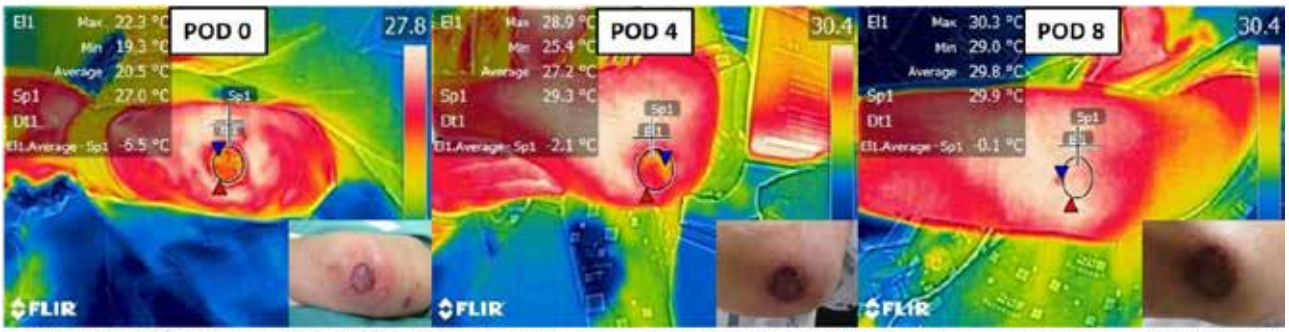


Fig. 2. A case of FTSG-taken group. FTSG was done for 3rd degree burn. (A) Operation day (B) Postoperative day 4. (C) Postoperative day 8

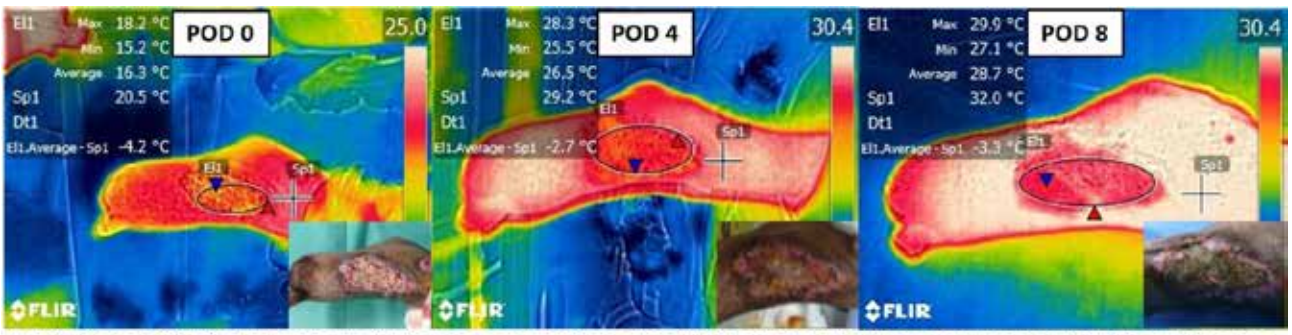


Fig. 3. A case of STSG-total loss group. STSG was done for DM foot ulcer. (A) Operation day (B) Postoperative day 4. (C) Postoperative day 8

Conclusion: As the skin graft was taken on postoperative day 4 to 6, the entire graft's temperature became similar to adjacent normal skin. If the temperature difference does not become positive, the graft may be loss because the temperature is a reflection of angiogenesis. Therefore, thermal imaging is useful for monitoring the engraftment process of the skin graft.

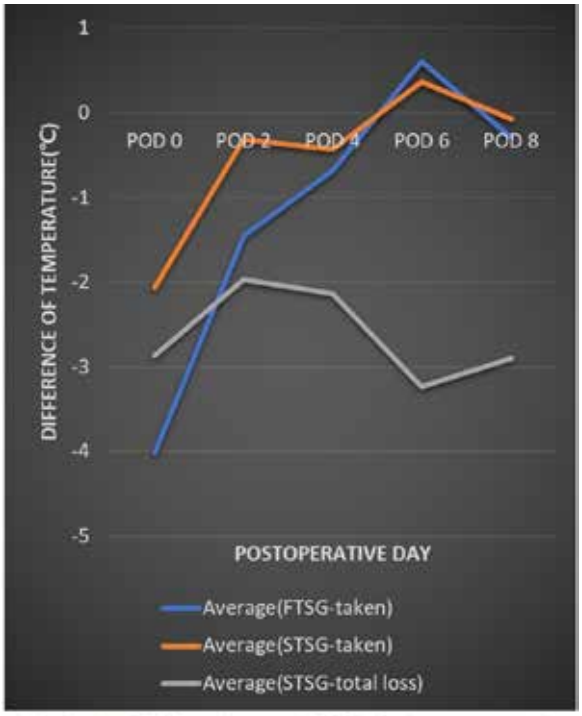


Fig. 4. In FTSG-taken and STSG-taken group, the average temperature of entire graft was higher than the temperature of the adjacent normal skin in postoperative day 6, and then became similar to that in postoperative day 8. In STSG-total loss group, the average temperature of entire graft was always lower than the normal skin.

EP207 SHORT-TERM RESULTS OF THE NEWLY ESTABLISHED PEDIATRIC WOUND CARE UNIT IN A TERTIARY HOSPITAL

Sabri Demir[1], Nese Ozyurt[2], Koza Geridonmez Kirkit[2], Irem Akbas[3], Emrah Senel[4]

[1]Ankara Bilkent City Hospital, Children Hospital, Department of Pediatric Surgery , Pediatric Burn Center and Pediatric Wound Care Unit, Ankara, Turkey; [2]Ankara Bilkent City Hospital, Children Hospital, Pediatric Wound Care Unit, Ankara, Turkey; [3]Ankara Bilkent City Hospital, Children Hospital, Department of Pediatric Surgery , Ankara, Turkey; [4]Ankara Yildirim Beyazit University, Faculty of Medicine, Department of Pediatric Surgery, Ankara, Turkey

Aim: We aimed to share the short-term results and our experience of the newly established Pediatric Wound Care Unit (PWCU) in our hospital.

Method: Children who were consulted to PWCU between 01.04.2022 – 30.11.2022 were included in the study. Demographic and clinical characteristics of the patients and were recorded.

Results / Discussion: Total of 150 patients were consulted to PWCU. Seventy-seven (51.3%) were girls, and the mean-age was 6.34 years. Of these, 126 (84.0%) were consulted from hospitalized patients while 24 (16.0%) were treated as outpatients. The most frequently consulted type of wound was pressure ulcers (n=68, 45.3%), followed by extravasations (n=29, 19.3%), diaper rash (n=19, 12.7%), epidermolysis bullosa (n=10, 11.1%), and soft tissue infections (n=9, 6.0%). Patients were consulted mostly from pediatric intensive care units. Fourteen passed away for various reasons. Most of the patients consulted for pressure ulcers of patients needing care due to cerebral palsy and similar reasons. Since wound care was not performed by experienced staff they were consulted in the advanced stages.

The fact that a large number of consultations were made to PWCU which was established in our hospital for the first time in our country and still has no example shows that the establishment of PWCU is an appropriate decision.

Conclusion: Pressure ulcers and other wounds of children should be treated by trained pediatric surgeons and pediatric wound care nurses. PWCUs should be established at all hospitals where children are cared for. In addition, regular training should be given to doctors, nurses, parents/caregivers of children in need of care at home and in dormitories in order to reduce pressure ulcers and other wounds.

EP208 DECISION-MAKING SUPPORT SYSTEM IN THE DIAGNOSIS AND TREATMENT OF PERSON WITH CHRONIC WOUNDS: CLINICALWOUNDSUPPORT

Raquel Silva[1], Marcos Lopes[2], Paulo Ramos[1 3], Irene Oliveira[1 4], João Neves-Amado[1 4], Luís Sá[1 4], Maria Vasconcelos[5], Pedro Salgado[6], Paulo Alves[1 4]

[1]Universidade Católica Portuguesa, Centre for Interdisciplinary Research in Health, Porto, Portugal; [2]Universidade Federal Ceará, School of Nursing Department, Brazil; [3]Unidade de Saúde Familiar Corino de Andrade, Porto, Portugal; [4]Universidade Católica Portuguesa, School of Nursing Department, Porto, Portugal; [5]Fraunhofer Portugal AICOS, Porto, Portugal; [6]F3M- Information Systems, S.A., Braga, Portugal

Aim: In order to increase the effectiveness of the complex process that is the care and monitoring of a person with a chronic wound, the ClinicalWoundSupport project: Wound Analysis to Support Clinical Decision appears, in which we intend to build and implement a computerized system to support decision-making in the diagnosis and treatment of adults with chronic wounds.

Method: Several methodologies in the construction of a Web and App platform were applied. For the web platform, qualitative study designs with interviews to determine what information to include in dashboards and reports. For the App, a mixed approach of quantitative and qualitative studies, research in the current scientific literature, prospective observational studies, focus groups and consensus by a panel of experts was carried out. For the image component, conventional computer vision and deep learning algorithms were developed.

Results / Discussion: The Web platform and App communicate with each other and have different functionalities, such as: dashboard and clinical and management reports with the minimum data based on process and result indicators; tool that includes an integrated approach and the images and videos capture of wounds and dressings, to speed up the registration process; data storage in a protected source; algorithms for the semi-automatic determination of wound properties, namely area, different tissue types and percentages, and dressing saturation; clinical algorithms to support clinical reasoning in diagnosing different types of wounds; general recommendations based on wound bed preparation and wound typology; and alert systems.

Conclusion: These tools combine knowledge of the different technical, scientific, and clinical aspects to develop an integrated solution capable of responding to the needs identified in current clinical practice in the care of chronic wounds.

EP209 PH CHANGES IN CHRONIC WOUNDS TREATED WITH A COTTON AND POLYAMIDE ELASTIC BANDAGED BASED ON AN OXYGEN-ENRICHED OLEIC MATRIX

Alessandra Michelucci[1], Flavia Manzo Margiotta[1], Giorgia Salvia[1], Giammarco Granieri[1], Agata Janowska[1], Marco Romanelli[1]

[1]University of Pisa, Dermatology, Pisa, Italy

Aim: Wound healing process is affected by physiological and biological parameters, including temperature and pH. Several papers describe how pH modifies matrix metalloproteinases (MMPs) and their tissue inhibition activity, as well as keratinocyte and microbial proliferation. The aim of our study was to evaluate the effectiveness of a new elastic bandage made of cotton and polyamide, impregnated with an oxygen-enriched oleic matrix, in subjects affected by chronic venous insufficiency.

Method: We enrolled 7 patients with lower extremity ulcers and stasis eczema. The patients were treated with the elastic bandage and were evaluated at time (T)0 and T7. pH measurements were performed on the lower limb at 3 points (ankle, pretibial and subpatellar region) and on the wound bed. Wound bed was assessed using the Wound Bed Score (WBS), while pain was evaluated with Numerical Rating Scale (NRS).

Results / Discussion: After one week a reduction in lower extremity pH measurement of 26.22%, 28.6 %, 27.5 % for ankle, pretibial surface, and subpatellar region, respectively was observed with a mean decrease in wound pH measurement of 17.85%. Finally, an objectifiable clinical improvement in stasis eczema, wound bed (ΔWBS=2.3) and pain NRS (ΔNRS=2) was detected.

Conclusion: The prolonged release of reactive oxygen species, acting on microbial contamination, created a microenvironment unfavorable to pathogen's proliferation because of the pH reduction. This could be explained through the molecular role played by pH in wound healing and biofilm formation process.

EP210 A RETROSPECTIVE, SINGLE-INSTITUTION COHORT ANALYSIS ON PEDIATRIC KELOIDS IN ASIAN

Young-Jun Choi[1]

[1]*Kangbuk Samsung Hospital, Dermatology, Seoul, Korea, Rep. of South*

Aim: There is a lack of established data on clinical features, treatment options, and recurrence rate of pediatric keloids in Asian population. The aim of the study was sought to address clinical characteristics by comprehensively categorizing into pre-puberty group and puberty group among pediatric keloid patients and evaluating: (i) the epidemiology on pediatric keloids, (ii) the effect of applied treatment on prevention of recurrence, and (iii) differences from adult keloid patients.

Method: Patients < 18 years, newly diagnosed with keloid and previously untreated, were selected for our retrospective analysis from January 2007 to December 2021. Data including age, sex, race, comorbidity, family history, associated symptoms, etiology, anatomical location, treatment modalities, follow-up duration, and recurrence were collected.

Results / Discussion: Of the selected 86 patients, 47 (54.7%) were female and 39 were male (45.3%), with a mean age of 14.49 years. Head and neck area was the most commonly involved area (n= 40, 38.5%). The most common causative factor was trauma (n= 35, 40.2%), followed by surgery (n= 21, 24.1%), and inflammatory skin disorders (n= 19, 21.8%). 72 patients had combination treatment, of which laser treatment combined with triamcinolone acetonide intralesional injection (n= 18, 25.0%) was the most commonly applied therapeutic method. The mean duration of follow-up was 8.7 months, with an overall recurrence rate was 15.4%.

Conclusion: We found that pediatric keloids in Korean cohort were occurred, treated, and progressed in a variety of ways. Our findings can underscore that the therapeutic considerations of physicians within their current scope of practice for pediatric keloids.

E-POSTER SESSION: NEGATIVE PRESSURE WOUND THERAPY

EP211 PROMISING RESULTS IN WOUND CARE WITH A NEW RAPID CAPILLARY ACTION DRESSING: A CASE SERIES STUDY

Sandra Janssen[1], Janer Rijploeg[2], Johannes Wegdam[3], Tammo de Vries Reilingh[3], Vermeulen Hester[4 5], Anne Eskes[6 7]

[1]*Elkerliek hospital, Surgery / wound expertise center, Helmond, Netherlands*; [2]*Leeuwarden Medical Center, Cardio Vascular Center, Leeuwarden, Netherlands*; [3]*Elkerliek hospital, Surgery, Helmond, Netherlands*; [4]*Radboudumc, Scientific Institute for Quality of Healthcare (IQ healthcare), Nijmegen, Netherlands*; [5]*HAN University of Applied Science, Faculty of Health and Social Studies, Nijmegen, Netherlands*; [6]*Amsterdam UMC, University of Amsterdam, Surgery, Amsterdam, Netherlands*; [7]*Griffith University, Menzies Health Institute Queensland and School of Nursing and Midwifery, , Queensland, Australia*

Aim: Negative pressure wound therapy (NPWT) is based on the principle that a negative pressure

inside the wound can suction fluids and approximate wound edges. This therapy has been used for many years in the treatment of acute and hard-to-heal wounds. Despite the potential benefits of NPWT, there is also some evidence that NPWT can have a negative impact on QoL and can lead to serious restrictions in the physical, psychological and social domains of QoL. This case series aimed to describe treatment effects and experiences of patients who switched from negative pressure wound therapy (NPWT) to a rapid capillary action dressing (RCAD).

Method: Ten consecutive patients who prematurely terminated NPWT were recruited. When NPWT

was terminated, treatment was continued with RCAD.

Results / Discussion: Mean time to complete wound closure was 87.3 days (SD 38.3). Median duration of NPWT was 14 days (IQR 24). Mean duration of treatment with RCAD was 57.3 days (SD 30.3). The main reasons for terminating NPWT were maceration of the skin caused by the film and patient discomfort. All patients preferred RCAD, mainly because of better mobility and no noise, compared to the NPWT device.

Conclusion: This is, to our knowledge, the first case series utilizing RCAD in patients with hard-to-heal wounds. RCAD appears to be a promising treatment modality. The promising results of this case series indicate the value of conducting an RCT comparing the efficiency of RCAD compared to NPWT.

EP212 COMPARISON OF LOCAL RECURRENCE BETWEEN NON-NEGATIVE PRESSURE WOUND THERAPY AND NEGATIVE PRESSURE WOUND THERAPY AFTER LOCALIZED MELANOMA SURGERY

Kyoung Ae Nam[1], YeongJoo Oh[1], Kee Yang Chung[1]

[1]Yonsei University Severance Hospital, Dermatology, Seoul, Korea, Rep. of South

Aim: To compare the local recurrence rate between non-negative pressure wound therapy (non-NPWT) and NPWT after localized melanoma surgery.

Method: Retrospective review of 262 stage I & II patients (120 non-NPWT, 146 NPWT) from January 2000 to January 2018 was performed. NPWT was applied after confirming negative result at the resection margin after Mohs micrographic surgery.

Results / Discussion: Mean age of the patients was 58.1 years (17~89 years, non-NPWT 59.53, NPWT 58.87) and average Breslow thickness was 1.66 mm in Non-NPWT group and 1.81 mm in NPWT group. Local recurrence rate was 22.18% in non-NPWT group (28 out of 120) and 21.23% in NPWT group (31 out of 146). There was no significant difference in local recurrence between the two groups. There was NO evidence that negative pressure causes tumor recurrence and NPWT is a good therapeutic option for large wounds on feet resulting from tumor removal.

Conclusion: After achieving histopathologically clear margins by Mohs micrographic surgery for melanomas, applying NPWT in difficult-to-reconstruct areas is an excellent option that can expedite wound healing without increasing tumor recurrence.

EP213 CLOSED INCISION NEGATIVE PRESSURE THERAPY VERSUS STANDARD OF CARE OVER CLOSED ABDOMINAL SURGICAL INCISIONS IN THE REDUCTION OF SURGICAL SITE COMPLICATIONS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF COMPARATIVE STUDIES

Ashley Collinsworth[1], Christopher Mantyh[2], Ronald Silverman[3 4], Christine Bongards[1], Leah Griffin[1]

[1]3M, Health Economics and Outcomes Research; *[2]Duke University Medical Center, Division of Colorectal Surgery*; *[3]University of Maryland School of Medicine*; *[4]3M, Medical Solutions Division*

Aim: Surgical site complications (SSCs) can be serious and even life-threatening for patients. Although several studies have linked closed incision negative pressure therapy (ciNPT) to decreases in wound complications across surgical disciplines, the benefit in abdominal incisions remains unclear. This systematic review and meta-analysis evaluated the effect of ciNPT* on post-surgical and health utilization outcomes for patients undergoing open abdominal surgical procedures.

Method: A systemic literature search using PubMed, EMBASE, and QUOSA was performed for publications written in English, comparing ciNPT to standard of care dressings for patients undergoing abdominal surgical procedures between January 2005 and August 2021. Characteristics of study participants, surgical procedure, dressing used, duration of treatment, post-surgical outcomes, and follow up data were extracted. Meta-analyses were performed using random-effects models. Dichotomous outcomes were summarized using risk ratios and mean differences were used to assess continuous variables. A cost analysis was conducted using inputs from the meta-analysis and cost estimates from a national database.

Results / Discussion: The literature search identified 22 studies for inclusion in the analysis. Significant reductions in relative risk of SSC, surgical site infection (SSI), superficial SSI, and dehiscence were associated with ciNPT use ($p<0.05$). ciNPT use was also associated with a reduced risk of readmission and a 2.6-day reduction in hospital length of stay (LOS) ($p<0.05$). The estimated cost savings attributed to ciNPT use was $5,146 per patient.

Conclusion: These findings indicate that ciNPT use for patients undergoing open abdominal procedures can help reduce SSCs and associated hospital LOS, readmissions, and costs of care.

*3M™ Prevena™ Therapy, (3M Company; St. Paul, MN)

EP214 CLOSED INCISION NEGATIVE PRESSURE THERAPY VERSUS STANDARD OF CARE OVER CLOSED PLASTIC SURGERY INCISIONS IN THE REDUCTION OF SURGICAL SITE COMPLICATIONS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF COMPARATIVE STUDIES

Ashley Collinsworth[1], Allen Gabriel[2], Devinder Singh[3], Ronald Silverman[4], Christine Bongards[1], Leah Griffin[1]

[1]3M, Health Economics and Outcomes Research; [2]Plastic Surgery, Vancouver, United States; [3]University of Miami Health System and Miller School of Medicine; [4]3M, Medical Solutions Division

Aim: Surgical site complications (SSCs) are not uncommon in plastic surgery procedures due to characteristics of the incisions and the patients undergoing these procedures. Closed incision negative pressure therapy (ciNPT) has been used to manage surgical incisions across surgical specialties. This systematic review and meta-analysis examined the impact of ciNPT* on risk of SSCs following plastic surgery.

Method: A systematic review was conducted to identify studies published between January 2005 and July 2021 comparing ciNPT versus traditional standard of care dressings for patients undergoing plastic surgery. Meta-analyses were performed using a random effects model. A cost analysis was conducted using inputs from the meta-analysis and cost estimates from a national hospital database.

Results / Discussion: Sixteen studies met the inclusion criteria. Eleven studies were included in the evaluation of SSCs where a significant difference was seen in favor of ciNPT ($p<0.001$). Significant benefits in favor of ciNPT were also seen for dehiscence ($p=0.001$), skin necrosis ($p=0.002$), and scarring ($p=0.014$). Hospital length of stay was decreased by 0.61 days for patients receiving ciNPT ($p<0.001$). There were no differences in the rates of SSIs ($p=0.113$) and seromas ($p=0.143$). While not statistically significant, there was a decrease in rate of reoperations ($p=0.074$), fluid volume removed from the drains ($p=0.069$) and drain days (-1.97 days, $p=0.093$) for ciNPT patients. The estimated cost savings attributed to ciNPT use was $904 (USD) per patient.

Conclusion: The study findings suggest that ciNPT may reduce incidence of SSCs in plastic surgery procedures and related health care utilization and costs.

*3M™ Prevena™ Therapy, (3M Company; St. Paul, MN)

EP215 THE POTENTIAL IMPACT OF EARLY CLINICAL INTERVENTION WITH SINGLE USE NEGATIVE PRESSURE WOUND THERAPY (SNPWT)* ON HARD-TO-HEAL WOUNDS

Dorthe Villadsen[1]

[1]Aalborg Kommune, Vodskov, Denmark

Aim: To identify wounds that are impacting services and commence sNPWT as an early intervention to enhance the time it takes to heal a wound and prevent wounds from becoming hard to heal and a burden on healthcare systems across the United Kingdom (UK), Ireland and Scandinavia

Method: Patients identified as being at high-risk of developing a hard-to-heal wound were commenced on sNPWT for an initial two-week period. The survey mostly included surgical wounds (41%) and trauma wounds (46%); the remaining 13% of wound types had varying aetiology.

Results / Discussion: A total of 142 wounds from across the community settings were included in the study. Following the introduction of sNPWT: 37% of wounds were documented as healed, 54% had seen a reduction and 9% were non-responders. Data showed that for the cohort of patients who had wounds less than 4 weeks in duration, 93% of these were more likely to heal or progress towards healing.

Prior to sNPWT, dressings were changed on average 3.47 times per week, and during sNPWT therapy, they were changed on average 1.64 times per week. Over an 8-week period, wound-care spend and nursing hours were estimated to have reduced compared to the baseline period prior to implementation of sNPWT.

Conclusion: The survey demonstrated how early intervention of sNPWT in wounds 4 weeks or less in duration has the potential to impact on the time it takes to heal a wound.

*Brand name - PICO™ 7 Single Use Negative Pressure Wound Therapy System
*Brand name - PICO™ 14 Single Use Negative Pressure Wound Therapy System
◊Trademark of Smith+Nephew. All Trademarks acknowledged. © November 2022 Smith+Nephew

EP216 NEGATIVE PRESSURE WOUND THERAPY UNDER REVERSE SURAL FLAP AS A MODIFIED DELAY METHOD

Hyonsurk Kim[1], Jong Hyun Park[1]

[1]*Dankook University College of Medicine, Department of Plastic and Reconstructive Surgery, Cheonan-si, Chungnam, Korea, Rep. of South*

Aim: The reverse sural flap (RSF) is widely used for wound coverage in the lower leg and foot. In high-risk patients, the delay procedure is frequently used to increase flap reliability. During flap delay, hematoma collection can seriously impede flap survival. Studies have also demonstrated that the application of negative pressure wound therapy (NPWT) to a potential flap area can increase vascularity. We introduce a delay method using NPWT under the RSF.

Method: From December 2019 to July 2022, 8 patients underwent delayed RSF. In group A (2 patients), a Penrose drain was placed under the flap followed by foam dressing. In group B (1 patient), a Penrose drain was inserted and NPWT was applied to the exterior of the elevated flap. In group C (5 patients), a thin NPWT foam was inserted under the flap, with a bridge exiting lateral from the flap connecting to another NPWT foam applied to the potential recipient wound. Delayed flap transfer was done 7-14 days after flap elevation (Table 1).

Results / Discussion: In both groups A and B, hematoma collection and distal flap necrosis requiring flap debridement occurred during delay in one patient each (A: 5cm, B: 3cm). Additional distal necrosis also occurred in both patients after flap transfer. No hematoma occurred in group C, with one patient sustaining distal flap necrosis (2cm) during delay and additional necrosis (0.5cm) after transfer.

Conclusion: Applying NPWT foam under RSF can safely prevent hematoma formation during flap delay, and may also help increase flap vascularity.

Table 1. Patient demographics

	Age (yr) / Sex	Diagnosis	Risk Factors	Delay period (days)	Size of delayed flap (cm) / size of final transferred flap (cm)	Complications	
						During delay period	Post-transfer
	58 / M	Pressure sore	DM	7	6 x 15 / 15	None	None
A	83 / F	Crushing injury with open fracture of tibia, fibula, calcaneus	HTN / CTA: Hypoplastic ATA and incarcerated peroneal artery by bony fragments	14	8 x 20 / 22	Hematoma / Distal necrosis (5cm)	Distal necrosis (2cm)
B	45 / M	DM foot ulcer	DM / Smoker / CTA: Dense calcification, relatively preserved peroneal artery flow	11	10 x 17 / 21	Hematoma / Distal necrosis (3cm)	Distal necrosis (0.5cm)
	57 / F	Pressure sore	DM / HTN / CKD / IHD / CTA: Limited evaluation of infra-popliteal arteries due to dense calcifications	14	7 x 18 / 22	Distal necrosis (0.5cm)	Distal necrosis (0.5cm)
	47 / M	Crushing injury with open fracture of tibia and fibula	Smoker / CTA: segmental occlusion of ATA / PTA, preserved flow of peroneal artery	8	7 x 15 / 17	None	None
C	76 / F	Venous ulcer	DM / CTA: PTA and ATA stenosis, Hypertrophied peroneal artery	12	11 x 10 / 12	None	Wound dehiscence
	43 / M	Crushing injury with open segmental fracture of fibula and open fracture of tibia	Smoker / CTA: Unable to discriminate between artery and venous flow between distal lower leg	10	10 x 18 / 22	None	None
	74 / M	Traffic accident with open calcaneus fracture	HTN / Smoker / COPD / CTA: Stenosis of ATA & PTA, patent peroneal artery	12	5 x 11 / 15	None	None

Abbreviations: F, female; M, male; DM, diabetes mellitus; HTN, hypertension; CTA, computed tomography angiography; ATA, anterior tibial artery; PTA, Posterior tibial artery; CKD, chronic kidney disease; IHD, Ischemic heart disease; COPD, chronic obstructive pulmonary disease

EP217 NEGATIVE PRESSURE WOUND THERAPY - INDICATIONS AND EFFICIENCY FOR SOFT TISSUE RECONSTRUCTION WITH SKIN GRAFTS

Camelia Tamas[1], Bogdan Mihnea Ciuntu[2], Clara Larisa Ibanescu[3], Audrey Clebant[1], Teodor Popa[1], Alexandru Robul[1], Ioana Tamas[2], Ilan Marcovici[1], Dan Moraru[1]

[1]Universitatea de Medicină și Farmacie „Grigore T. Popa" din Iași, Plastic Surgery, Iași, Romania; [2]Universitatea de Medicină și Farmacie „Grigore T. Popa" din Iași, General Surgery, Iași, Romania; [3]Suceava County Hospital of Emergency "Saint John the New", Plastic Surgery, Suceava, Romania

Aim: Negative Pressure Wound Therapy (NPWT) devices demonstrated their importance in wound healing process. Our clinical study evaluates the role of NPWT in skin grafts healing, both in acute and chronic wounds.

Method: We used NPWT for acute and chronic soft tissue defects therapy (56 cases), before and after reconstruction with skin grafts. We compared the evolution of two groups of patients, with similar wounds, admitted and treated during a 7-year period (2016-2022). For 25 patients we used NPWT only before reconstruction with skin grafts (15 acute, 10 chronic wounds), and for the other 31 patients we used NPWT before and after skin grafting (14 acute, 17 chronic).

Results / Discussion: Before local reconstruction, NPWT stimulated wound debridement (16 patients with burn injuries, 8 patients with deep posttraumatic soft tissue defects) or granular tissue development (9 patients with trophic ulcers on the leg, 13 patients with diabetic foot, 5 patients with pressure sores, 5 patients with defects after tumor excision). Immediately after the reconstruction, NPWT offered the best conditions for wound healing by reducing local edema, maintaining graft adhesion to the wound bed, stimulating new vessels to grow and nourish the skin graft.

Conclusion: NPWT provided a better quality of local healing, in a shorter time and with lower costs.

Keywords: skin grafts, wounds, acute, chronic, burns, NPWT, wound healing, vacuum-assisted closure.

EP218 NEGATIVE PRESSURE WOUND THERAPY (NPWT) – AN IMPORTANT STEP IN THE TREATMENT OF SOFT TISSUE DEFECTS, PRESSURE ULCERS AND BURNS

Mihaela Pertea[1], Madalina Fotea[2], Oxana-Madalina Grosu[1], Stefana Luca[1]

[1]"Grigore T. Popa" University of Medicine and Pharmacy, Iasi, Romania; Department of Plastic Surgery and Reconstructive Microsurgery, St. Spiridon Emergency County Hospital, Iasi, Romania, Plastic Surgery, Iasi, Romania; [2]Sf Spiridon Emergency County Hospital, Plastic Surgery, Iasi, Romania

Aim: This presentation aims to evaluate the results obtained by using negative pressure treatment in cases of soft tissue defects of various etiologies, pressure ulcers and as the first step in partial depth burns' management.

Method: Our study is based on 68 patients with wounds: 24 cases with soft tissue defects in the lower limbs (9 patients with trophic ulcers and 15 cases of posttraumatic lesions), 10 patients with sacral pressure ulcers and 34 patients with partial depth burns on the trunk, upper and lower limbs. In burn cases, negative pressure therapy was used both with the aim of isolating the burn region and avoiding its infection as well as with the aim of stimulating vascularization and avoiding surgery.

Results / Discussion: In all of the 68 cases, the negative pressure treatment allowed a significant reduction of the healing time with the formation of a good quality granulation wound bed, protecting the exposed noble elements (nerves, tendons etc.). Furthermore, it decreased the patient's pain by lowering the number of the necessary dressings and avoiding the risks and anesthesia. In patients with pressure ulcers a rapid management of the infection and an earlier surgical time were obtained. Among the 34 patients with IIA-III degree burns, in 14 cases burns excision and split free skin grafting was avoided.

Conclusion: Negative pressure treatment is a solution in skin wounds of different causes, some cases of pressure ulcers and burns due to the reduction of the healing time and patient suffering and surgery avoiding.

EP219 THE INFLUENCE ZONE: A KEY PERFORMANCE MEASURE FOR NEGATIVE PRESSURE WOUND THERAPY SYSTEMS

Amit Gefen[1]

[1]*Tel Aviv University, Department of Biomedical Engineering, Faculty of Engineering, Tel Aviv, Israel*

Aim: This presentation will provide an introduction to the 'influence zone' (IZ) theory developed by the author in the context of negative pressure wound therapy (NPWT).

Method: The IZ is a newly introduced, quantitative bioengineering performance measure for NPWT systems, to indicate their effectiveness, namely, how far from the wound bed edges a specific NPWT system is able to deliver effective mechano-stimulation into the peri-wound, and at which intensity. The IZ therefore provides objective and standardised metrics of one of the fundamental modes of action of NPWT systems: the ability to effectively and optimally deform both the wound and peri-wound macroscopically and microscopically. Most important are the mechanical deformations of the peri-wound area to activate the cells responsible for tissue repair, particularly active collective migration of fibroblasts and myofibroblasts, which can be quantified and analysed by means of computational (finite element) modelling, as reported by the research group of the author.

Results / Discussion: Notably, the IZ must extend sufficiently into the peri-wound to stimulate these cells in order that they migrate and progress the wound healing process, facilitating the formation of scar tissue, without overstretching the peri-wound tissues so as not cause or escalate further cell and tissue damage. The inclusion of the IZ theory within research to investigate the efficacy of NPWT systems facilitates systematic comparisons of commercially available and potentially new systems.

Conclusion: The IZ measure has the capacity to guide not only research and development work, but also clinical decision-making. Recently, research published by the author found that inducing an effective IZ first and foremost requires continuous delivery of the intended pressure to the wound bed.

EP220 META-ANALYSIS TO COMPARE OUTCOMES OF TWO DIFFERENT NEGATIVE PRESSURE THERAPY SYSTEMS FOR CLOSED INCISION MANAGEMENT IN CARDIAC SURGERY

Christine Bongards[1], Ronald Silverman[2], Leah Griffin[3]

[1]*3M Deutschland, Health Care Business Group, Neuss, Germany*; [2]*3M Company, Health Care Business Group, San Antonio, United States*; [2]*3M Company, Health Care Business Group, San Antonio, United States*

Aim: To compare the potential of two different closed incision negative pressure therapy (ciNPT) systems against standard of care (SOC) to reduce the incidence of surgical site infections (SSI) in sternotomy incisions for cardiac surgery.

Method: A systematic literature review was conducted to identify cardiac surgery studies with sternotomy incisions that compared ciNPT systems against SOC and reported SSI rates. Meta-analyses used risk ratios (RR) and random effects models to assess the effect of: (1) ciNPT with foam dressing (ciNPT-F*) and (2) ciNPT with multilayer absorbent dressing (ciNPT-MLA†) versus SOC. Comprehensive Meta-Analysis Version 3.0 (Biostat Inc., Englewood, NJ) software enabled analyses.

Results / Discussion: Six studies were included in the comparison between ciNPT-F and SOC resulting in a significant reduction in SSI incidence (RR = .529, 95% CI = .345, .810; p = 0.003). Four studies were included in the ciNPT-MLA versus SOC comparison and resulted in no significant difference (RR = .808, 95% CI = .504, 1.297; p = .378). The cost of an SSI post cardiac surgery is estimated at $47,7211 and the cost of the ciNPT-F device is approximately $495. The relative reduction in SSIs from the meta-analysis was 47.1% for ciNPT-F patients. With an assumed baseline SSI rate of 4.3% as shown in the ciNPT-F studies, the use of ciNPT-F would result in an estimated cost savings per patient of $428.

Conclusion: Meta-analysis for ciNPT-F demonstrated a statistically significant reduction in the incidence of SSIs, while respective meta-analysis results for ciNPT-MLA versus SOC were not significant.

*3M™ Prevena™ Incision Management System (3M Company; St. Paul, MN); †PICO◊ Single-Use Negative Pressure Wound Therapy System (Smith+Nephew, Watford, UK)

EP221 META-ANALYSIS TO COMPARE OUTCOMES OF TWO DIFFERENT NEGATIVE PRESSURE THERAPY SYSTEMS FOR CLOSED INCISION MANAGEMENT IN BREAST SURGERY

Christine Bongards[1], Ronald Silverman[2], Leah Griffin[2]

[1]3M Deutschland, Health Care Business Group, Neuss, Germany; [2]3M Company, Health Care Business Group, San Antonio, United States

Aim: The potential to mitigate surgical site complications (SSCs) and surgical site infections (SSI) in breast surgery was compared between two different closed incision negative pressure therapy (ciNPT) systems against standard of care (SOC).

Method: A systematic literature review was conducted to identify breast surgery studies, including reduction, reconstruction, and oncological surgery, that compared use of ciNPT against SOC and reported SSC, SSI, or dehiscence rates. SSCs were reported as composite endpoints that may include SSI and dehiscence. Meta-analyses were performed using risk ratios and random effects models to assess the effect of ciNPT with foam dressing (ciNPT-F*) and ciNPT with multilayer absorbent dressing (ciNPT-MLA†) versus SOC. Comprehensive Meta-Analysis Version 3.0 (Biostat Inc., Englewood, NJ) was used for analyses.

Results: Four ciNPT-F studies reported SSC rates, resulting in a significant reduction (RR = 0.498, 95% CI = 0.271, 0.917; p = 0.025) compared to SOC. For ciNPT-MLA, four studies were included in the analysis of SSC rates resulting in no significant difference when compared to SOC (RR = 0.7406, 95% CI = 0.416, 1.318; p = 0.307). These results are driven by the larger reduction of dehiscence and SSI rates in the ciNPT-F studies. ciNPT-MLA studies demonstrated no significant difference in SSI and lower effectiveness in reducing dehiscence. Dehiscence rates were reduced by 65% and 44% in ciNPT-F and ciNPT-MLA studies, respectively.

Conclusion: Meta-analysis results for ciNPT-F demonstrated a statistically significant reduction in the incidence of SSCs compared to SOC. While meta-analysis results for ciNPT-MLA versus SOC were not significant.

*3M™ Prevena™ Incision Management System (3M Company; St. Paul, MN); †PICO◊ Single-Use Negative Pressure Wound Therapy System (Smith+Nephew, Watford, UK)

EP222 NPWT IS EFFECTIVE AND COST-EFFECTIVE EVEN IN COVID-19 POSITIVE PATIENTS

Lenka Veverkova[1], Petr Doležal[2], Jan Žák[1], Michal Reška[1], Jakub Habr[1]

[1]Medical Faulty Masaryk University, First Department of Surgery, Brno, Czech Republic; [2]Consulting, s.r..o.Czech Republic, Brno, Czech Republic

Aim: Negative Pressure Wound Therapy has been successfully used for more than 20 years to healing a wide range of different types of wounds both in adults and children.

Method: Prospective analysis of patients treated with NPWT, evaluation of patient age, duration of NPWT treatment, LOS, efficacy for each diagnosis, incidence of mortality, and use during the COVID-19 epidemic in the outpatient setting.

Results / Discussion: We evaluated 609 patients treated with NPWT with a mean age of 67 years. Female patients treated with NPWT are on average 5 years older than male patients. The average number of dressing changes per patient was 4.05 and the average length of treatment was 15.36 days. Because we use NPWT for more clinically severe cases, i.e., patients who require a greater volume of generally more expensive medical care, the LOS per unit of casemix was used for the purposes of calculating length of hospital stay, and the average casemix values per case were used in the calculation. The results obtained can be interpreted as follows: in operated Covid-19 positive patients without NPWT treatment, the required hospital stay was 5.07 days (mean value). In operated Covid-19 positive patients with NPWT treatment, the required hospitalisation time was 3.76 days (mean value).

Conclusion: Clinical data and our analysis provide compelling evidence that the appropriate use of NPWT is effective and cost-effective in achieving healing of properly performed selected wounds, both in the inpatient and outpatient setting.

EP223 THE UTILISATION OF A NEGATIVE PRESSURE WOUND THERAPY (NPWT) CLINICAL DECISION TREE WITHIN A UK ACUTE TISSUE VIABILITY SERVICE: A CASE SERIES AND SERVICE EVALUATION

Katie Leek[1], Catherine McCarthy[2], Julie Murdoch[2 3]

[1]Royal Stoke University Hospital, Tissue Viability Office , United Kingdom; *[2]Smith & Nephew, Global Clinical Strategy-AWM, Kingston upon Hull, United Kingdom*; *[3]Smith & Nephew, Global Clinical Strategy*

Aim: The aim of this case series and service evaluation was to demonstrate the beneficial clinical and economic outcomes of the utilization of a Negative Pressure Wound Therapy (NPWT) clinical decision tree within routine practice.

Method: Sixteen retrospective anonymized complex wound case studies from referrals to the inpatient Tissue Viability Nursing service were collected. Patients received traditional NPWT (tNPWT) and/or single use NPWT (sNPWT) as per the NPWT clinical decision tree within routine practice. Data was reported as an aggregated cohort, with further stratification by wound type. Descriptive statistics were utilised.

Results / Discussion: The most prevalent wound type was dehisced surgical wounds (n=10; 62.5%), located on the abdomen (n=9; 56.25%). Risk of contamination (43.75%) and exudate management (43.75%) were the most common rationales for choosing traditional negative pressure wound therapy. Seven patients (43.75%) were discharged from hospital still requiring NPWT, with five (71.4%) having wound criteria suitable for sNPWT.

Conclusion: Using tNPWT and sNPWT alongside a clinical decision tree can assist in optimizing NPWT delivery to patients within an acute care setting.

EP224 THE RULES OF NEGATIVE PRESSURE WOUND THERAPY ARE CHANGING! A CASE SERIES OF 6 PATIENTS

Rosemary Hill[1], Ashley Hudson[2], Joanne Handsaker[3]

[1]Lions Gate Hospital, Wound Ostomy and Continence, Canada; *[2]Smith+Nephew, Global Clinical Strategy-AWM, Canada*; *[3]Smith & Nephew plc, Global Clinical Strategy-AWM, United Kingdom*

Aim: Offering advanced portable negative pressure wound therapy assists with timely discharges in today's health care setting. This case series of six patients highlights the ability to transition patients home safely with a portable, small, light, single use negative pressure wound therapy (sNPWT) device. This case series was to demonstrate the application of sNPWT on six patients with complex wound etiologies, with "low to moderate" wound exudate.

Method: sNPWT was applied to six different patients with wound etiologies including: a skin graft, surgical dehisced incision, lower leg wound, pilonidal sinus, and two cases of rotational flap incisions. Both the lower leg and pilonidal sinus wounds had depth thus requiring a wound filler.

Results / Discussion: For all patients, wound closure was obtained in a timely manner with no complications. The patients reported satisfaction with the quiet, lightweight device and the unit maintained a seal as demonstrated by a "green light" at all times. The sNPWT device remained in place for seven days on the closed surgical incisions and for the open wound types the dressing change varied from two to three times per week. In one instance the patient had moderate dementia and yet maintained a secure dressing and optimum settings on the portable unit.

Conclusion: This small, easy to carry device, offers patients negative pressure wound therapy in a simple format that supports mobilization, minimal risk for falls and does not require electricity for charging.

EP225 NEGATIVE PRESSURE WOUND THERAPY IMPROVES PATIENTS OUTCOME IN ABDOMINAL SEPSIS EVEN IN SEVERE POSTOPERATIVE COMPLICATIONS

Raluca-Cristina Apostu[1], Eduard Ailioaie[2], Ana-Maria Iuonut[3], Razvan Scurtu[1]

[1]Iuliu Haţieganu University of Medicine and Pharmacy, Surgery 1, Cluj-Napoca, Romania; [2]Spital Orasenesc Campeni, Surgery, Câmpeni, Romania; [3]Spitalul Medicover Cluj, Surgery, Suceagu, Romania

Aim: Negative pressure wound therapy (NPWT) is a valuable technique in the management of complex abdominal injuries and complications. The present study aimed to identify the patients with abdominal sepsis and postoperative sepsis related conditions in which the NPWT would ensure the best results.

Method: We reviewed the indications and the results of NPWT in patients with severe abdominal sepsis treated in our department. We identified 19 patients with NPWT, 11 of them with secondary or tertiary peritonitis and 8 with postoperative fistula. We recorded the overall survival (OS), the ability to definitively close the abdomen, the length of hospital stay (LOS).

Results / Discussion: There were 11 men and 8 women, with a mean LOS of 43 days (14-101). The mean number of dressings was 7. Abdominal closure using the mesh mediated fascial closure was achieved in 9 (47.3%) patients, while in one a double layer mesh had to be used. In another 7 (36,6%) patients abdominal closure was performed using split thickness skin grafts or direct suture of the overlaying skin with planned ventral hernia. In two patients abdominal closure could not be performed due to an important fistula output. The overall survival was 84.2%, while in hospital mortality was recorded in three patients, with postoperative fistulas and secondary organ failure.

Conclusion: NPWT improve overall outcome in abdominal sepsis. These results are influenced by the etiology and patient status and seemed to be better when NPWT is associated immediately in the treatment of abdominal septic emergencies.

EP226 COMPARING HYPOCHLOROUS ACID AND NORMAL SALINE IRRIGATION IN NPWT PATIENTS

Abdulaziz Binkanan[1]

[1]King Fahad Medical City, Riyadh Second Health Cluster, Ministry of Health, Wound Care and Ostomy, Riyadh, Saudi Arabia

Aim: Efficacy of NPWT with hypochlorous acid (HOCl) 0.004% irrigation compared to NPWT with normal saline (NS) 0.9% irrigation.

Method: Prospective observational comparison study, wounds included are pressure injury and surgical site infection, 84 wounds underwent NPWT with (HOCl) and 72 wounds included for NPWT (NS) for either 4 weeks or full closure, which occur first.

Results / Discussion: Both groups had a positive healing progression. However, Patients who received NPWT with HOCl irrigation have shown faster healing rate by 63% than patients with NPWT with NS irrigation.

Conclusion: NPWT with HOCl irrigation proves a higher healing rate. In addition, NPWT with NS irrigation has a positive outcome.

EP227 PUNCH GRAFTS SKIN TRANSPLANTATION

Lisette Kroes[1], Louk van Doorn[1], Jolanda de Groot[1]

[1]LUMC ingang, Leiden, Netherlands

Aim: We assessed the effects of autologous punch grafts skin transplantation in combination with negative pressure dressings and A pliable polyester mesh impregnated with hydrocolloid particles petroleum jelly particles, NOSF particles (Nano-Oligo Saccharide Factor) wound dressing in patients with various underlying conditions in our specialized wound clinic.

Method: Patients with ulceration in the granulation phase of wound healing were selected for treatment with a punch graft procedure. The skin of the inner side of the upper arm was infiltrated with lidocaine for local anesthesia; afterwards, the full-thickness skin grafts were taken with a disposable biopsy punch and directly placed on a gauze with normal saline. The grafts were placed on the wound surface and covered with a dressings and A pliable polyester mesh impregnated with hydrocolloid particles petroleum jelly particles, NOSF particles (Nano-Oligo Saccharide Factor with negative pressure dressing; after seven days, the dressing was removed.

Results / Discussion: We treated 20 patients with various underlying morbidities and co-morbidities; in 85 % of the cases, there was an excellently ingrown of the punch Grafts. In 15%, we observed no signs of wound healing or ingrown of the punch grafts. The negative pressure dressing was well tolerated in 100% of the patients.

Conclusion: We can conclude that this punch graft biopsy procedure is an easy and well tolerated procedure for patients with various conditions and speed up the wound healing process significantly which will save costs and improves the quality of life.

EP228 STANDARD DRESSING OR NPTW: WHICH ONE REDUCES THE RISK OF SURGICAL SITE INFECTION IN OBESE WOMEN UNDERGOING CAESAREAN SECTION?

Martina Occhipinti[1]

[1]*Ospedale Civile "Santa Maria degli Angeli", Pordenone, Italy*

Aim: To summarize available meta-analysis on the effectiveness of Negative-Pressure Wound Therapy (NPWT) for preventing surgical site infections (SSI, primary outcome) and other wound complications (incidence of seroma, bleeding, dehiscence of the wound, need for readmission and re-operation) in obese women (BMI>=30kg/m2) undergoing cesarean section (CS) compared to a standard dressing.

Method: We systematically searched PubMed using Mesh terms and found 3 meta-analysis and systematic reviews published from 2017 to 2021.

Results: Based on the evaluation of 2 meta-analysis, the use of NPWT systems is associated with a statistically significant reduction of SSI (RR 0.79, 95% CI 0.65-0.95, p<0.01) with a moderate grade quality categorization (RR =0,68, IC 95% = 0,51–0,90, p = 0,008). According to the oldest meta-analysis there was no statistically significant difference between the two groups (RR 0,97, IC 95% 0,63-1,49) but the quality of the studies was judged lower. The secondary outcomes of all the evaluated meta-analysis were not found statistically significant.

Conclusion: The prevention of ISS must be a priority for health professionals. Considering the cost-effectiveness of NPWT, also the Cochrane review of 2022 and the Nice guideline on Cesarean Section of 2021 suggest using NPWT on obese women undergoing CS, establishing as recommended BMI above 35 kg/m2 as a surgical indication to prevent ISS. However, all the authors agree on conducting new RCTs in order to be able to ponder on clinical choices also on the basis of the main limit of this type of dressing: its economic impact.

EP229 ANATOMOPATHOLOGICAL EVALUATION OF THE HEALING OF LCC IN TREATMENT WITH NPWT

Rosa Somma[1], Marino Ciliberti[1], Vincenzo Balzano[1]

[1]*Ospedale Gragnano, U.O.S.D. Rete Ulcere Cutanee, Gragnano, Italy*

Aim: The U.O.S.D Rete Ulcere Cutanee, since its establishment in 2008 has been equipped with NPWT, with the availability of 12 devices to treat patients at home. During the first three years, the treatment of more than 250 patients affected by pressure ulcers using negative pressure therapy (NWPT), has allowed us to develop a good experience in this field and to start a series of researches that have been inspired by our clinical observations.

The purpose of the study is to demonstrate that, the use of negative pressure equipment promotes the healing process in pressure ulcers, especially in the first two weeks, while it slows down in the third week until it stops. This would allow us to state that NPWT can be used successfully in the first 15/20 days, while in the following days its effectiveness is drastically reduced; to this extent, the rules that make up the negative pressure guidelines would be redefined, bringing about a considerable reduction in costs, which represents one of the limits to the diffusion of this type of treatment.

Method: Fifty patients with P.U., who did not show significant improvement to standard treatments in the last 4 months, were selected. According to the NPUAP\EPUAP 2009 guidelines, the lesions are third/ fourth with dimensions greater than 20 cm2<100 cm2 and treated with negative topical pressure in a home environment. Patients with neoplastic ulcers or untreated osteomyelitis, patients receiving anticoagulant therapy, uncooperative patients, patients with infected lesions and/or with exposed vital tissue were excluded from the study.

Study's patients were treated with topical negative pressure therapy (NPWT) over a three-week period with gauze filler dressing changes every 48 hours. Biopsies were performed at time T0;T1 (after 7 days);T2 (after 14 days);T3 (after 21 days) using a 4mm punch.

Results / Discussion: Microscopic examination of preparations, which was sent at "time 0, shows ulcerated skin with granulation tissue and diffuse aspects of acute inflammation. At time 1 (after 7 days), the ulcerated skin is subtended by richly vascularized granulation tissue, with edema and vascular congestion affecting the dermis and acute inflammation supported by neutrophilic granulocytes compatible with the initial (inflammatory) phase of the skin repartition process. At time 2 (after 14 days) granulation tissue with an inflammatory infiltrate supported by neutrophilic granulocytes, fibroblasts and myofibroblasts compatible with an intermediate or proliferative phase of skin repair was substantially observed. At time 4 (after 21 days), the skin appears only partially ulcerated. The dermis, devoid of skin appendages, appears affected by initial and focal scar fibrosis with deposition of lax collagen; notes of active dermo-hypodermic inflammation sometimes remain with residual granulation tissue. The result is compatible with the remodeling phase of the skin repair process ("Immature scar" according to the Vancouver Scar Scale).

Conclusion: These observations lead us to conclude that the treatment of LCC with NPWT appears effective in the first three weeks, while it stops after the 21st day. Additional immunohistochemical studies will provide us with further information on the molecular mechanisms responsible for blocking the repartition process.

E-POSTER SESSION: HEALTH ECONOMICS & OUTCOME

EP230 THE IMPACT OF HIGH SKIN PIGMENTATION ON THE CLINICAL DIAGNOSIS OF WOUND INFECTION AND THE ABILITY TO ENHANCE DIAGNOSIS WITH FLUORESCENCE IMAGING OF BACTERIA

Jonathan Johnson[1 2]

[1]*Doctor Wounds, Comprehensive Wound Care Services, Washington, United States*; [2]*BridgePoint Continuing Care Hospital - National Harborside, Washington, United States*

Aim: The alarming lack of skin tone diversity in medical textbooks and literature disproportionally impacts the quality of medical treatment received by people of color. In wound care, diagnostic indicators (e.g., erythema, ect.).

Objective: To determine how the reporting of clinical signs and symptoms of infection (including erythema) differs by skin tone and whether fluorescence imaging offers a more equitable solution for detecting pathogenic wound bacteria.

Method: Post-hoc analysis of a prospective, single-blind, cross-sectional clinical trial.

Setting: 14 outpatient wound care centers across the US.

Participants: 350 adults (>18 years) with chronic wounds. Participants were assigned to one of three groups depending on their level of skin pigmentation, as measured by the Fitzpatrick Skin Photo Classification (FSPC) system: low (I & II), medium (III & IV), high (V & VI).

Results: TBL from quantitative wound cultures did not differ across FSPC groups (KW test; $P = .38$), while frequency of erythema decreased proportionally with increasing FSPC score, from 13.4% (low), to 7.2% (medium), to 2.3% (high), across a variety of wound types ($P = .05$).

Conclusion: These findings speak to the inequalities faced by diverse wound care patients; erythema and CSS were detected less frequently in patients with more skin pigment despite comparable TBLs. This could delay treatment, increasing the risk of complications and poor outcomes.

EP231 OUTCOMES OF CHANGE IN ORGANIZATIONAL STRUCTURE FOR PATIENTS WITH A CHRONIC WOUND IN A HOSPITAL IN THE NETHERLANDS

Marije Jansman[1]

[1]*Deventer Hospital , Wound Expertise Centre, Deventer, Netherlands*

Aim: The Wound Expertise Centre (WEC) is a multidisciplinary centre.

The complicated care path for referral from General Practitioners (GP) to the WEC and long the waiting time for patients, were the motivation for this quality improvement plan.

In addition, there was a high number (an average of 32 per month) of telephone inquiries from GPs regarding the referral of patients.

The lead time to the specialists was an average of 28 days.

Method: First a problem analyses was performed. The GP's found it difficult to refer to a correct specialism.

A triage consultation hour was implemented and lead by the Nurse Practitioner (NP).

The care path of GPs for referrals has been simplified; the GP does not have to choose a specialism anymore.

The goal is a lead time of <5 business days.

The NP starts the treatment and refers the patient to the correct specialty or to the wound/district team in primary care.

Results / Discussion: The number of telephone calls from GPs has been reduced per month (N=0).

In seven months, a total of 143 patients with a complex wound were treated at the triage consultation hour. All patients were then correctly triaged for the relevant specialism.

The lead time was an average of 3 days.

Conclusion: The implementation of the triage consultation hour has solved embarrassments.

EP232 COST-BENEFIT RATIO OF PHOTOBIOMODULATION IN THE IAD TREATMENT OF INSTITUTIONALIZED ELDERLY PEOPLE

Roberto Cassino[1], Gabriela Sofia Barrionuevo Moreno[1], Irena Cela[1], Cristina Galuzzi[1], Agnieszka Kopniak[2], Chiara Spinardi[2]

[1]"Sacra Famiglia" Korian Nursing Home, Geriatrics - Long Term Care, Pieve del Cairo, Italy; [2]"Heliopolis Residences" Korian Nursing Home, Geriatrics - Long Term Care, Binasco, Italy

Aim: Wounds International describes Incontinence-Associated Dermatitis (IAD) as "a skin damage associated with exposure to urine or stool. It causes considerable discomfort and can be difficult, time consuming and expensive to treat." A frequent complication of IAD is the fungal colonization. With this work we want to demonstrate that, using good products and devices, IAD isn't so difficult, so time consuming and so expensive to treat and that pain and fungi can be defeated quickly.

Method: We enrolled 30 patients with IAD, divided into 2 groups of different treatment; Group 1 barrier cream only, Group 2 barrier cream and PhotoBioModulation (PBM "blue light")* twice a week (1 minute of irradiation every 25 cm^2). We evaluated Pain Reduction using Visual Analogic Scale, the Healing Time and the total costs.

Results: Patients of Group 1 healed in 132.1 days and complained of pain more than 6 (VAS) for over 40 days, while those of Group 2 healed in 17.5 days (although most of them had fungal colonization) and the pain was reduced by more than 60% after the second irradiation of PBMs. The mean cost per patient was €173.20 for group 1 and €122.92 for group 2.

Conclusion: This work demonstrated that IAD can be treated with excellent results in a short time and with an absolutely advantageous cost-benefit ratio. It is important to underline that the effect of PBM on pain is highly significant.

* EmoLED (EmoLED-Italy)

EP233 COST-EFFECTIVENESS AND COST-UTILITY ANALYSIS OF A SUCROSE OCTASULFATE DRESSING VERSUS A NEUTRAL DRESSING IN PATIENTS WITH NEUROISCHEMIC DIABETIC ULCERS

David Jiménez Salcedo[1], Jaime Villasante[2], Fernando Deandres[3], Julia Fernández Morata[1]

[1]Urgo Medical, Market Access , Spain; [2]Universidad Carlos III de Madrid, Centro Médico Olympia, QuironSalud, Spain; [3]Universidad Carlos III de Madrid, Health economics, Spain

Aim: Diabetes is a progressive disease whose prevalence in Spain reaches 10.5% of the population, the second highest rate in Europe[1]. A frequent complication is diabetic foot ulcer (DFU), which highly impairs patient's quality of life and places an enormous economic burden on the healthcare system. Sucrose Octosulfate dressing has previously demonstrated to promote wound healing. This study aims to evaluate the cost-effectiveness and cost-utility of this dressing in Spain.

Method: A Markov model with a time horizon of 40 years was designed. Outcomes included ulcer-free life years gained (UALYs/DFU) and quality-adjusted life years (QALYs). Direct healthcare costs were included obtained from national healthcare cost databases. Deterministic sensitivity analyses and probabilistic analyses were performed using a Montecarlo simulation.

Results / Discussion: The results of the 40-year analysis estimate a cost saving of €1,940.73 per patient with a gain of 0.77 QALYs (sW/DFU) and 0.66 QALYs, with Sucrose Octasulphate treatment being a dominant alternative compared to neutral dressing treatment. Treatment with Sucrose Octasulfate generates a higher quality of life, since patients spend more time with the ulcer closed and infections are reduced. This cost-effectiveness is higher in recent wounds (<2 months duration), suggesting the sooner the treatment is applied, the higher the savings.

Conclusion: Sucrose Octasulphate treatment is cost-effective in diabetic foot ulcer and therefore it should be the first-choice treatment for these patients. The sooner the treatment is implemented, the better is the clinical outcome for patient and the greater the saving for the Spanish National Health System.

EP234 COST-EFFECTIVENESS, BUDGET IMPACT & HEALTHCARE RESOURCE SAVINGS OF TOPICAL ANTIMICROBIAL POLYHEXAMETHYLENE BIGUANIDE WITH A SURFACTANT BETAINE ON WOUND BED PREPARATION IN VENOUS LEG ULCERS: AN ANALYSIS IN AUSTRALIA

Pinaki Ghosh[1], Sumita Poopalalingam[2], Alison Vallejo[3]

[1]B. Braun Medical Industries, Health Economics and Outcomes Research, Pulau Pinang, Malaysia; [2]B. Braun Medical Industries, Clinical Education, Pulau Pinang, Malaysia; [3]UniSC University of the Sunshine Coast, Sippy Downs, Australia

Aim: To determine cost-effectiveness and budget impact with the use of topical antimicrobial polyhexamethylene biguanide with a surfactant betaine solution and gel (PSGX), compared to saline in the treatment of venous leg ulcers, in Australia. The effectiveness values were based on published evidence and Australian costs.

Method: To measure cost-effectiveness, a Markov model was parameterized to one-year costs and quality of life consequences of treating chronic venous leg ulcers with PSGX versus saline solution. Costs were viewed from an Australian healthcare patient perspective of routine care and management of complications. To determine budget impact, a model of gradual introduction of PSGX to replace saline over a period of 6 months in a typical clinical setting was created to determine the cost saving impact of using PSGX. A resource utilization study was conducted to determine the impact of PSGX on bed days and nursing time.

Results / Discussion: The cost effectiveness analysis showed Incremental Cost Effectiveness Ratio to be -$9,930/Quality adjusted life year at a Maximum Willingness to Pay (WTP) of $28,000 per QALY and PGSX was dominant compared to saline. A probabilistic sensitivity analysis indicated 91.40% probability of PSGX being cost-effective over saline. The budget impact analysis demonstrated cost savings of $823.2, $12997.6, and $25171.9 at the 4th, 5th, and 6th months, respectively when saline was gradually replaced by PGSX. The resource utilization analysis showed a cumulative saving of 31 bed days and 24 nurse hours at 6 months of usage of PGSX versus saline.

Conclusion: PSGX for the treatment of VLUs is cost-effective, improves budgetary savings and resource utilization compared to saline solution in a clinical setting in Australia.

EP235 COST-EFFECTIVENESS OF DEHYDRATED HUMAN AMNION CHORION MEMBRANE ALLOGRAFTS IN THE TREATMENT OF LOWER EXTREMITY DIABETIC ULCERS

William Tettelbach[1 2 3 4], David Armstrong[5], Thomas Chang[6], Jeffery Hsu[7], Paul Glat[8], Martha Kelso[9], Jeffrey Niezgoda[10], Jonathan Labovitz[3], Allyn Forsyth[4 11], William Padula[12]

[1]MountainStar Healthcare, Salt Lake City, United States; [2]Duke University Anesthesiology Department, Durham, United States; [3]Western University of Health Sciences, College of Podiatric Medicine, Pomona, United States; [4]MiMedx Group, Inc., Marietta, United States; [5]Keck School of Medicine of USC - Department of Surgery, Los Angeles, United States; [6]Redwood Orthopaedic Surgery Associates, Santa Rosa, United States; [7]Kaiser Permanente Southern California Regional Offices, Pasadena, United States; [8]St. Christopher's Hospital for Children, Philadelphia, United States; [9]Wound Care Plus, LLC, Blue Springs, United States; [10]AZH Wound Care and Hyperbaric Oxygen Center, Milwaukee, United States; [11]San Diego State University, Department of Biology, San Diego, United States; [12]University of Southern California, School of Pharmacy, Department of Pharmaceutical & Health Economics, Los Angeles, United States

Aim: To evaluate the cost-effectiveness and budget impact of using standard care (No Advanced Treatment, NAT) compared to an advanced Treatment (AT), like a Dehydrated Amnion/Chorion Membrane (DHACM) allograft, when Following Parameters for Use (FPFU) in treating LEDUs.

Method: A retrospective analysis of Medicare data files from 2015-2019 was used to generate four propensity-matched cohorts of LEDU episodes. Outcomes for DHACM and NAT such as amputations, and healthcare utilization were tracked from claims codes, analyzed, and used to build a hybrid economic model, combining a one-year decision tree and a four-year Markov model. The budget impact was evaluated in the difference in per member per month spending following completion of the decision tree.

Results / Discussion: In the full dataset, 10,900,127 patients had a confirmed diabetes diagnosis (Table 1).

Table 1. Criteria Applied To Identify Eligible LEDU Patients/Episodes

Criteria	Rationale	Number of patients excluded	Number of LEDU patients
Meta-group Exclusions			
• ICD-10 coded diagnosis as a patient with foot ulcer[4]	Consensus definition	9,649,219	1,250,908
• Confirmed diagnosis of Diabetes with a LEDU[4]	Consensus definition	37,294	1,213,614
• LEDU episode started after 10/1/2015	Study focus criteria	124,508	1,089,106
Exclusions based on the wound			
• ICD-10 diagnosis coded as an ulcer above the knee[4]	Consensus definition	8,963	1,080,143
• No defined wound size during run in period	Study focus criteria	762,665	317,478
• Wound depth at bone during run in period	Study focus criteria	20,234	297,244
• Multiple wounds identified during run in period	Study focus criteria	88,756	208,488
Exclusions based on timeline or confounding patient and treatment complications			
• LEDU resolved after 10/2/2019	Period of the Medicare dataset	24,961	183,527
• Episodes with no outpatient claims data	Period of the Medicare dataset	672	182,855
• NAT episodes resolved within 90 days	Not a chronic foot ulcer	89,077	93,778
• Patients receiving hemodialysis (only stage 5)[4]	Confounding comorbidity	13,400	80,378
• Patients that died within 90 days of the last clinic visit	Confounding comorbidity	7,027	73,351
• Patients with no payment or demographic info	Include validated claims	1,130	72,221
• Patients treated with products outside the scope of study	Confounding treatment	2,310	69,911

1,250,908 Patients with LE Ulcers

69,911 LEDU patients

Propensity-matched Group 1 was generated from 19,910 episodes which received AT (Figure 1). Only 9.2% of episodes were FPFU. FPFU is defined as the initiation of an AT within 30–45 days of a LEDU diagnosis and routine AT applications every 7–14 days during the episode-of-care.

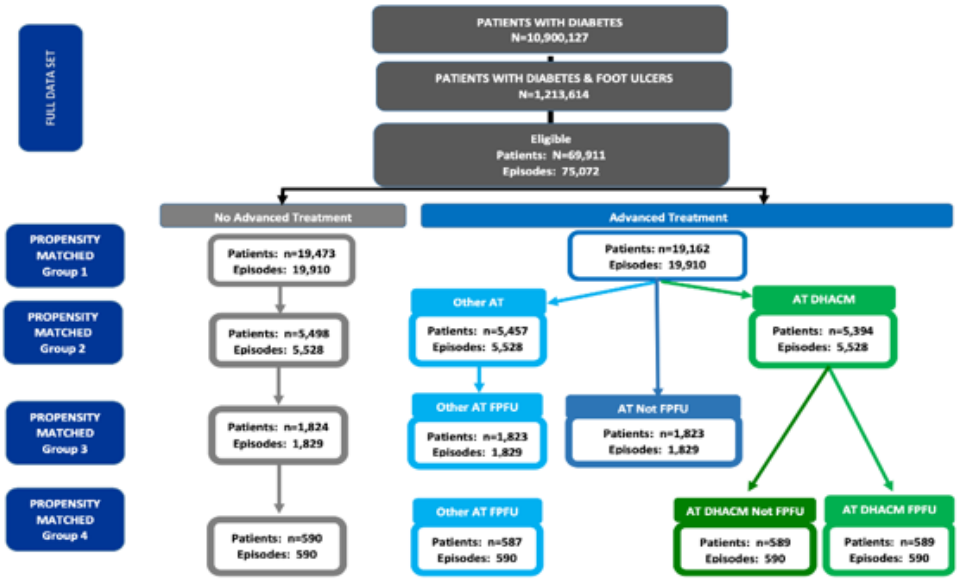


Figure 1. Consort Diagram of Propensity Matched Groups

On average, AT was initiated about 80 days into an episode-of-care. Episodes treated with DHACM FPFU had statistically fewer amputations and healthcare utilization. At a willingness-to-pay of $100,000 per QALY, the five-year Net Monetary Benefit was $9,625 (Table 2).

Table 2. Cost-Effectiveness of DHACM Treatment in LEDUs

Cost-Effectiveness Results Per Patient			
	Year One	**Years Two to Five**	**Years One to Five**
Cost of DHACM	$25,677	$34,315	$59,992
Cost of NAT	$29,347	$35,422	$64,769
Cost Difference	($3,670)	($1,108)	($4,777)
QALYs of DHACM	0.785	2.516	3.301
QALYs of NAT	0.772	2.481	3.252
QALY Difference	0.013	0.035	0.048
ICER ($/QALYs)	Dominant	Dominant	Dominant
NMB at $100,000 WTP Threshold	$5,004	$4,621	$9,625
Budget Impact for 1 Million Members in Year One			
Cost difference for 5,980 people at risk[8]			$21,944,742
Cost difference per 1 million members in a health plan			$21.94
Savings per member per month			$1.83

Conclusion: DHACM FPFU is an economically dominant strategy compared to NAT. DHACM FPFU was observed to provide better outcomes than NAT by reducing major amputations, ED visits, inpatient admissions, and readmissions. These gains are achieved at a lower cost, in years one through five and is likely to be cost-effective at any willingness-to-pay threshold.

EP236 THE IMPACT OF UNDERTAKING PEER REVIEW OF FOOT CARE SERVICES AND PATHWAYS FOR PEOPLE WITH DIABETES

Graham Bowen[1], Debbie Sharman[2], Stephanie Stanley[3], Richard Leigh[4]

[1]Southampton, Southampton, United Kingdom; [2]Dorset, United Kingdom; [3]Isle of Wight, United Kingdom; [4]London, London, United Kingdom

Aim: Peer Review of pathways and services for patients with diabetes across clinical locations across the UK. **Method:** Underate a day of full peer review of clinical teams by a peer review team of clinicians. Using a template and set format to review local amputation figures, activity levels and processes. Patients with diabetes who have been through these services were interviewed.

Results / Discussion:

- Manual workers have problems with work shoes and footwear had impact in all cases triggering ulceration. Patients unaware of risk to feet.
- Employers unaware and poorly prepared to support prevention.
- Good rapport with podiatry
- Timely access to podiatry when urgently needed associated with ulcer recurrence.
- Minor amputation successful and improved quality of life, confidence with UHS service.
- Good communication between referring bodies
- Major amputation has a significant impact and limits working opportunities.

Conclusion: Review of the recommendations with a review to look at the impact on services and clinical outcome. The time from initial foot ulceration presentation to referral to specialist services varied, as did amputation rates for major and minors, along with opportunity for development of a virtual clinics (pre covid 19), innovative clinical roles should be shared as a national model; development of the inpatient podiatry roles into a dynamic clinical and surgical position and work proactively with primary care to reinforce education, improve prevention of disease and development of complications by interrogation of GP systems to identify the most vulnerable and at risk of foot disease.

EP237 TIME AND COST TO WOUND HEALING IN AN AUSTRALIAN COMMUNITY NURSING SERVICE

Keryln Carville[1], Joanna Smith[2], Janine Alan[2]

[1]Silver Chain Group, Osborne Park, WA, Australia; [2]Silver Chain Group

Aim: To determine the number and types of wounds admitted to an Australian community nursing service and describe their healing outcomes and costs to treat.

Method: Wound assessment and care plan data was collected electronically at point of care. Data from three retrospective cohorts of community patients admitted between 1 November, 2016 and 30 June, 2021 were analysed descriptively.

Results / Discussion: The three cohorts comprised 41,865 patients of all ages with a median age of 74 years (IQR 58-84), with 88,793 wounds. Heterogeneity in healing times and costs to treat were demonstrated, as anticipated a priori. Acute wounds (surgical and traumatic) were the most common across all three cohorts (38-45%, 40% overall), skin tears (15-17%, 16% overall), leg ulcers (13-14%, 14% overall), foot ulcers (7-9%, 9% overall), pressure injuries (7-9%, 8% overall) and 'other' wounds (10-12%,11% overall). The median length of treatment for all discharged wounds was 18-22 days. Acute wounds and skin tears had the shortest length of treatment and benign and malignant tumours the longest. For each cohort, eight out of ten wounds were discharged healed or transferred to patient self-care (virtually healed). Stage 4 pressure injuries, open incisions following amputation, fistulae and venous leg ulcers were the most costly wounds.

Conclusion: This study provided rigorous data on labour and consumable costs to treat Australian community wounds. Healing/self-care outcomes were consistently favourable across the three cohorts. The study emphasised best practice with provision of contemporary best products has significant benefits for best wound healing outcomes.

EP238 DIABETES FOOT DISEASE RISK AND SOCIAL DEPRAVATION STATUS IN AN URBAN ACUTE HOSPITAL

Pauline Wilson[1], Niamh Phelan[1], Marie-Louise Healy[1], Kevin Bowers[1]

[1]St James's Hospital, Ireland

Aim: Diabetes foot disease (DFD) is known to be associated with social deprivation. The aim of this study was to evaluate the significance of the association in those attended acute specialist services in an urban area.

Method: This prospective observation study of risk factors for DFD utilised the Scottish risk assessment tool. A post hoc analysis of this database was performed using the pobal online map for deprivation indices based on participant address. This breaks down addresses into eight different categories of social deprivation from extremely disadvantaged to extremely advantaged. There was a total of 210 participants in this study.

Results / Discussion: When separating the individuals by diabetes foot disease risk the results are as follows, the low-risk group included 96 participants, intermediate risk 67 participants and high risk 47 participants. The total number of participants with an affluent index are 108, vs 102 with a disadvantaged index. A higher proportion of those who are affluent are at a lower risk of developing DFD. When comparing the two groups using linear regression, the results are t 3.37, p 0.001 (with a 95% confidence interval of .1527008 - .5904202).

	Affluent (n=108)	Disadvantaged (n=102)
Low	50.9% (n=55)	38.67% (n=41)
Moderate	28.7% (n=31)	33.9% (n=36)
High	20.4% (n=22)	23.6% (n=25)

Conclusion: In conclusion this analysis supports the theory of deprivation index being an independent risk factor for diabetes foot disease in this population.

EP239 A NINE-YEAR EXPLORATION OF THE EFFECTIVENESS OF OPAT FOR DIABETIC FOOT INFECTION IN ADMISSION AVOIDANCE IN A LARGE URBAN TEACHING HOSPITAL

Pauline Wilson[1], Suzy Clarke[1], Ceppi Merry[1], Maura Reynolds[1], Oisin Henegan[1], Corey Gillen[1], Con Donovan[1]

[1]St James's Hospital, Ireland

Aim: The use of intravenous antibiotics is recommended for the management of moderate to severe DFI. In the absence of surgical resection extended courses of intravenous antibiotics are often used thus increasing patients' length of hospital stay. Outpatient antibiotic therapy (OPAT) allows for such services to be delivered to stable patients at home thus reducing the burden on inpatient services.

Method: Data was collected between 2013 and 2021 and retrospectively reviewed for length of treatments; number of patients with DFI; bed days saved and overall cost savings.

Results / Discussion: The results show that using OPAT in conjunction with other standards of care was useful in admission avoidance for DFI during the period. The number of bed days saved and costs are presented in the table below. The average cost saving is € 21362 per patient. No complications were observed in any of the participants related to the OPAT treatment.

	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bed days saved	356	472	216	209	213	363	290	589	368
Mean length of OPAT	29.66	29.5	30.8	26.12	21.3	28	32	28	31
Patients treated with OPAT	12	16	7	8	16	13	9	22	12
Cost saving @ €895 per night	318620	422440	193320	187055	190635	324885	259550	527155	329360
Mean cost saving per patient (€)	26551	26402	27617	23381	11914	24991	28838	23961	27446

Conclusion: The use of OPAT for stable moderate and severe infections is an effective admission avoidance strategy in those with DFI and yields significant cost savings.

EP240 ECONOMIC ANALYSIS ON THE USE OF CLOSED INCISION NEGATIVE-PRESSURE THERAPY USING FULL-COVERAGE FOAM DRESSINGS FOLLOWING NO-DRAIN MASTECTOMY

Siobhan Lookess[1], Andrew Pieri[2]

[1]3M Health Care Ltd., Heal, Loughborough , United Kingdom; [2]Royal Victoria Infirmary, United Kingdom

Aim: The aim of this economic analysis is to investigate whether ciNPT with wide-coverage foam dressings reduces the rate of seroma related post operative resource costs, following a drainless mastectomy when compared with standard of care (SOC).

Method: A hypothetical cost-benefit model was applied to clinical outcomes of a previous non-randomised prospective case-control trial, comparing the use of closed-incision negative-pressure therapy (ciNPT)* and standard of care (SOC) over breast incisions following No-Drain Mastectomy.

Results / Discussion: The previous, non-randomised case-control trial included prospectively collected data on 62 breasts in each treatment group (ciNPT = 31, SOC = 31). Twenty patients in the SOC group and 15 patients in the ciNPT group returned to the clinic for postoperative seromas. The mean number of aspirations per patient in the SOC group was 2 (range 0-10), compared with a mean of 0.8 (range 0-4) in the ciNPT group. This difference is statistically significant (p=0.023).

A cost-benefit analysis showed the ciNPT group had a per-procedure cost reduction of £215.91, related to the reduced mean number of seroma aspirations in the outpatient care setting. The mean average cost of a patient undergoing a hand-led or ultrasound guided seroma aspiration was referenced as £411.80.

Conclusion: The preliminary findings of the economic analysis show a potential resource saving with the use of ciNPT over breast incisions compared with standard of care following No-Drain Mastectomy.

Trademarks: *3M™ Prevena Restor™ BellaForm™ Incision Management System, 3M, St. Paul, MN

EP241 COST EFFECTIVENESS OF TWO LAYER DUAL COMPRESSION SYSTEM (DCS) BANDAGE IN THE MANAGEMENT OF VENOUS LEG ULCERS

Debashish Chakravarthy[1]

[1]Urgo Medical, Medical Affairs, Fort Worth, United States

Aim: Despite compression therapy being the gold standard care for venous leg ulcers (VLUs), patient compliance with four-layer compression bandage (4LB) is poor. The Dual Compression System bandage (DCS) is a 2 Layer Bandage (2LB) and improves wound closure rate. The objective this study was to estimate the cost-effectiveness (CEA) the 2LB compared to 4LB to heal one additional VLU. 2LB is more expensive due to its use of advanced materials.

Method: We conducted a patient-level microsimulation model to do cost-effectiveness analysis from the US perspective. All clinical data was obtained from a prospective clinical trial. Cost data were obtained from structured literature review and pragmatic meta-analysis adjusted to 2021 USD using the Consumer Price Index. The effect measure was the avoidance of one VLU. The primary outcome was the incremental cost-effectiveness ratio (ICER). Deterministic and probabilistic sensitivity analyses (PSA) were performed to gauge the robustness/reliability of the results.

Results / Discussion: The incremental cost-effectiveness ratio was $1,168 per VLU healed. One would expect to pay $1,168 more with the 2LB system to heal one additional wound versus the 4LB system. For every 100 patients, the additional cost of a 2LB system was expected to be $6,255 but 5 additional wounds would be healed compared to a 4LB. Accounting for the savings from these additional wounds healed, we project savings of $16,580 per 100 patients treated.

Conclusion: The 2LB system was a cost-effective strategy for the treatment of VLUs compared to a 4LB system. Further, the 2LB system has been shown to increase patient satisfaction. Adoption of the 2LB should be considered a value-added adjunct to the management of VLUs.

E-POSTER SESSION: DRESSINGS 2

EP242 UNDERSTANDING THE MECHANISMS OF ACTION OF COLLAGEN-BASED WOUND DRESSINGS TO PROMOTE HEALING

Davide Verdolino[1], Helen Thomason[2 3], David Warde[2], Rachel Willis[2], Kimberly Mace[3], Sarah Cartmell[1]

[1]Henry Royce Institute, University of Manchester, Department of Materials, Manchester, United Kingdom; [2]3M, Medical Solutions Division, Knutsford, United Kingdom; [3]University of Manchester, School of Biomedical Sciences, Faculty of Biology, Medicine and Health, Manchester, United Kingdom

Aim: Understanding the biological effects of collagen-based dressings and a synthetic dressing in promoting healing in an *in vivo* animal model.

Method: Using our murine diabetic wound model, we assessed the effects on healing and inflammatory response of 5 therapeutic dressings, oxidized regenerated cellulose (ORC)/Collagen and Collagen/ORC/silver, P-Collagen (porcine collagen), D-Col (denatured collagen), a synthetic Technology Lipido-Colloid (TLC) Nano Oligosaccharide Factor (NOSF) dressing compared to a non-woven control dressing. Thirty-six diabetic (*db/db*) female mice received two full-thickness excisional wounds. Wounds were treated with a pre-moistened control or therapeutic dressing (12 wounds per group). Dressings were changed or re-applied after 3 days according to the products' IFU. After 7 days, macroscopic images were taken, and wounds harvested. Wounds were bisected and processed for histological and biochemical analysis. Image analysis was performed on haematoxylin and eosin-stained sections to measure re-epithelialisation, wound length and granulation tissue. Immunohistochemistry was used to quantify the neutrophils and macrophage within the wound.

Results / Discussion: Image analysis of stained sections showed that Col/ORC/Ag treated wounds achieved higher level of re-epithelialisation ($p<0.0001$) compared to all treatment groups, while presenting more granulation tissue than control ($p<0.01$) and P-Col ($p<0.05$) treatment and higher level of macrophages compared to the control ($p<0.05$). Col/ORC and D-Col presented significantly more neutrophils than control ($p<0.05$ and $p<0.001$ respectively).

Conclusion: Preliminary results show that Col/ORC/Ag achieves higher re-epithelialisation and modulates inflammatory cells to a higher degree than control. Further analyses are needed to elucidate these initial results, including analysis of macrophage phenotype. These results may help healthcare professionals determine the best treatment for their patients.

EP243 WOUND HEALING EFFECT OF REGENERATED OXIDIZED CELLULOSE VERSUS FIBRIN SEALANT PATCH: AN IN VIVO STUDY

Eun Suk Heo[1], Young Cheon Na[2], Hye Mi Lee[2], Se Oul Lee[3]

[1]Wonkwang University Hospital, Plastic & Reconstructive Surgery, Iksan-si, Korea, Rep. of South; [2]Wonkwang University Hospital, Plastic & Reconstructive Surgery, Iksan-si, Korea, Rep. of South; [3]Wonkwang University Hospital, Pharmacology, Iksan-si, Korea, Rep. of South

Aim: Topical hemostatic agents can interfere with the wound healing process by causing foreign body reactions, inflammation, and infection since they are foreign entities. We analyzed the effect of Genta-Coll on wound healing by inducing muscle defects in the rectus abdominis muscle of rats. We also assessed the effectiveness of Genta-Coll in preventing surgical site infections (SSIs) by countering nosocomial bacteria and performed a zone of inhibition test to determine the sensitivity of pathogenic bacteria.

Method: Twelve Sprague Dawley® rats were subjected to creation of a 6X6mm detect in the rectus abdominis muscle and divided into four groups: control; A, Tachosil® fibrin sealant patch; B, Surgicel® Fibrillar™ oxidized regenerated cellulose; and C, Surgicel® Snow™ oxidized regenerated cellulose. For the histologic analysis, biopsies were performed on the 3rd, 7th, and 28th days.

Results / Discussion: The foreign body reaction was the weakest in group A and most significant in group C. The inflammatory cell infiltration was the weakest in group A and similar in groups B and C. The amount of extracellular matrix was initially high in group A but ultimately similar. Muscle regeneration differed among periods. The rats in group A were the most active initially, while those in group C showed prolonged activity.

Conclusion: Tachosil® and Surgicel® administration increased inflammation via foreign body reactions, but the overall wound healing process was not significantly affected. We recommend using Tachosil®, because it results in less intense foreign body reactions than Surgicel® and faster wound healing due to the fibrin action.

EP244 THE EFFECT OF REPIGEL (LIPOSOMAL HYDROGEL WITH 3% POVIDONE-IODINE) TO THYROID FUNCTION

Young Cheon Na[1], Eun Suk Heo[1], Hye Mi Lee[1], Se Oul Lee[2]

[1]Wonkwang University Hospital, Plastic and Reconstructive Surgery, Iksan, Korea, Rep. of South; [2]Wonkwang University Hospital, Pharmacology, Iksan, Korea, Rep. of South

Aim: Repigel is a liposomal hydrogel with 3% povidone-iodine which combines the broad-spectrum antimicrobial activity of povidone-iodine and moisturizing properties of the liposomes and the hydrogel. And it has shown clinical benefit where inflammation and reactive oxygen species are though to impede wound healing (e.g., burns, chronic wounds and in smokers). However It could have an adverse effect to thyroid function, due to containing of iodine. This study aimed to explore whether the Repigel can affect to thyroid function or not, to know the safety of repigel.

Method: A total of 129 patients who showed normal thyroid function at first and used repigel between January 2017 and July 2021 were retrospectively analyzed via chart review. These patients did thyroid laboratory test (e.g., TSH, T3, T4, Free T4), before and after using repigel, at least two weeks interval.

Results / Discussion: Out of 129 patients, 26 (20.15%) patients showed thyroid function change to abnormal range, after using repigel. Of these 26 patients, 16 (61.54%) showed increase TSH; 12 (26.15%), decreased T3; 5 (19.23%), decreased TSH; 3 (11.54%), decreased Free T4; and 1 (3.85) decreased T4 level (Table 1). These abnormal thyroid function changes were observed from as early as 2 weeks to as late as 2 years (Table 2).

Conclusion: In our study, we found thyroid function change with using repigel. We need to check thyroid function in a patient with using repigel, in a regular interval. And we also need to change repigel to other dressing material, if we find abnormal changes in thyroid function.

Table 1. Distribution of 26 patients with thyroid function change, according to laboratory result.

	Thyroid function laboratory test			
Result	TSH(%)	T3(%)	T4(%)	Free T4(%)
Decreased	5/26 (19.23)	12/26 (26.15)	1/26 (3.85)	3/26 (11.54)
Increased	16/26 (61.54)	0/26 (0)	0/26 (0)	0/26 (0)

Table 2. Distribution of 26 patients with thyroid function change, according to time of abnormal finding.

Variable	No. of patients (%)
2 weeds ≤Time <1 month	6 (23.08)
1 month ≤Time <5 month	8 (30.77)
5 month ≤Time <1 years	4 (15.38)
1 years ≤Time <2 years	8 (30.77)
Total	26

EP245 HETEROLOGOUS TYPE I COLLAGEN HYALURONIC ACID PADS - AN EFFICIENT SOLUTION FOR SOFT TISSUE DEFECTS RECONSTRUCTION

Camelia Tamas[1], Clara Larisa IBANESCU[2], Angela Tecuceanu[3], Teodor Popa[1], Ioana Tamas[4], Caterina Lorenzi[1], Irina Jemnoschi-Hreniuc[3]

[1]Universitatea de Medicină și Farmacie „Grigore T. Popa" din Iași, Plastic Surgery, Iași, Romania; [2]County Hospital of Emergency "Saint John the New", Suceava, Romania; [3]Universitatea de Medicină și Farmacie „Grigore T. Popa" din Iași, Anatomy, Iași, Romania; [4]Universitatea de Medicină și Farmacie „Grigore T. Popa" din Iași, General Surgery, Iași, Romania

Aim: We present a descriptive clinical study and the results after using heterologous type I collagen hyaluronic acid pads for the treatment of soft tissues defects, difficult to cure, with bone or tendon exposure.

Method: The study included 2 groups of patients with similar lesions (24 cases each), treated during 18 months, with different protocols for healing stimulation (collagen pads/ other devices). The patients developed acute (22) or chronic (26) defects on lower limb, hand, trunk, buttocks with small dimensions (3-10 cm2) but with bone/tendon exposure.

We performed several wound debridement sessions (2-7/case) to prepare the wounds for tissue reconstruction, to obtain sterile secretions or low levels of bacterial colonization for all the cases.

The classic treatment for the second group of patients included active topics based on silver ions, hyaluronic acid, calcium alginate or hydro-responsive wound dressings (to promote the wound autolytic debridement and stimulate the healing process).

Results / Discussion: The complete healing duration was shorter for the patients from the group treated with type I collagen hyaluronic acid pads - 14-38 days (25.33±7.26 mean granular tissue development time) compared with the other group which received classic treatment - 34-87 days (mean: 52.57±6.40 days). **Conclusion:** The heterologous type I collagen hyaluronic acid pads create good conditions for treating moderate to highly exuding wounds, acute and chronic. The device is easy to apply, has hemostatic action and promotes the process of rebuilding tissue architecture after injury.

Keywords: heterologous,type I collagen, hyaluronic acid, tissue defect, exposed bone

EP246 INJECTABLE AMINO ACIDS AND HYALURONATE: THE NEW FRONTIER IN THE CARE OF WOUNDS

Roberto Cassino[1], Gabriela Sofia Barrionuevo Moreno[1], Lorella Bettaglio[1], Irena Cela[1], Cristina Galuzzi[1], Federica Maggi[1], Alina Ilisan[2], Agnieszka Kopniak[2], Chiara Spinardi[2]

[1]Sacra Famiglia" Korian Nursing Home, Geriatrics - Long Term Care, Pieve del Cairo, Italy; [2]Heliopolis Residences" Korian Nursing Home, Geriatrics - Long Term Care, Binasco, Italy

Aim: Hyaluronate (HA) plus amino acids (AA) dressings already demonstrated a significant effectiveness in wound care, especially reducing the filling time also in case of hard-to-heal wounds. Very often we need a surgical intervention to reactivate wound bed and edge, using skin substitutes or grafts. The aim of this work is to suggest a new approach to the wounds, avoiding surgery.

Method: we treated 12 patients with deep clean wounds. All wounds had an alginate dressing. The protocol was the subdermal injection (under the wound edge) of a mixture of HA and 6 AA (lysine, proline, glycine, leucine, valine, alanine)* once a week for 2 weeks and then twice a week for 6 weeks. We evaluated Wound Area Reduction (WAR) and Depth Reduction (DR) using the Visitrak™ system after two weeks of treatment and at the end of the study (8 weeks).

Results: All patients achieved very good results within the first week; after the first injection there was an evident growing of granulating tissue with depth reduction. DR was a little less than 90% and WAR more than 73%. No perilesional skin damages or to the wound edge, nor inflammatory reaction at the injection sites. No adverse reactions.

Conclusion: The results obtained confirm the validity of this new technique for approaching hard-to-heal wounds with loss of substance. The significant speed of the filling time and the rapid neoangiogenesis confirm that this technique allows an important reduction in costs and treatment times.

* Vulnamin Inj (Professional Dietetics-Italy)

EP247 OBSERVATIONAL EVALUATION OF ANTI-INFLAMMATORY FACTORS IN SUBJECTS WITH ONYCHOCRYPTOSIS TREATED WITH OZOILE

Rosario Emanuele Toscano[1], Innocenzo Salvatore Secolo[2], Marianna D'Armetta[2]

[1]Osservatorio Podologico Siciliano (O.P.S.), Italy; [2]Osservatorio Podologico Siciliano (O.P.S.)

Aim: Onychocryptosis is a podiatric disease that can anticipate degenerative lesions or ulcers. Early podiatrist intervention reduces chronic lesions occurrence and over-infections. This study aims to decrease the consequential inflammation due to invasiveness of the treatment for onychocryptosis through the application of a semi-occlusive bandage soaked with Ozoile Hydrogel (O.I.) and Ozoile Barrier Cream (O.C.B.). **Method:** We involved six podiatry cabinets and enrolled 71 patients (23 F, 48 M), the study was conducted for 4 weeks with 3 follow-up encounters. (T0-T3). Criticality index evaluation on Al Kline scale, inclusion criteria from stage 2 to stage 5, exclusion stage 1

Results: 42% of subjects had a significant improvement in 15 days, even among those already known to have systemic diseases. 10% of subjects did not recover at T3 and therapy was replaced; among the subjects, 71.8% were young, it has been hypothesized that the use of sneakers associated with forefoot muscle and tendon laxity and lack of physical activity may have favored the onset of granulomas located on the inner edge of the nail.

Conclusion: In conclusion, the use of ozoile as an anti-inflammatory reduce the inflammation degree and improve patient compliance to onychocryptosis treatment. No adverse events to the product in single administration have been reported. None the less, the podiatrist acquires a role on health and social education demonstrating once again its validity as a figure in primary prevention.


T0


T1


T3

EP248 STABLE OZONIDES AS AN ACTIVE NEW VULNOLOGICAL LINE: STATE OF THE ART

Roberto Cassino[1], Gabriela Sofia Barrionuevo Moreno[1], Lorella Bettaglio[1], Irena Cela[1], Elisa Illuminato[1], Cristina Galuzzi[1], Federica Maggi[1], Monica Pittarello[2], Elia Ricci[2]

[1]"Sacra Famiglia" Korian Nursing Home, Geriatrics - Long Term Care, Pieve del Cairo, Italy; [2]San Luca Clinic, Critical Wounds Unit, Pecetto Torinese, Italy

Aim: in the last 10 years technology strongly helped wound management, especially with active dressings that can interact with the tissue repair processes to reactivate "hard-to-heal lesions". Stable ozonides (Ozoile®) are, among the active treatments, the most significantly effective vulnological news and this work want to demonstrate their effectiveness especially in terms of antimicrobial activity, tissue repair reactivation and healing time quickness.

Method: In the last two years we evaluated about 100 patients with different aetiology chronic skin lesions, infectious or not, with or without necrotic tissues, most of them not responding to the advanced treatments for more than 6 weeks. We treated all the wounds with spray, cream, gauzes, alginate and hydrogel all containing Ozoile®, a pool of stable ozonides derived from olive oil*. We evaluated Infection Signs Disappearance (ISD), Debridement Time (DT), Healing Rate (HR) and Healing Time (HT).

Results: All wounds completely healed within 100 days: 54% within 60 days. Mean ISD was 10.4 days, mean DT was 14.8 days, mean HR was about 0.12 cm/week and HT was 64.1 days. No wounds needed surgical procedures.

Conclusion: Stable ozonides showed to be significantly effective in the treatment of any aetiological kind of chronic ulcers. The antiseptic properties can defeat any kind of bacteria and fungi. The medication is comfortable and promotes granulation and epithelialization from the beginning of the treatment also in recalcitrant wounds. There is also an important cost-saving due to the reduced times to achieve antisepsis, debridement ad healing.

* Rigenoma Line (Erbagil-Italy)

EP249 CLINICAL EFFECT OF HUMAN ACELLULAR DERMAL MATRICES IN THE TREATMENT OF SMALL-TO-MODERATE SIZED LOWER EXTREMITY DEFECTS

Hyeju Han[1], Dong Yeon Kim[1]

[1]*The Catholic University of Korea, St. Vincent`s Hospital, Department of Plastic and Reconstructive Surgery, Suwon, Korea, Rep. of South*

Aim: Acellular dermal matrices (ADMs) influence wound healing by providing a barrier against contamination, promoting revascularization, increasing cell regeneration, and ensuring a moist wound environment. In this study, we tried to confirm the clinical effect on wound healing by applying human-derived ADMs to a small-to-moderate sized lower extremity defect through several cases.

Method: Eleven patients with small-to-moderate sized lower extremity defects ranging in size from 2x2cm to 4x4cm were included in this study. The wounds were debrided with a curette and covered in the order of ADM (thin ADM with 0.8~1.0mm thickness), non-adherent wound contact layer dressing, and polyurethane foam. The patient was educated to self-change the polyurethane foam every 1-2 days. After 5-7 days, the skin barrier was removed and the foam dressing was maintained.

Results / Discussion: In all eleven patients, the wound was completely epithelialized within 2 weeks without any complications.

A 22-year-old male patient visited our hospital with a 2x2cm sized defect on knee caused by trauma 3 weeks ago. On the 4th day of application, partial engraftment occurred. On the 7th day, the ADM was completely engrafted, and re-epithelialization proceeded with granulation tissue from the edge. After 12 days, epithelialization was complete.

Conclusion:

Through several cases in this study, we confirmed that human-derived ADMs have a clinical effect on wound healing without surgery. Based on this report, a randomized controlled study with a larger number of patients is needed, and we expect that this material will be identified as a good treatment option.

Table 1. Patient demographics and clinical characteristics of 11 cases

No	Sex /Age	Cause	Duration before treatment	Location	Size	Depth	Duration to complete epithelization	Complication
1	M/22	Trauma	3 weeks	Knee	2x2cm	Subcutaneous exposure	12 days	None
2	M/67	Diabetic ulcer	3 months	Great toe	2.5x2cm	Subcutaneous exposure	10 days	None
3	F/42	Ischemic ulcer	2 weeks	Foot	2x2cm	Subcutaneous exposure	10 days	None
4	F/53	Diabetic ulcer	2 weeks	Foot	2x2.5cm	Subcutaneous exposure	13 days	None
5	M/62	Diabetic ulcer	1 month	Foot	1.5x3cm	Subcutaneous exposure	12 days	None
6	M/50	Diabetic ulcer	3 weeks	Great toe	2x2cm	Subcutaneous exposure	14 days	None
7	M/46	Ischemic ulcer	2 months	Lower leg	2x3cm	Muscle exposure	13 days	None
8	F/39	Venous ulcer	3 months	Ankle	2x2.5cm	Subcutaneous exposure	11 days	None
9	F/70	Trauma	5 days	knee	2x2cm	Subcutaneous exposure	12 days	None
10	F/42	Trauma	2 weeks	Lower leg	4x4cm	Subcutaneous exposure	7 days	None
11	M/37	Trauma	1 week	Ankle	3x4cm	Subcutaneous exposure	8 days	None

EP250 COPPER DRESSINGS: MUCH MORE THAN AN ANTIMICROBIAL...

Alessandro Corsi[1], Ornella Forma[1], Sara Maria Lupi[1], Giulia Vidotto[1], anna aloise[1], Lina Ognibene[1], Umberto Cazzaro[1], Gaetano de Angelis[1], bertulli gianluca[1], Gaetano Pitoia[1]

[1]*Ospedale San Raffaele, U.O. Vulnologia, Milan, Italy*

Aim: Rarely does a medication prove more effective than declared by the manufacturer. The recent appearance, in the Wound Care market, of copper dressings, represents one of these rare occasions, in which the results obtained have gone beyond expectations, allowing us to hypothesize an action on other factors influencing healing in addition to the control of microorganisms.

Method: Over 50 acute and chronic skin lesions, treated with copper dressings, used directly on the lesion or through a silicone interface, were evaluated in terms of decrease and control of the microbial load; during data collection, we noticed how other critical aspects (exudate, odor, pain, cell proliferation) were also mediated by the same medication.

Results / Discussion: All lesions showed a rapid decrease in signs of inflammation and infection, with resumption of the tissue repair process in a short time, reaching, in 75% of cases, a rapid and complete healing.

Conclusion: Copper-containing dressings have proven to be more effective than initially conceivable in relation to their antimicrobial action, as they are able to rapidly and intensely modulate the inflammatory process, as well as stimulating tissue regeneration by intervening at various levels of the process.

EP251 A PRODUCT DESIGN ADDRESSES THE CHALLENGE TO ENSURE LONG-TERM APPLICATION TO THE SKIN AND ATRAUMATIC REMOVAL

Alessandro Corsi[1], Ornella Forma[1]

[1]*Ospedale San Raffaele, U.O. Vulnologia, Milan, Italy*

Aim: To evaluate the adhesive performance of commonly used self-adhesive superabsorbent dressings compared to a high tack silicone adhesive technology.

Method: Skin adhesion of self-adhesive superabsorbent wound dressings was compared. Two test scenarios were used to obtain a meaningful analysis. A controlled, blinded design to evaluate subjective wear characteristics and discomfort upon removal per test product. In addition, peel force on human skin was measured for all products.

Results / Discussion: Four of the products tested use silicone-based adhesives and one uses an acrylate-based adhesive.

The high tack silicone-adhesive technology performed very well in the categories of Remnant Adhesive, and Detachment after wearing up to 48 hours. Versus the acrylic-based dressing which also performed well, but the high tack silicone-adhesive was superior in subject Discomfort.

In addition, the release force (adhesive strips) on human skin was measured after wearing for 24 hours and 48 hours. At both timepoints the high tack silicone-adhesive showed best adhesiveness of the tested silicone-based products. The acrylic-adhesive showed highest adhesiveness under these test conditions, but thereby showing also strongest signs of erythema on the other hand.

Conclusion: As described earlier, silicone adhesives cause the least trauma compared to acrylate-based adhesives. After almost half a century in the use of silicone adhesives, it is still a major challenge to ensure long-term application to the skin in addition to an atraumatic removal to support undisturbed wound healing phases. A highly adhesive wound dressing based on a new silicone technology (high tack) was developed. Results of a human study and initial post-marketing observations show that this new silicone adhesive meets the current requirements for sophisticated.

EP252 REDUCED WEEKLY DRESSING CHANGES WITH A FIVE-LAYER FOAM DRESSING* COMPARED WITH OTHER PREVIOUSLY USED DRESSINGS IN WOUNDS OF MIXED AETIOLOGY: RESULTS FROM A SYSTEMATIC LITERATURE REVIEW AND META-ANALYSIS OF CLINICAL STUDIES

Devon Allen[1], Theresa Hurd[2], Christopher Saunders[1]

[1]Smith+Nephew, Global Clinical and Medical Affairs, Hull, United Kingdom; [2]Nursing Practice Solutions, Stevensville, Canada

Aim: The aim was to investigate how often dressing changes are required with a uniquely designed five-layer hydrocellular polyurethane foam dressing (HPFD)* compared with other dressings, including other foam dressings.

Method: A systematic literature review was performed using Pubmed, Embase and the Cochrane Library to identify published articles. Randomized controlled trials (RCTs) and observational studies comparing the HPFD* with other dressings that reported objective data for dressing change frequency when used on any wound type were included. Meta-analyses were performed to determine mean differences (MD). The primary outcome was mean weekly dressing changes.

Results / Discussion: Four studies were included; one RCT and three observational studies (in total 220 mixed aetiology wounds). The HPFD* resulted in a statistically significant reduction in mean weekly changes compared with other previous foam dressings (from 2.91 to 2.06, MD: −0.85 [95% CI: −1.62 to −0.09]; p=0.029) or previous dressings generally (from 3.12 to 2.07, MD: −1.05 [95% CI: −1.94 to −0.16]; p=0.021), when used with or without an education program.

Conclusion: The main finding is that the HPFD* (with or without an accompanying education program) results in fewer weekly dressing changes compared with other previous foam dressings or other previous dressings generally. The HPFD* has unique features that can help reduce clinically premature changes compared with other dressings, including other foam dressings (eg, the change indicator). Use of the HPFD* can promote undisturbed wound healing and may help release nurse time during visits or reduce visit frequency and save costs.

*ALLEVYN™ LIFE Foam Dressing

EP253 EVALUATION OF THE PERFORMANCE OF WIDE AREA FIXATION PRODUCTS ACCORDING TO CONTEMPORARY REQUIREMENTS

Michael Dietrich[1], Catrin Witte[1]

[1]BSN medical GmbH - an Essity Company, Hamburg, Germany

Aim: An important but often taken for granted aspect of wound care is the role of fixation. Secure adherence is essential for perioperative patient management. The requirement for a contemporary fixation product is a strong and long-term reliable adhesion, easy application and residue-free removal, breathability, as well as good conformability and stretchability.

Method: To test the performance of wide-area-fixation products, various human research studies and laboratory tests were performed. Studies reviewed the adhesion after 24h (n=40), after 7 days (n=30) and investigated wearing comfort, adhesive residues and erythema after removal. To measure the stretchability, the elongation at max. force in cross direction was recorded and the amount of water vapor that passes through a medical device over 24h (MVTR rate) was examined.

Results / Discussion: Testing a 24h wearing time revealed that 98 % of the wide-area-fixation products* stood in place, while none came of completely. Another study observed that less than 4 % of these products* peeled off within 7 days. Stretchability measurement obtained a mean elongation of 166 %. An MVTR rate of 4859 g/(m^2*24h) was measured.

Conclusion: The results demonstrate secure fixation of dressings for 24h as well as 7 days, which thereby can avoid unnecessary dressing changes. The product's high stretchability is ideal for frequently moved and contoured body parts and can help to prevent construction and disturbance of blood circulation. The high MVTR rate, compared to normal skin evaporating 150-200 g/(m^2*24h), can contribute to reducing the risk of skin maceration.

*Hypafix/Fixomull stretch

EP254 INFLUENCING THE RATIO OF DERMAL TO EPIDERMAL TISSUE DURING WOUND HEALING BY CONTROLLING THE MOISTURE CONTENT IN THE WOUND

Alexandru-Cristian Tuca[1 2], Ives Bernardelli de Mattos[3], Martin Funk[4], Raimund Winter[1], Alen Palackic[1], Florien Groeber-Becker[3 5], Daniel Kruse[3], Fabian Kukla[6], Thomas Lemarchand[6], Lars-Peter Kamolz[1 7]

[1]Medical University of Graz, Division of Plastic, Aesthetic and Reconstructive Surgery, Department of Surgery, Graz, Austria; *[2]State Hospital* Güssing, Department of Surgery, Güssing, Austria; *[3]University Hospital* Würzburg, Department Tissue Engineering & Regenerative Medicine , Würzburg, Germany; *[4]EVOMEDIS GmbH, Graz, Austria*; *[5]Fraunhofer Institute for Silicate Research ISC, Translational Center Regenerative Therapies, Würzburg, Germany*; *[6]TPL Path Labs GmbH, Freiburg im Breisgau, Germany*; *[7]Joanneum Research - Coremed, Graz, Austria*

Aim: The aim of the present study was to investigate whether it is possible to influence the ratio of dermis to epidermis through specific regulation of moisture.

Method: Commercially available dressing materials used in daily hospital routine were used to conduct the study. The biotechnologically produced cellulose epicitehydro® with a high water content of at least 95% as isotonic saline solution was used as the primary wound dressing. To control moisture in the primary dressing, either cotton gauze (Gazin), fat gauze (Jellonet®), (Aquacell Extra®) or an occlusive dressing (Opsite® Flexifix) were used as secondary dressings.

In a standardized dermatome wound model in pigs, the effects of different evaporation behaviors and thus varying wound moisture were investigated in vivo. Afterwards, the wounds were processed histologically and immunohistochemically.

Results / Discussion: The histological results showed that the wounds treated with epicitehydro had varying amounts of new dermis and epidermis, depending on the secondary dressing. The combinations with cotton gauze or the hydrofiber tape had very low residual moisture, a low amount of new dermis, but the highest re-epithelialization rates. Treatment with fat gauze as a secondary dressing showed moderate residual moisture and equally moderate amount of new dermis and epidermis. In comparison, the occlusive dressing had the highest residual moisture, hardly any new epidermis, but up to three times as much new vital dermal tissue.

Conclusion: The results of the present study show that the wound environment, its moisture and evaporation from the wound can be specifically influenced by the use of different secondary dressings. The present findings may be of great benefit to wound treatment and clinical wound management.

EP255 AUTOLOGOUS ADIPOSE-DERIVED STEM CELLS (ADSCS) TRANSPLANTATION IN THE MANAGEMENT OF CHRONIC WOUNDS

Nguyen Tien Dung[1], Nguyen Lam[2]

[1]Vietnam Burn Hospital, Wound Healing center, Viet Nam; *[2]Vietnam Burn Hospital, Wound Healing Center, Hanoi, Viet Nam*

Aim: Our aim is to characterize the chronic wound response to autologous Adipose-Derived Stem Cells (ADSCs) sheet transplantation.

Method: A pilot descriptive longitudinal study at the Wound Healing Center of the Vietnam National Burn Hospital, from July 1, 2019 to August 30, 2020. Thirty patients with 38 chronic wounds enrolled in the study and were grafted with autologous ADSCs sheets on the wound bed. Wound edges, wound bed, wound size and structure using H&E staining, ultrastructure changes by Transmission Electron Microscope at the time of transplantation and at the first, second and third week of follow-up were followed.

Results / Discussion: Results indicated that after ADSCs sheet transplantation, the structure and ultrastructure of chronic wounds had improved. The Extracelluler Matrix, neo-vascular, fibroblast and collagen fibers proliferated and arranged side by side at the dermis layer. Fibroblast proliferated and increased secretion of collagen. Keratinocytes proliferated and immigrated in epidermis layer. After three weeks of autologous ADSCs sheet transplantation, the epithelial cells covered 90% of the wound surface. Neo-vascular, fibroblast and collagen proliferation increased weekly. The image of lymphocytes infiltration in connective tissues decreased. Wound size reduced significantly compared to before experiment, wound beds were cleaner and filled with granulation tissue. Re-epithelialization appeared at the wound edge and throughout the wound. Wound measurements were statistically significant at the second and third weeks after starting treatment (week 2: 12.8±11.56 cm^2, $p<0.05$; week 3: 7.44 ± 5.68 cm^2, $p<0.001$), indicating the autologous ADSCs treatment enhanced the healing of chronic wounds.

Conclusion: ADSCs has a beneficial effect on cutaneous regeneration and chronic wound healing.

EP256 THE NEED TO ADDRESS REAL-TIME SENSOR ACCURACY AND SENSITIVITY FOR DEVELOPMENT OF A SMART WOUND DRESSING

Shavini Stuart[1], Hannah Morrisroe[2], Jeroen van den Brand[1]

[1]HTC 31 - Holst Centre, Eindhoven, Netherlands; [2]University of Limerick, Castletroy, Ireland

Aim: To assess the impact of sensor integration within commercial wound dressings on real-time accuracy and sensitivity.

Method: Hybrid printed electronics (HPE) was used to fabricate a temperature sensor matrix using negative temperature coefficient thermistors (NTC's) within a flexible format as a test tool for this investigation.

The NTC matrix was tested within 2 design formats using commercial wound dressing (Suprasorb P, Lohmann Rauscher), the formats were; on top or an in between. NTC sensitivity was assessed for real-time temperature changes within a laboratory set-up using both a hot-plate and heated water infiltration within the material.

Results / Discussion: Temperature sensors placed on top or in between showed significant reduction in temperature sensitivity and accuracy. When placed on top of a hot-plate, there was a 10 °C loss in temperature and when placed in-between, ambient environment enabled the offset of temperature to be reduced by 1°C.

When wound dressing material was saturated with water, the thermal capacity of the water became dominant for the sensor accuracy, with readings within both design formats resulting in an offset of 2°C from denoted temperatures from 1 minute onwards. This accuracy decreases dependent on the saturation level of the wound dressing material, whereby when 50% or 25% saturated there is an increased offset of 4 and 9 °C respectively.

Conclusion: Temperature changes of 2°C, is noted as significant for wound monitoring and infection, therefore the NTC matrix indicates the need to further develop design for the integration of sensors for improved sensor accuracy and sensitivity in real-time. Temperature readings are significantly impacted by thermally insulating commercial wound dressing material and saturation rate of water.

EP257 FIRST RESULTS OF FISH SKIN MATRIX FOR COMPLEX CHRONIC WOUNDS

Lukas Naef[1], Michaela Kaiser[1], Urs Zingg[1]

[1]Spital Limmattal, Surgery, Schlieren, Switzerland

Aim: The treatment of complex chronic wounds can be time consuming and closure is often not achieved. A lot of different treatment methods and materials have been used and evaluated. The acellular matrix of fish skin (Kerecis Omega-3 ©) offers an alternative way. It has a high amount of omega-3 fatty acids and collagen proteins, and together with anti-inflammatory properties the scaffold structure of the matrix initiates the healing process. We hereby present a cohort of patients with chronic wounds treated with fish skin matrix.

Method: From 2017 till 2022 patients with unsuccessful wound treatments were evaluated for fish skin treatment. Demographics and details of the wounds were entered into a prospective database. Size and time to closure of the wounds was assessed by trained wound experts.

Results: 14 patients with persisting wounds due to trauma or postoperative wound healing disorders were treated with fish skin. Prior to the fish skin application, all patients had unsuccessfully undergone various conservative and/or surgical wound treatments. Before fish skin application, all wounds were conditioned with debridement, wet therapy and negative pressure therapy. With the fish skin in place, dressing change and matrix rehydration was done every 7-10 days. Fish skin was reapplied when resorption was fully reached. A total closure of the resistant chronic wounds could be achieved in all patients within on average 5 weeks (1–34 weeks) after initiation of the fish skin therapy. There was neither adverse effects nor allergic reactions.

Conclusion: Fish skin matrix is a novel treatment for complex chronic wounds. It is safe, easy to apply and shows a high closure rate in an acceptable time frame.

Patient	Wound type / Location	Wound duration	Size of wound	Time to complete wound closure after omega-3-matrix application
w, 56 y.o.	post surgical, forefoot	1.5 month	8 cm^2	12 weeks
w, 69 y.o.	traumatic, lower leg	2 month	4 cm^2	3 weeks
w, 86 y.o.	traumatic, lower leg	2 month	4 cm^2	4 weeks
w, 67 y.o.	post surgical, malleolus	8 month	40 cm^2	1 week
w, 87 y.o.	PAD Grade I, plantar	4 month	1 cm^2	1 week
w, 54 y.o.	post surgical, mamma	4 month	2 cm^2	4 week
m, 84 y.o.	traumatic, knee	2 month	3 cm^2	3 weeks
m, 53 y.o.	traumatic, ellbow	1 month	25 cm^2	4 weeks
m, 79 y.o.	traumatic, lower leg	2 month	6 cm^2	5 weeks
m, 26 y.o.	post surgical, penis	2 month	1 cm^2	3 weeks
w, 69 y.o.	traumatic, malleolus	2 month	30 cm^2	7 weeks
w, 87 y.o.	traumatic, open tendon, lower leg	1.5 month	25 cm^2	34 weeks
m, 91 y.o.	traumatic, ellbow	12 month	25 cm^2	16 weeks
m, 62 y.o.	traumatic, upper leg	1 month	30 cm^2	9 weeks

EP258 SEVEN COMMON WOUND PATHOGENS WITH VARYING CELL SURFACE HYDROPHOBICITY BIND TO A HYDROPHOBIC DIALKYLCARBAMOYL CHLORIDE-COATED WOUND DRESSING AT COMPARABLE LEVELS

Johanna Husmark[1], Sara Sjögren[1]

[1]*Essity, R&D Sorbact, Sweden*

Aim: Hydrophobic interaction is the main mechanism used by bacteria for binding hydrophobic surfaces, including the binding to hydrophobic wound dressings. This study aimed to evaluate how bacteria with different degrees of cell surface hydrophobicity (CSH) bind to a hydrophobic dialkylcarbamoyl chloride-coated* wound dressing.

Method: CSH of seven different bacteria species was measured using the hydrophobic interaction chromatography (HIC) technique.[1] Further, binding of the same bacteria to a hydrophobic dressing was evaluated by ATP detection, as previously described.[2]

Results / Discussion: HIC measurements revealed a variation of bacteria species CSH between 19-85% in the following order: *E. coli*<*P. aeruginosa*<*E. cloacae*<*E. faecium*<S. *pyogenes*<*S. aureus*<S. *gordonii*. Despite this, the initial bacteria adhesion to a hydrophobic wound dressing were in a similar range for all tested species. Although the literature evidence is strong regarding an increased interaction of bacteria to hydrophobic surfaces compared to hydrophilic, several studies have had difficulties to correlate this interaction with the hydrophobic properties of the bacteria cell surface. The current evidence therefore implies that even a relatively low degree of CSH can be sufficient to allow binding to a hydrophobic surface.

Conclusion: The hydrophobic dialkylcarbamoyl chloride-coated* wound dressing tested was shown to bind wound related pathogens with a wide range of cell surface hydrophobicity.

*Cutimed Sorbact Swab

References:

[1]Ronner et al (2014)

[2]Mozes and Rouxhet (1991)

EP259 RESULTS FROM AN INTERNATIONAL SURVEY: FOAM DRESSINGS WITH WEAR-TIME CHANGE INDICATOR (WTCI) MAY ENHANCE CLINICIAN CONFIDENCE TO EXTEND WEAR TIMES COMPARED WITH OTHER FOAM DRESSINGS

Ben Costa[1], Devon Allen[1]

[1]Smith and Nephew, Global Clinical and Medical Affairs, Hull, United Kingdom

Aim: Although undisturbed healing is key for achieving optimal wound outcomes, wound dressings are often changed prematurely. To help healthcare professionals make more-informed decisions, several manufacturers include technologies to signal when a dressing change is due. Foam dressings that feature a unique masking layer and wear-time change indicator (WTCI) were compared against dressings featuring an exudate progress monitor (EPM) or a visible foam pad (VFP).

Method: Respondents (220 nurses treating chronic wounds) from the UK, Australia, France, Germany, Spain, and the US completed a 15-minute online survey conducted by a research group (The Nursery Research and Planning Ltd, UK) during March and April 2022. Questions covered the respondent's role, usage, and attitudes to wound dressings.

Results / Discussion: In a blind exercise, based on visual appearance alone, significantly more nurses would keep the WTCI dressing on after 3, 5 or 7 days of typical wear, compared with EPM and VFP dressings ($p<0.025$). The most frequently reported factor driving dressing change among nurses (88%) was visible dressing strikethrough. Eighty-one percent of nurses considered WTCI dressings to be the most aesthetic option over their full wear-time (vs 12% for EPM and 7% for VFP).

Conclusion: Survey results indicate that wear time can be significantly impacted by presence of a unique WTCI. WTCI dressings should be considered when appropriate, as they can help to minimise clinically unnecessary dressing changes therefore promoting undisturbed wound healing.

EP260 A RETROSPECTIVE, REAL-WORLD COHORT ANALYSIS OF AN INTEGRATED CARE BUNDLE, INCLUDING A MULTI-LAYERED HYDROCELLULAR FOAM DRESSING, FOR THE MANAGEMENT OF OPEN CHRONIC WOUNDS IN A COMMUNITY SETTING

Julie Murdoch[1], Theresa Hurd[2]

[1]Smith & Nephew plc, Global Clinical Strategy - AWM, Watford, United Kingdom; [2]Nursing Practice Solutions , Stevensville, Canada

Aim: To explore the clinical and financial benefits following the implementation of integrated care bundles (ICBs) within in a real-world cohort of multiple wound types across two large community care facilities in Ontario, Canada.

Method: An observational, retrospective cohort analysis of the effectiveness and safety of a series of wound-specific ICBs, adopted to improve the management of open chronic wounds, was undertaken. Outcomes from patients who received a multi-layered, silicone adhesive foam dressing as part of their ICB were compared with outcomes from patients who did not receive the ICB.

Results / Discussion: Patients who received the ICBs, included treatment with the foam dressing (n=16,841), experienced improved outcomes compared with those who did not receive the ICB (n=2242), including a faster time to healing (12.8 vs 25.5 weeks, respectively), and longer time between dressing changes (3.5 vs 1.9 days, respectively). Decreased mean nursing visits in the ICB cohort led directly to decreased resource costs, compared with mean per patient costs in the non-ICB cohort (1733 vs 6488 CAD, respectively).

Conclusion: The reality of delivering the evidence-based practice that is best placed to deliver good outcomes, can be challenging. Our experience suggests that the adoption of pathways and ICBs may make it easier to adopt best practice.

EP261 USE OF ECM SCAFFOLD DERIVED FROM OVINE FORESTOMACH: AN ITALIAN EXPERIENCE IN OUTPATIENT AND INPATIENT SETTINGS

Michele Blasina[1], Martina Pangos[2], Vittorio Ramella[2], Laura Grezar[2], Luca Spazzapan[2], Primosi Patrizia[1], Giovanni Papa[2]

[1]ASUGI, Cure Ambulatoriali e Domiciliari, Trieste (TS), Italy; [2]ASUGI, Struttura Complessa (UCO) Chirurgia Plastica, Trieste (TS), Italy

Aim: The aim of this case series was to evaluate the capability of an ECM scaffold derived from ovine forestomach to enhance repithelialization and modulate matrix metalloproteinases on a cohort of different types of wounds.

Method: A cohort (n=15) of patients with ulcers of different aetiology were treated with an advanced ECM scaffold derived from ovine forestomach matrix.

Patients were enrolled from inpatient and outpatient settings. The scaffold was applied from 1 to 2 times a week. Different wounds were treated; exclusion criteria were infection and other medical conditions such as severe PAD.

Results / Discussion: Advance in repithelialization was observed in the entire cohort; wound size, tissue and margins showed a positive change over the time of application.

Conclusion: The results suggest that ECM matrix derived from ovine forestomach are capable of regulating MMPs, stimulating and promoting repithelialization. Results have shown the possibility to use them in different settings and in different moments of wound healing, such as inflammatory and proliferative phases.

EP262 PHYSIOCHEMICAL PROPERTIES AND ANIMAL STUDY OF NEW FILLER USING NANO-PARTICLE POLYLACTIC ACID AND CARBOXY METHYL CELLULOSE

Kyujin Chung[1], Eun Kyung Choi[2], Min-Gi Seo[1]

[1]Yeungnam University, College of Medicine, , Department of Plastic and Reconstructive Surgery, Daegu, Korea, Rep. of South; [2]Yeungnam University, College of Medicine, Department of Anesthesiology and Pain Medicine, Daegu, Korea, Rep. of South

Aim: Polylactic acid (PLA) is a biodegradable polymer used as an absorbable suture, bone implant, and soft tissue filler. This study aims to introduce a new method of manufacturing a liquid filler material with carboxy methylcellulose (CMC) using PLA nanoparticles and to analyze its physicochemical properties, stability in animal experiments, and effectiveness as a filler.

Method: PLA fillers were prepared using PLA and CMC. The coating was prepared by homogeneously dispersing PLA (10%) solution and CMC (2%) in weight ratios and by lyophilizing. Physicochemical analysis was performed using a powder X-ray diffractometer, a thermal analysis system, and a compression and bending testing machine. In the animal experiment, a 0.1 cc solution of distilled water and the newly prepared PLA filler was injected into rats. Samples were collected and analyzed at 1 week, 1 month, and 4 months.

Results / Discussion: The synthesized PLA was white and odorless and had irregular granular shapes. Residual lactide was 0.3%, residual solution was 0.05%, heavy metal was 3 ppm, tartar was 54 ppm, water was 0.1%, ash content was 0.05%, and viscosity was 6.5 dL/g. At the fourth month of the animal experiment, we observed following on the H&E tissue slides: thin, fibrotic capsules around the granuloma nodules and dense fibrosis in the nodular granuloma with hemosiderin-laden macrophages.

Conclusion: In this study, we synthesized PLA nanoparticles with CMC to create a new filler. Its physicochemical properties in the animal experiment demonstrated stability and effectiveness.

E-POSTER SESSION: BASIC SCIENCE

EP263 EFFECTIVE MANAGEMENT OF THE PATIENTS WITH PRESSURE SORE USING ARTIFICIAL INTELLIGENCE (AI) AND SMART-PHONE APPLICATION: A PILOT STUDY

Jeongmok Cho[1], Chang Sik Pak[1], Hyunsuk Suh[1], Joon Pio Hong[1]

[1]*Asan Medical Center, Department of Plastic Surgery, Seoul, Korea, Rep. of South*

Aim: Pressure sore is a common disease in patients who are vulnerable to external factors such as infection because of their immobility. Since it has a relatively high fatality rate compared to the morbidity rate, accurate assessment and proper management are essential. The purpose of this study is to evaluate wounds and provide appropriate treatment even if it is not a healthcare provider using Artificial Intelligence (AI) deep learning and smart-phone application.

Method: Using convolutional neural network (CNN) system, the existing image data set provided for pressure sore assessment was recognized to provide a reference threshold for classifying the pressure sore into four clinical stages, and this data was learned by AI using deep learning technique provided by Colaboratory (Google Inc., CA, US) and developed an application named 'iCON'. Entering the clinical photography in the application, it displays the clinical stage, accuracy and recommended treatment method.

Results / Discussion: The pilot study conducted on 200 patients in Asan Medical Center from Jun. to Nov. in 2022, the application showed 86% accuracy. Clinical nurses downloaded and used the application on their phones and helped them choose the dressing material using the information provided by the application.

Conclusion: Pressure sore patients can be effectively managed using 'iCON' application with AI and deep learning system. It is thought that if more data is supplied to the system, the acuity will increase further.

EP264 AUTOPHAGY DYSFUNCTION IN A DIABETIC PERIPHERAL NEUROPATHY MODE

Sang-Ha Oh[1], Yunsung Park[2], Bogen Song[2], Won Suk Lee[3]

[1]Chungnam National University College of Medicine, Department of Plastic and Reconstructive Surgery, Daejeon; [2]Chungnam National University Hospital, Department of Plastic and Reconstructive Surgery, Daejeon, Korea, Rep. of South; [3]Eulji University College of Medicine, Department of Emergency Medicine, Daejeon, Korea, Rep. of South

Aim: The relationship between autophagy and diabetic peripheral neuropathy (DPN) has been highlighted in only few reports. Using an animal model, we investigated the relationship between autophagy and DPN, and focused particularly on changes in autophagy in Schwann cells.

Method: The ultrastructural features of DPN mice were evaluated in vivo using transmission electron microscopy. Dysfunction of autophagy in DPN was evaluated using immunofluorescence microscopy and western blot analysis of autophagy-related proteins, including Beclin1, LC3, and p62. Reactive oxygen species (ROS) levels were measured in vitro in glucose-treated Schwann cells. Dysfunction of autophagy in glucose-treated Schwann cells was examined by immunofluorescence microscopy and western blot analysis.

Results / Discussion: Reduced myelin thickness and axonal shrinkage were observed in the sciatic nerves of DPN mice (Fig 1-4). ROS levels were increased in high glucose-treated Schwann cells ($p < 0.05$) (Fig 5). The expression of Becline1 was increased in DPN mice and high glucose-treated Schwann cells ($p < 0.05$), whereas the expression of LC3-II/LC3-I ratio and p62 were decreased in DPN mice and high glucose-treated Schwann cells ($p < 0.05$) (Fig 6,7).

Conclusion: Our results suggest that increased levels of ROS induced by high glucose may contribute to autophagy dysfunction in Schwann cells. Autophagy dysfunction especially in Schwann cells may be an underlying cause of DPN.

This work was supported by the Korea Health Technology R&D Project through the Korea Health Industry Development Institute, funded by the Ministry of Health & Welfare, Republic of Korea (grant no.: HI20C2088).

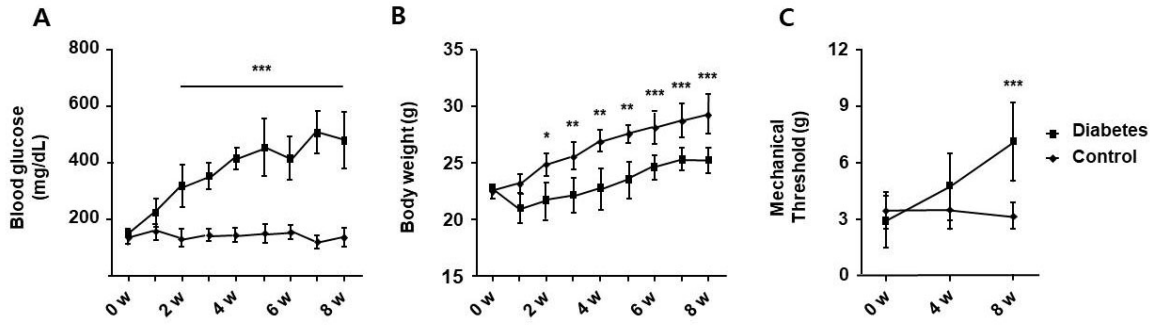


Figure 1.

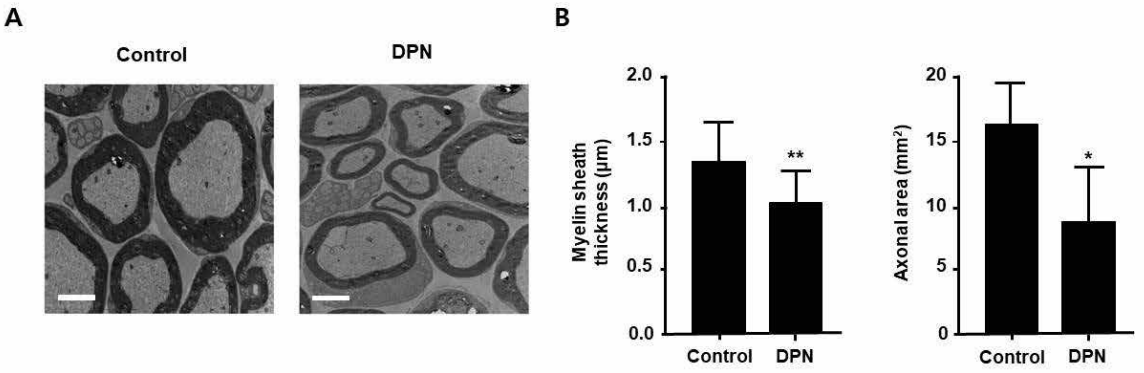


Figure 2.

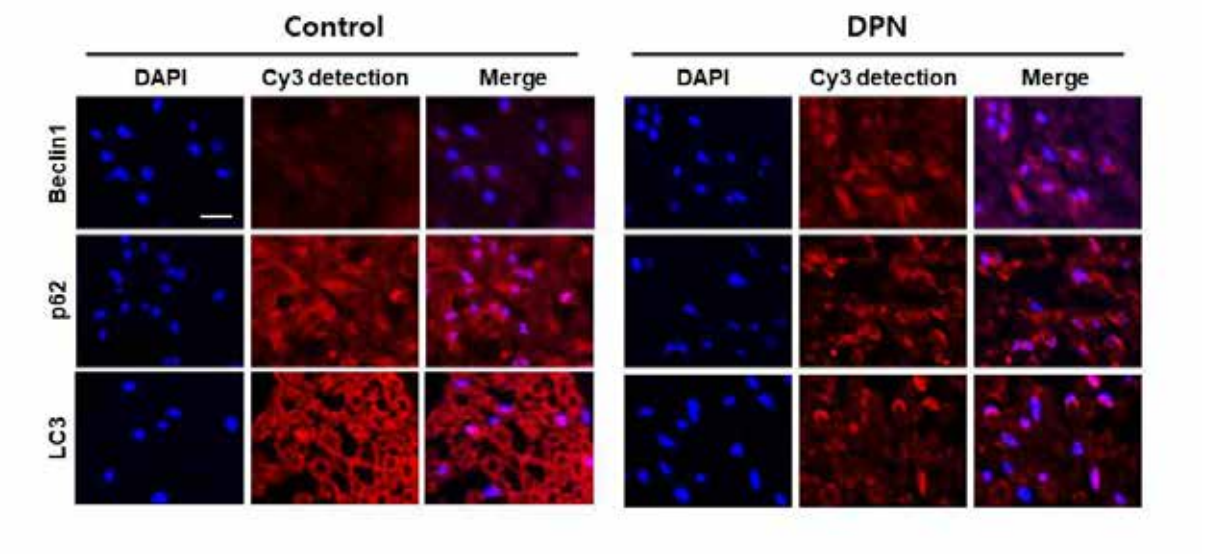


Figure 3.

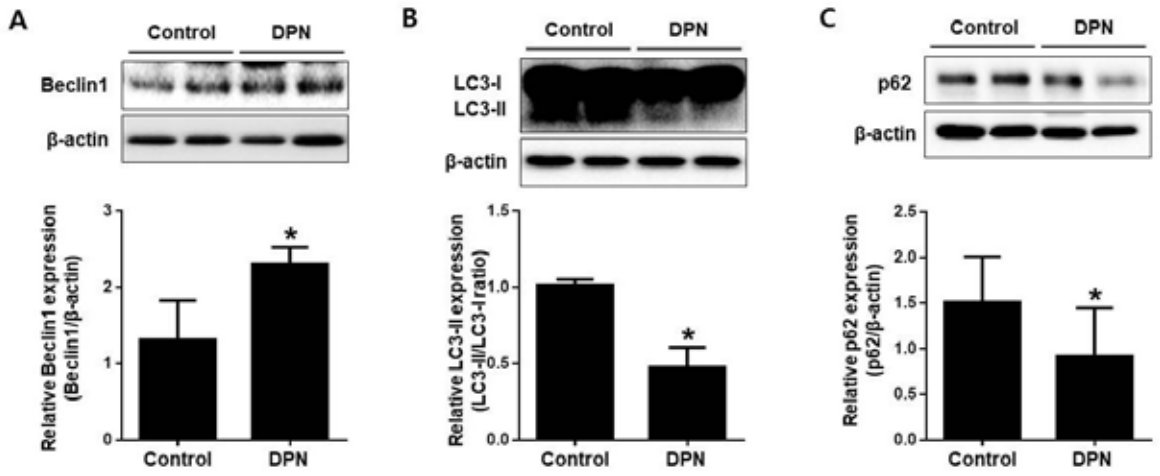


Figure 4.

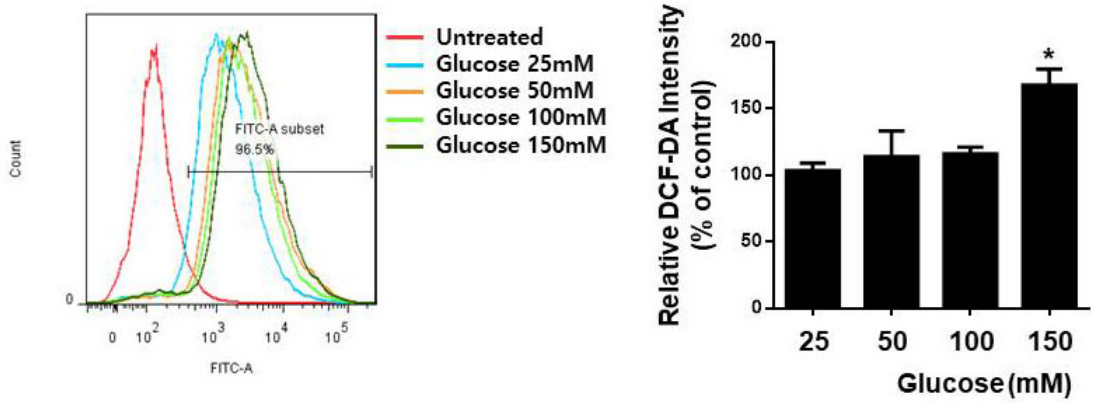


Figure 5.

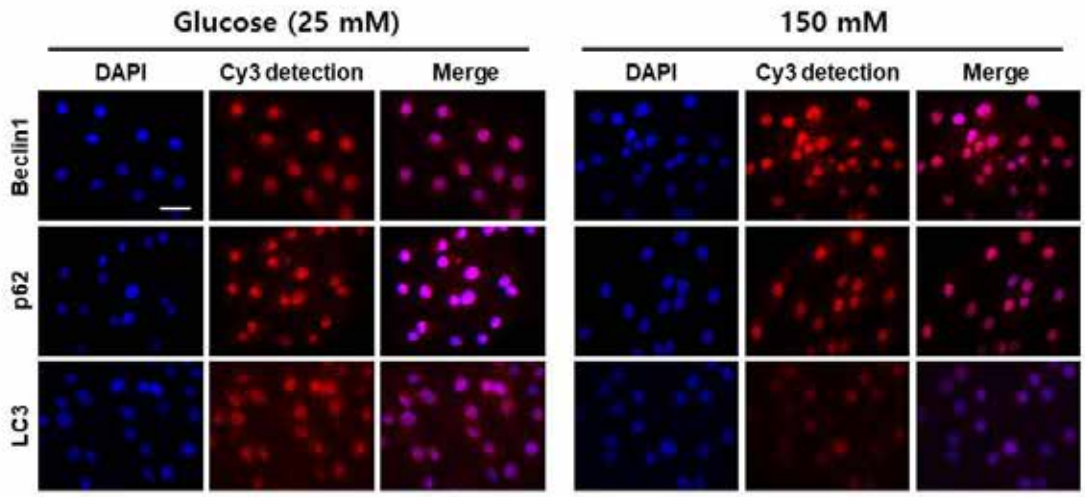


Figure 6.

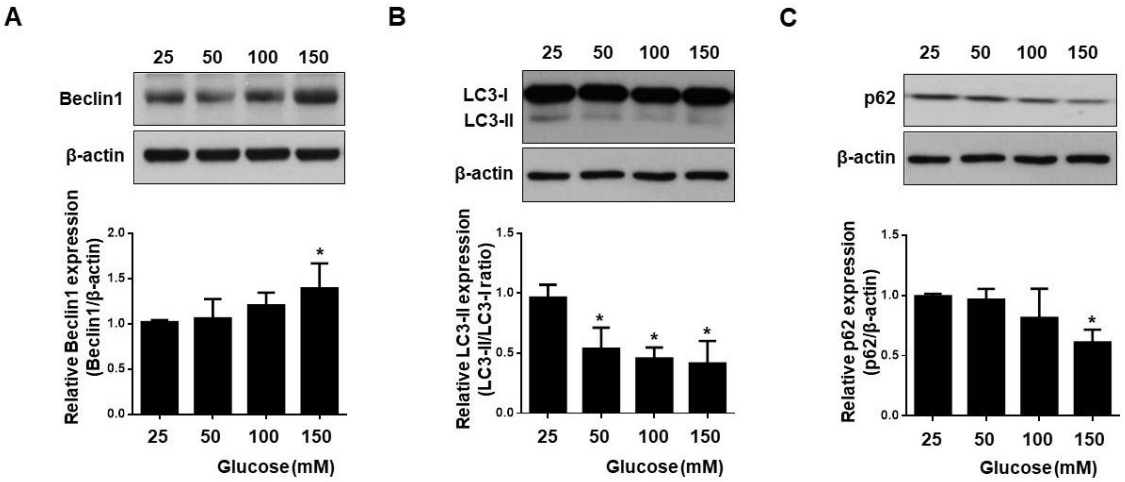


Figure 7.

EP265 THERAPEUTIC EFFECTS OF AMNION-CONJUGATED CHITOSAN-ALGINATE MEMBRANES ON DIABETIC WOUNDS IN AN INDUCED DIABETIC SWINE MODEL: AN IN VITRO AND IN VIVO STUDY

Woonhyeok Jeong[1]

[1]*Keimyung University Dongsan Medical Center, Plastic and Reconstructive Surgery, Daegu, Korea, Rep. of South*

Aim: Chitosan (CS) is a well-known antimicrobial dressing material. Moreover, widely used amniotic membranes contain growth factors beneficial for wound healing. Herein, we created a novel amnion-conjugated CS-alginate membrane dressing and tested its wound healing potency in a diabetic swine model.

Method: The bovine amniotic powder growth factor contents were evaluated by protein assay, and the powder's wound healing effects were assessed in vitro by HaCaT cell scratch closure. In vivo, two minipigs developed streptozotocin-induced diabetes. Twelve square-shaped wounds created on each pig's back were randomly divided into control, CS, and amnion-CS (AC) groups and treated accordingly with different dressings. Wound healing in each group was assessed by measuring wound contraction over time, capturing wound perfusion with indocyanine green (ICG) angiography, and histologically analyzing inflammatory markers.

Results / Discussion: Amniotic powder elution promoted HaCaT cell migration in the scratch wound model, suggesting its beneficial in vitro wound healing effects. In vivo, the CS and AC groups showed earlier wound contraction initiation and reepithelialization and earlier wound perfusion improvement by ICG angiography than the control group. Additionally, the wound size of the AC group at week 3 was significantly smaller than those in the control group. There was no significant difference in the numbers of acute and chronic inflammatory cells between the groups.

Conclusion: The amnion-conjugated CS-alginate membrane, as well as CS dressing alone, could be a favorable dressing option for diabetic wounds.

Funding: The Korean government (MSIT) (No. 2021R1G1A1004556) / the Korea Medical Device Development Fund grant (Project Number: RS-2022-00140622).

EP266 THE INHIBITION OF WOUND PROTEASES BY CASEIN-DERIVED PEPTIDES

Vojtěch Pavlík[1], Aneta Čápová[2], Kristina Nešporová[1], Vladimír Velebný[1]

[1]Contipro Inc., Cell Physiology Research Group, Dolní Dobrouč, Czech Republic; [2]University of Pardubice, Department of Biological and Biochemical Sciences, Pardubice, Czech Republic

Aim: Successful healing of a wound requires a balanced activity of proteases. However, previous studies showed that chronic wounds have pathologically elevated protease activity, which destroys newly formed tissue. Also, some bacteria produce their proteases as virulence factors and thus contribute to the pathophysiology of chronic wounds. We investigated the inhibition of proteases relevant to chronic wounds by selected casein-derived peptides.

Method: Two sources of human proteinases were used: a lysate of isolated human neutrophilic granulocytes and eluates of dressings soaked with human chronic wound exudates from three patients. An isolate of chronic wound bacteria - *Serratia marcescens* – was cultivated, and the cultivation medium containing proteinase was used further. Four casein-derived peptides were synthesized and evaluated as inhibitors of the abovementioned proteases in a fluorescent assay. Subsequently, inhibitory concentrations (IC50) were calculated. Cytotoxicity of the peptides was evaluated in 3T3 mouse fibroblasts and HaCaT human keratinocytes using the MTT method.

Results / Discussion: There were marked differences in the inhibitory activity of the four peptides. While all of the peptides inhibited the protease from *Serratia liquefaciens* (IC50 ranging from 366 – 1321 μM), only two of the four peptides inhibited granulocyte proteases (IC50 147 and 1151 μM, respectively). These two peptides proved efficient against the human granulocyte proteinases and were shown to inhibit proteases contained in wound exudates of three patients. We also showed that all the tested peptides were safe and did not induce cytotoxicity in either fibroblasts or keratinocytes.

Conclusion: The proteases in chronic wound can be inhibited by casein-derived peptides, which are noncytotoxic. However, the degree of inhibition varies among the peptides.

EP267 A 3D CELL PRINTED MUSCLE TISSUE FOR FUNCTIONAL MUSCLE RECOVERY

Young Joon Jun[1]

[1]The Catholic University of Korea Seoul St. Mary's Hospital, Plastic And Reconstructive Surgery, Seoul, Korea, Rep. of South

Aim: Reported tissue engineered skeletal muscle repair constructs remodelled into a fibrotic tissue and showed limited functional improvement in volumetric muscle loss (VML) model. Therefore hydrogel-based 3D engineered muscles and the decellularized extracellular matrix (dECM) have been considered for VML treatment, but they also have shown limited efficacy. The authors established the skeletal muscle construct composed of cell-laden dECM bioink generated with a granule-based printing reservoir.

Method: To mimic the hierarchical architecture of vascularized muscles, coaxial nozzle printing method was used. Human umbilical vein endothelial cell (HUVEC) and human skeletal muscle (hSKM) were printed with the muscle and vascular dECM bioink. In vitro studies revealed well aligned and striated muscle fibers with high cell viability without hypoxia of the 3D cell printed muscle constructs. About 15x6x4mm sized vascularized skeletal muscle constructs were implanted to 40% defect of tibialis anterior (TA) muscle of Sprague-Dawley rats.

Results: After 4 weeks, the coaxial printing group showed a significantly improved TA muscle weight than other control groups and achieved recovery at 78.6 ± 3.2% of the contralateral native TA muscle. Masson's trichrome staining demonstrated very few fibrotic tissues with well-organized de novo muscle fibers in the coaxial printing group. In situ force production showed that the coaxial printing group yielded an isometric torque of 87.2 ± 3.44 N mm/kg, which corresponds to 85% of the uninjured muscle, superior than other groups.

Conclusion: Our present results suggest that a 3D cell printing and tissue-derived bioink-based approach could effectively generate biomimetic engineered muscles to improve the treatment of VML injuries.

EP268 NICORANDIL REDUCES BURN WOUND PROGRESSION BY ENHANCING SKIN BLOOD FLOW

Taehee Jo[1]

[1]*Keimyung University Dongsan Hospital, Department of Plastic and Reconstructive Surgery, Daegu, Korea, Rep. of South*

Aim: We assessed whether nicorandil, an adenosine triphosphate–sensitive K + channel opener, reduces burn wound progression in a rat comb burn model.

Method: A total of 24 rats were used. Following thermal injury, one dose of nicorandil (10 or 30 mg/kg) was administered intragastrically twice daily for 3 days. At days 1 and 3 after injury, skin was harvested for histopathological examination and protein isolation.

Results / Discussion: Rats treated with the 10-mg/kg and 30-mg/kg doses of nicorandil exhibited significantly increased tissue survival in the zone of stasis at days 1 and 3 after injury. The 10-mg/kg and 30-mg/kg nicorandil doses also significantly increased skin perfusion in the zone of stasis at days 1 and 3 after injury. At 30 mg/kg, nicorandil significantly reduced hypoxia-inducible factor-1 αexpression in the zone of stasis at day 1 after injury and reduced inflammatory responses in the zone of stasis. The latter effect included decreased polymorphonuclear neutrophil leukocyte infiltration and interleukin-1 βrelease at day 1 after injury. At 30 mg/kg, nicorandil also significantly reduced expression of nuclear factor- κB p65, a key transcriptional factor in the regulation of inflammatory mediators, in the zone of stasis at day 1 after injury.

Conclusion: Our study demonstrates that a 30 mg/kg dosing schedule of nicorandil increases tissue survival in the zone of stasis by attenuating ischemia–reperfusion injury. This effect is mediated by the enhancement of skin blood flow and reduction in the inflammatory response. Therefore, our findings suggest that nicorandil has potential clinical applications for patients with burns.

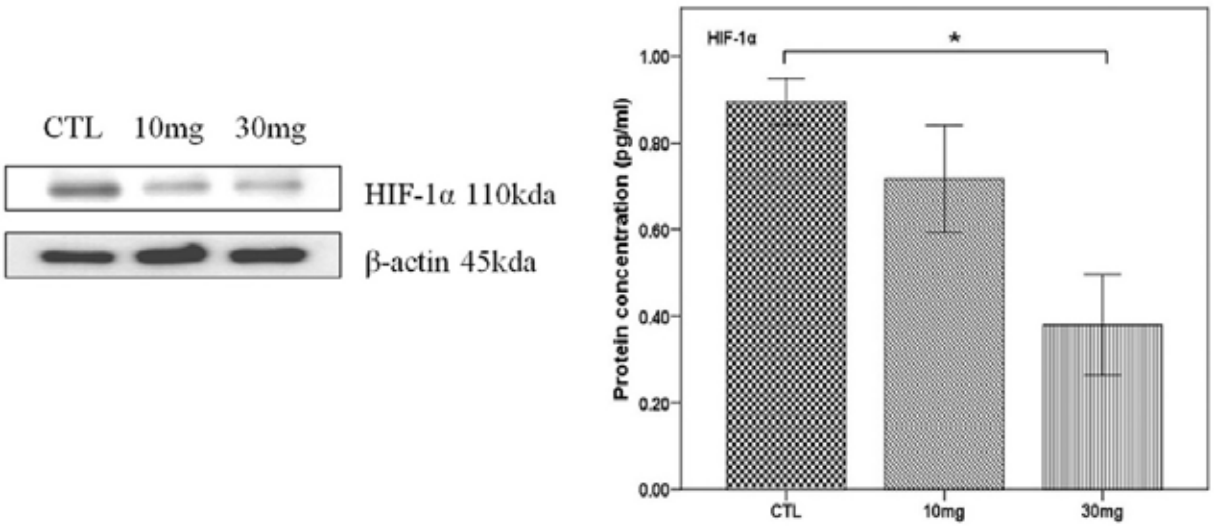


Fig 1. Levels of HIF-1a at day 1.

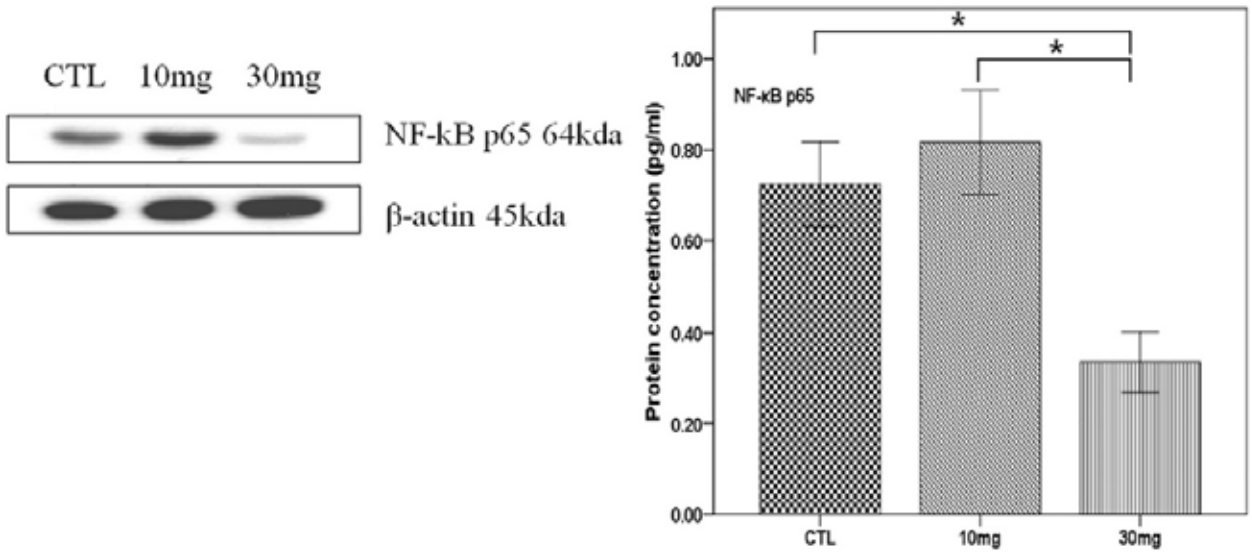


Fig 2. NF-kB p65 expression at day 1.

EP269 AN EXPERIMENTAL STUDY FOR THE PREVENTION EFFECT OF LOSARTAN ON THE PERI-IMPLANT CAPSULAR FIBROSIS IN RAT AFTER RADIATIONTHERAPY

Seung-eun Hong[1]

[1]*Ewha Womans University mokdongHospital, Plastic surgery, seoul, Korea, Rep. of South*

Aim: Although essential for some breast cancer patient's survival, radiation therapy can increase risk of capsular contracture and implant loss. Angiotensin II is known to activate the angiotensin II type 1 receptor, which stimulates fibroblast proliferation. Angiotensin-receptor blocker (ARB) has been shown to alleviate fibrosis in the heart and liver by reducing the expression of TGF-β in previous studies. This study aimed to investigate whether losartan, an ARB, is effective in reducing radiation-induced fibrosis and capsular contracture of the breast.

Method: Twenty-four adult female Sprague-Dawley rats were divided into three groups of eight. Following smooth-surfaced gel-filled implant insertion, radiotherapy was started 2 weeks post-op. Group I was the control group without radiotherapy, group II was the control group with radiotherapy, and group III was given po losartan (20 mg/kg/day) for ten weeks. All rats were sacrificed 12 weeks after surgery and the thickness of peri-implant capsule, and immunohistochemical stains were analyzed.

Results / Discussion: The mean capsule thickness in the experimental group was significantly smaller than those in control groups ($p < 0.05$). The histologic findings in the experimental group suggested a decreased inflammatory response, with minor vascularization and reduced number of mast cells and macrophages. The collagen patterns in the experimental group were loose and tidy with lower density than in the control groups.

Conclusion: We suggest that oral administration of ARB can be helpful in reducing capsule formation and preventing capsular contracture post-radiation via myofibroblast suppression and anti-inflammatory effect.

EP270 IN VITRO EVIDENCE OF PHOTOBIOMODULATION BY BLUE LED LIGHT IN WOUND HEALING

Giada Magni[1], Martina Banchelli[1], Francesca Tatini[1], Federica Cherchi[2], Elisabetta Coppi[2], Anna Maria Pugliese[2], Domenico Alfieri[3], Francesca Rossi[1]

[1]*Istituto di Fisica Applicata "Nello Carrara", Consiglio Nazionale delle Ricerche, Sesto Fiorentino, Italy*; [2]*Università degli studi di Firenze, Dipartimento di Neuroscienze, Psicologia, Area del Farmaco e Salute del Bambino, Firenze, Italy*; [3]*EmoLED srl, Sesto Fiorentino, Italy*

Aim: To study the contribution of blue LED light in primary human dermal fibroblasts (HDFs) and keratinocytes cell line (HaCaT) to inspect the involvement and the role of photobiomodulation in the skin wound healing process.

Method: A blue LED light device (410 - 430 nm, 0.69 W/cm^2) was used and six doses (3.43 – 6.87 – 13.7 – 20.6 – 30.9 – 41.2 J/cm^2) were applied on cultured cells. Cell metabolism, proliferation and cell viability were tested; the ionic membrane currents were acquired by electrophysiological recordings. Cytochrome C redox state was assessed by micro-Raman spectroscopy and the scratch-test was evaluated until 72 h from the scratch induction.

Results / Discussion: High fluences of the blue LED light significantly decrease cell metabolism in HaCaT cells. Only HDFs exhibit a metabolic biphasic dose-response of photobiomodulation: the low doses increase cell metabolism while the higher doses reduce it. The application of 41.2 J/cm^2 induces cell death only in HaCaT cells, but not HDFs after 48h from the irradiation. The 20.6 J/cm^2 applied can increase the outward potassium currents in HDFs, whereas this effect was not found in HaCaT cells; furthermore, this dose directly affects Cytochrome C only in HDFs, which changes its redox state. The same dose is able to induce cell migration in scratch test assay, which exhibits a complete closuring respect to the untreated sample.

Conclusion: our results show that the blue LED light induces photobiomodulation both in HDFs and in HaCaT cells. Scratch test assay confirms the efficacy of blue light in stimulating the wound healing process.

EP271 MEALWORM OIL (MWO) ENHANCESWOUND HEALING POTENTIAL THROUGH THE ACTIVATION OF FIBROBLAST AND ENDOTHELIAL CELLS

Kyujin Chung[1], Min-Gi Seo[1], Keuk-Jun Kim[2]

[1]Yeungnam university, College of medicine, Department of plastic and reconstructive surgery, Daegu, Korea, Rep. of South; *[2]TaeKyeung University, Department of Biomedical Laboratory Science, Gyeongsan-si, Korea, Rep. of South*

Aim: The mealworm (*Tenebrio Molitor*) and mealworm oil (MWO) have been reported to affect antioxidant, anticoagulation, anti-adipogenic and anti-inflammatory activities. However, since the function of MWO in wound healing is unclear, we investigated the effects of MWO on the wound healing process.

Method: Fibroblast cells and endothelial cells were analyzed after MWO treatment in vitro. The wound healing was investigated in vivo using five rats' wounded backs treated with MWO. We investigated the effects of MWO on the proliferation and migration of fibroblasts, the expressions of wound healing-related genes, and the activation of endothelial cells mediated by MWO-stimulated fibroblasts for angiogenesis.

Results / Discussion: The mRNA expression levels of collagen-1, alpha-smooth muscle actin, and vascular endothelial growth factor related to wound healing were increased by MWO in fibroblasts. The wound gap of the fibroblasts narrowed by MWO treatment, which means the migration of fibroblast cells was induced by MWO. Migration and tube formation of the endothelial cell was enhanced in fibroblasts treated with MWO, suggesting that MWO induces angiogenesis for wound healing. The intensity and organization of collagen deposition, expression of CD31 as a marker of vascular endothelial cells for angiogenesis, and the length of regenerated epithelium in skin wounds of rats treated with MWO were increased.

Conclusion: It confirmed that MWO promotes wound repair of skin in both in vitro and in vivo models. These results demonstrate that MWO might have the potential as a therapeutic agent for the treatment of skin wounds.

EP272 TO ISOLATE MICROVASCULAR ENDOTHELIAL CELLS SIMULTANEOUSLY WITH ADIPOSE- DERIVED STEM CELLS FROM THE HUMAN ADIPOSE TISSUE FOR WOUND REGENERATIVE CELL THERAPY

Jong Won Rhie[1], Yeon Hee Ryu[2], Yoon Jae Lee[2]

[1]Catholic University of Korea, Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South; *[2]Catholic University of Korea, Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South*

Aim: Angiogenesis and vasculogenesis are essential processes for successful tissue regeneration in tissue engineering and regenerative medicine. The adipose-derived stromal vascular fraction (SVF) is not only a source of adipose stem cells (ASC) but also a suitable source of microvascular endothelial cells because it is a rich capillary network. So, we propose a new hypothesis for isolating adipose-derived human microvascular endothelial cells (HMVEC-A) from the SVF and developed a dual isolation system that isolates two cell types from one tissue.

Method: To isolate HMVEC-A, we analyzed the supernatant discarded when ASC is isolated from the adipose-derived SVF. Based on this analysis, we assumed that the SVF adherent to the bottom of the culture plate was divided into two fractions: the stromal fraction as the ASC-rich fraction, and the vascular fraction (VF) as the endothelial cells-rich fraction floating in the culture supernatant. VF isolation was optimized and the efficiency was compared, and the endothelial cells characteristics of HMVEC-A were confirmed by flow cytometric analysis, immunocytochemistry (ICC), a DiI-acetylated low-density lipoprotein (DiI-Ac-LDL) uptake, and *in vitro* tube formation assay.

Results / Discussion: Consistent with the hypothesis, we found a large population of HMVEC-A in the VF and isolated these HMVEC-A by our isolation method. Additionally, this method had higher yields and shorter doubling times than other endothelial cells isolation methods and showed typical morphological and phenotypic characteristics of endothelial cells.

Conclusion: Cells obtained by the method according to our hypothesis can be applied as a useful source for studies such as tissue-to-tissue networks, angiogenesis and tissue regeneration, patient-specific cell therapy, and organoid chips.

EP273 ARTIFICIAL DERMIS (MATRIDERM®) AND HUMAN RECOMBINAT EPIDERMAL GROWTH FACTOR APPLICATION FOR MANAGEMENT OF CRITICAL SIZE CALVARIAL DEFECT IN RATS

Çağla Çiçek[1], Gaye Filinte[1], Kayhan Başak[2], Ahmet Kayış[3]

[1]Kartal Dr. Lütfi Kırdar Şehir Hastanesi, Plastik, Rekonstrüktif ve Estetik Cerrahi , İstanbul , Turkey; [2]Kartal Dr. Lütfi Kırdar Şehir Hastanesi, Patoloji , İstanbul, Turkey; [3]Gazi Üniversitesi Fen Fakültesi Laboratuvar Binası, Kimya, Ankara, Turkey

Aim: In plastic surgery practice, restoration of the three-dimensional structure of calvarial skeleton also serves as a framework for soft tissue reconstruction. MatriDerm® is a three-dimensional matrix scaffold of collagen and elastin that mimics the most represented organic polymer of bone matrix. Epidermal Growth Factor (EGF) was shown to affect the osteogenic potential of rat calvaria and to stimulate bone resorption in cultured fetal rat long bone shafts. The aim of this study was to investigate the effect of MatriDerm® and EGF treatment on critical sized calvarial defect which can not be healed spontaneously.

Method: Twenty-one rats were assigned to one of the following groups (n = 7 each group): sham-operated control, Matriderm, and Matriderm+EGF group. Atomic absorption spectrometry was used to determine the amount of calcium, the scanning electron microscopy was used to show the bone tissue and immunohistochemistry was used to assess trabecular bone formation, osteoblastic density, and osteopontin.

Results / Discussion: Inflamation, new bone formation, resorption and osteocyte scores, osteoblastic density, osteopontin staining scores and the mean calcium accumulation did not indicate any statistical difference between the experimental and control groups histopathologically ($p<0.05$). EGF-like ligands, among other types of molecules are well-known potent mitogens osteoprogenitors, and they exert their activity through EGFR In transgenic (deletion of the *EGFR* genomic locus) and pharmacologic (inhibition of EGFR in wild-type phenotype) mouse models, Zhang et al. indicated an anabolic role of EGFR signaling in bone metabolism.

Conclusion: It is thought that in critical sized calvarial defect application of EGF has a negative effect on bone healing, contrary to popular belief.

EP274 BIOCOMPATIBILITY ASSESSMENT OF A NOVEL ATELOCOLLAGEN FORMULATION DEVELOPED FOR SKIN AND WOUND CARE MANAGEMENT IN ONCOLOGY PATIENTS

Anna Katsioloudi[1], Demetra Wiedl[2], Danae Georghiou[2], Andreas Anayiotos[3], Costas Pitsillides[1 2], Marianna Prokopi-Demetriades[1 2]

[1]Theramir Ltd; [2]Promed Bioscience Ltd; [3]Cyprus University of Technology

Aim: Standard-of-care treatments for cancer (radiotherapy or chemotherapy) are regularly accompanied by significant dermatological complications. However, the tools available for skin care management today are extremely limited and often ineffective. To address this unmet need, a unique atelocollagen complex was developed, consisting of three different MW atelocollagen proteins designed to penetrate deep into the skin. The present study was focused on the biocompatibility and efficacy assessment of this novel formulation.

Method: The effect of the atelocollagen complex on wound healing was investigated in vitro via a cell scratch assay. An artificial wound was scraped on a keratinocyte/fibroblast cell monolayer and images were subsequently captured every 24 hr to assess migration gap length. Real-time PCR and Western blot analysis were performed to assess expression levels of COL1, COL2 and Elastin regeneration markers in treated fibroblast cells (24-72hrs). Skin and eye irritation was assessed using reconstructed human epidermis and corneal epithelium models, following OECD Test Guidelines. To assess potential tumorigenicity, the atelocollagen complex and its constituents were cultured with MDA-MB-231 breast cancer and HT-29 colorectal cancer cells.

Results / Discussion: Wound healing assay revealed that treatment with the novel atelocollagen complex accelerated wound closure as compared to negative control (no treatment) or treatment with hydrolyzed collagen peptides (currently used in many topical formulations). The assessment using reconstructed skin models confirmed safety of the complex while the expression levels of COL1, COL2 and elastin in fibroblasts were further validated via PCR/Western blot.

Conclusion: Overall, results demonstrated the biocompatibility and efficacy of the novel atelocollagen complex thus offering a promising solution for skin care and wound management in immune compromised patients living with cancer.

EP275 DIFFERENT EFFICACY OF POLYDEOXYRIBONUCLEOTIDE (PDRN) IN WOUND HEALING DEPENDING ON THE SYSTEMIC VERSUS LOCAL INJECTION OF PDRN IN A STREPTOZOTOCIN-INDUCED DIABETIC MOUSE MODEL

Kyung Ah Lee[1]

[1]*Inje University Haeundae Paik Hospital, Department of Plastic and Reconstructive Surgery, Busan , Korea, Rep. of South*

Aim: Patients with DM are vulnerable to chronic complications; peripheral neuropathy and peripheral vasculopathy of the lower extremities. It is extremely important to achieve a recovery of diabetic wounds, for which the process of healing of them should be normalized.

We assessed the efficacy of polydeoxyribonucleotide (PDRN) in accelerating the healing of diabetic wounds and its degree depending on the route of injection of PDRN in a murine model of streptozotocin (STZ)-induced diabetes.

Method: We used a murine model of STZ-induced diabetes. Two circular wounds were created on the back of mice using an 8-mm punch. The mice of the PDRN SC and the PDRN IP received a subcutaneous and an intra-peritoneal injection of PDRN, respectively. The mice of the PBS served as the control group. Then, we performed light microscopy/immunohistochemistry and western blotting analysis.

Results / Discussion: The PDRN SC or the PDRN IP showed a significantly smaller diameter of diabetic wounds (Fig. 1), a significantly greater amount of the expression of vascular endothelial growth factor (VEGF) and a significantly smaller amount of the expression of transforming growth factor-β1 (TGF-β1) as compared with the PBS ($P<0.05$). The PDRN SC showed a significantly greater amount of the expression of collagen type I & III as compared with the PBS ($P<0.01$) (Fig. 2, 3).

Conclusion: Subcutaneous or intra-peritoneal injections of PDRN promoted the healing of diabetic wounds. Moreover, its subcutaneous injections raised the degree of wound healing as compared with its intra-peritoneal injections.

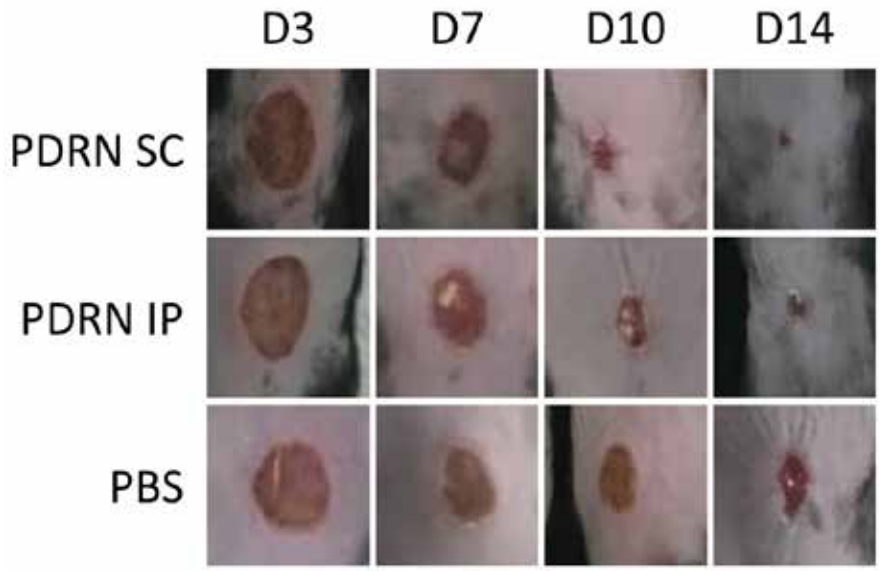


Fig 1.

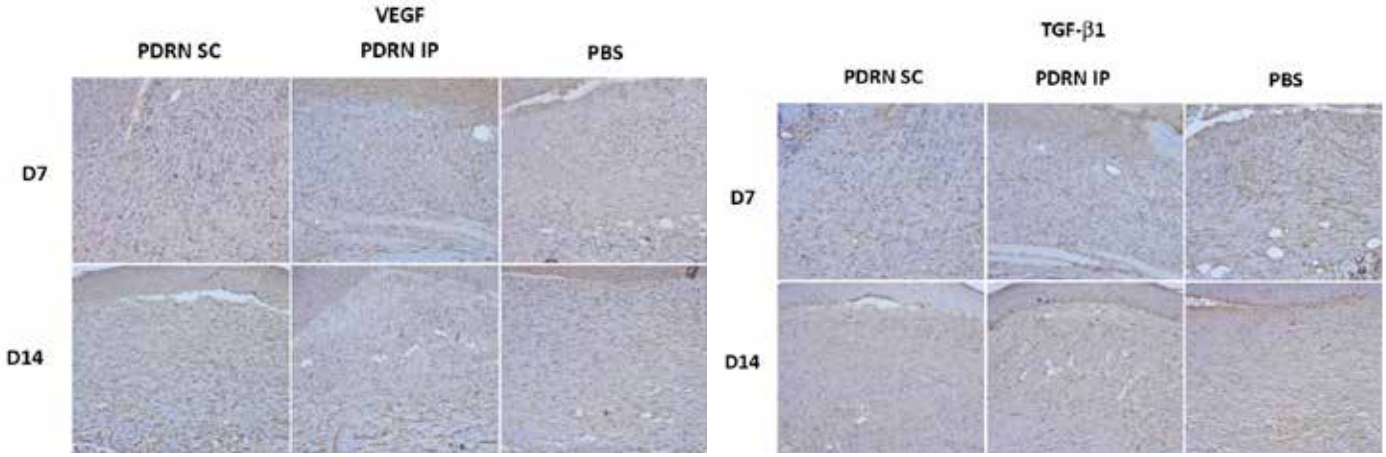


Fig. 2. Immunohistochemical findings.

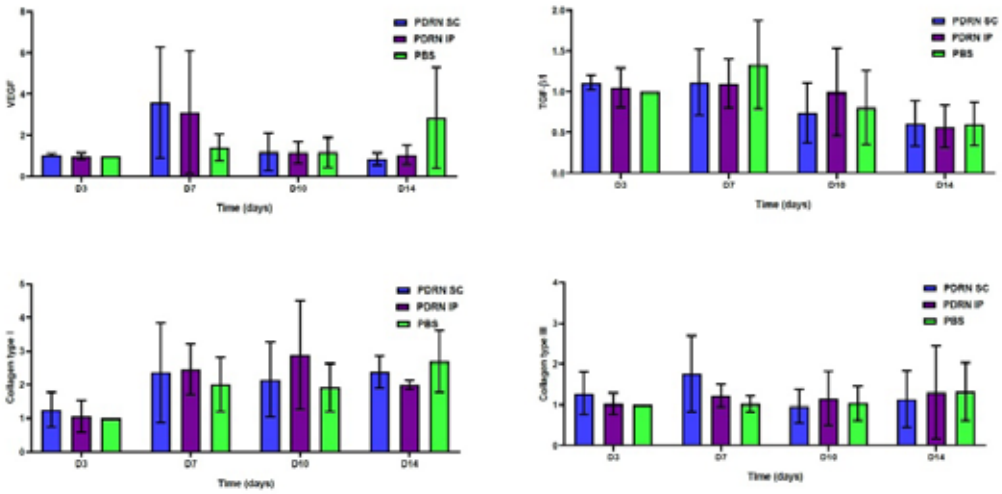


Fig. 3. Results of the western blotting analysis.

EP276 STUDYING THE EFFECTS OF AUTOLOGOUS PLATELET RICH PLASMA (PRP) ON CHANGES OF IMMUNOHISTOCHEMISTRY STAINING SPECIMENT OF CHRONIC WOUND LOCAL

Nguyen Tien Dung[1], Nguyen Lam[2]

[1]National Burn Hospital, Hanoi, Vietnam, Wound Healing Center, Hanoi, Viet Nam; *[1]National Burn Hospital, Hanoi, Vietnam, Wound Healing Center, Hanoi, Viet Nam*

Aim: This study was to evaluate the effects of Autologous Platelet Rich Plasma (PRP) on changes of immunohistochemistry staining specimen of chronic wound local.

Method: We conducted a descriptive longitudinal study at the Wound Healing Center of Vietnam National Burn Hospital, from November, 2020 to May, 2020. 30 patients with chronic wounds were enrolled in the study and were injected the autologous PRP (PRP) in peri-wound and wound bed. We assessed and recorded the changes of immunohistochemistry staining specimen of chronic wound local at the time of before therapy and at the first, second and third week of studied progress.

Results / Discussion: PRP helped to improve the wound healing process: reduced the swelling and improve the structure of extracellular matrix (ECM) at chronic wound local (increased number of fibroblast cells and neo-vascular).

Conclusion: We realized that the autologous PRP promoted the wound healing process by improvement of ECM in chronic wound site.

EP277 PLATELET REACH PLASMA VS PLATELET GEL IN TREATMENT OF CHRONIC WOUNDS

Saša Milićević[1], Milica Milićević[2]

[1]Military Medical Academy , Clinic for plastic surgery and burns, Belgrade, Serbia; *[2]Center for residence and day care for children and youth with disabilities, Belgrade, Serbia*

Aim: Good circulation is very important factor in the healing process of chronic wounds. Besides, the use of platelet reach plasma (PRP), or platelet gel, has an important role in the treatment of chronic wounds.

Method: Fifteen patients with chronic wounds were divided into three groups: five patients were treated with PRP, another five patients were treated with platelet gel, and the rest of five patients were treated with standard surgical dressing. All the patients were treated in the period of three months. Biopsy of the subcutaneous tissue was performed before, during, and after the treatment.

Results / Discussion: On the basis of biopsy findings, an increase in the number of newly formed buds of the blood vessels was confirmed, which was in correlation with the clinical picture. The highest number of newly formed buds of the blood vessels was found in the patients who were treated with PRP, and the smallest number of newly formed buds of the blood vessels was found in the patients who were treated with standard surgical dressing.

Conclusion: Formation of adequate granulation tissue in the patients with chronic wounds depends of the good local microcirculation, which good be improved using PRP and platelet gel.

EP278 APPLICATION OF 3D-PRINTED SEQUENTIAL DRUG RELEASING PATCH IN IN-VIVO SILICONE BREAST RECONSTRUCTION MODEL: A PRELIMINARY ANIMAL STUDY

Hyun Ho Han[1]

[1]Asan Medical Center, Plastic Surgery, Seoul, Korea, Rep. of South

Aim: In implant-based breast reconstruction, infection is mainly concerned at the early stage and capsular contracture at the late stage. In this study, we tried to reduce complications by applying a sequential drug release patch manufactured through 3D-printing to an animal model.

Method: Nineteen Sprague-Dawley rats were divided into 3groups. 2x2x0.7cm^3 smooth silicone implants were placed pre-muscular pocket. The patch was 3D-printed using decellularized extracellular matrix(dECM) from porcine blood vessels and methacrylate hyaluronic acid(HAMA), and gentamycin was added to the outer layer and triamcinolone was added to the inner layer to be released separately for 2 weeks each.(Figure 1) In group1(n=7), only the implant was inserted, and in group2(n=7), 2x10^8 colony-forming unit of *S.epidermidis* was injected after implantation. Group3(n=5) injected bacteria after implantation and placed a 3D-printed patch on the ventral side. After 8 weeks, rats were sacrificed and histological and immunohistochemical analysis was performed. (Figure 2)

Results / Discussion: On histological evaluation, the capsule was thinner on group1(105.71±35.92μm, *p=0.001*), group3(274.29±52.37μm, *p=0.006*) than group2(274.29±52.37μm). The levels of α-SMA and TGF-β were reduced in group3(area fraction of α-SMA was 24.25±7.22%, 36.32±4.62%, 8.81±3.89%, and TGF-β was 12.91±1.18%, 26.84±6.95%, 4.94±1.49%, in group1,2,3, respectively, *p<0.01*). In group 3, the α-SMA level was lower in the ventral side(5.73±1.37%) where the patch was located than in the dorsal side(11.90±2.84%, *p=0.029*). (Figure 3 & 4)

Conclusion: The drug release patch help reduce early infection and late fibrosis. Due to the different timing of drug release, the two drugs did not conflict during the postoperative period. Further studies on the drug release range and concentration over time are needed.

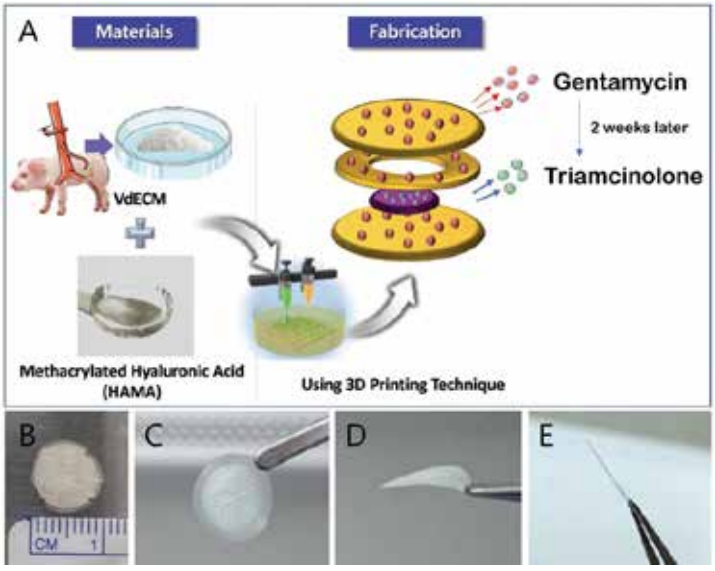


Figure 1.

Figure 2.

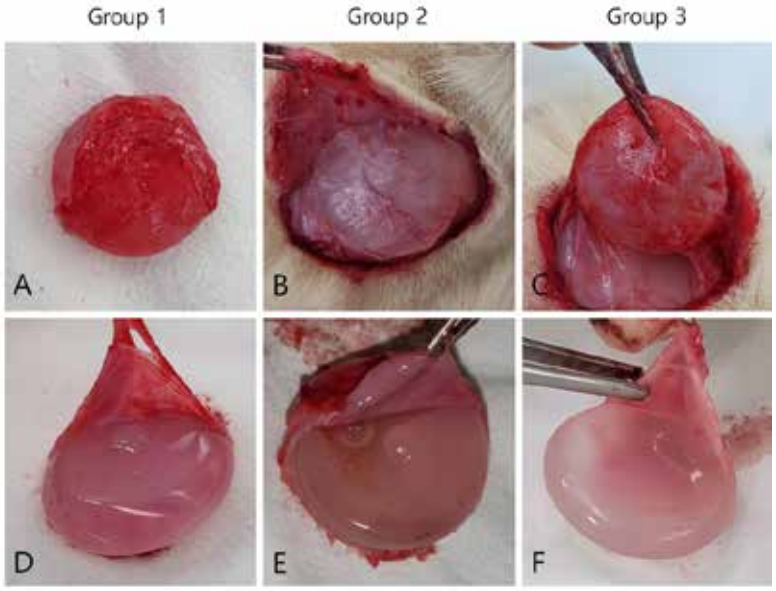


Figure 3.

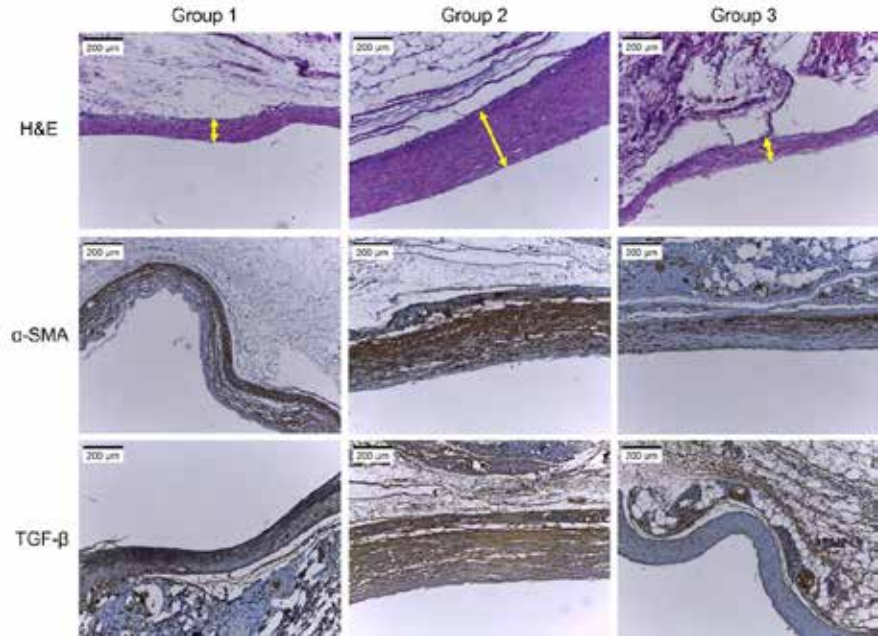


Figure 4.

EP279 THE DIFFERENCE IN THE OCCURRENCE OF CAPSULAR CONTRACTURE ACCORDING TO THE CHARACTERISTICS OF THE TISSUE IN CONTACT WITH THE BREAST IMPLANT IN AN IRRADIATED RAT MODEL

Hyun Ho Han[1]

[1]*Asan Medical Center, Plastic Surgery, Seoul, Korea, Rep. of South*

Aim: In this study, it was hypothesized that the capsule formation varies according to the radiation dose in the muscle tissues; chest wall tissues, including the ribs; and acellular dermal matrices (ADM) that are in contact with the silicone implant.

Method: This study consists of 20 SD rats that underwent submuscular plane implant reconstruction using ADM.(Figure 1) They were divided into four groups: Group 1 as the un-radiated control (n = 5), Group 2 with non-fractionated radiation in a dose of 10 Gy (n = 5), Group 3 with non-fractionated radiation in a dose of 20 Gy (n = 5), and Group 4 with fractionated radiation in a dose of 35 Gy (n = 5). Three months after surgery, hardness was measured. Moreover, the histology and immunochemistry of the capsule tissues of the ADM, muscle tissues, and chest wall tissues were analyzed.

Results / Discussion: As the radiation dose increased, the silicone implant became harder. But no significant difference in capsule thickness according to the radiation dose was observed. (Figure 2) Based on the tissue in contact with the silicone implant, ADM has a thinner capsule thickness compared with the muscle tissues and less inflammation as well as less neovascularization compared with the other tissues. (Figure 3)

Conclusion: This study described a new rat model of clinically relevant implant-based breast reconstruction using a submuscular plane and ADM with irradiation. Therefore, it was confirmed that the ADM in contact with the silicone implant, even after irradiation, was protected from radiation compared with the other tissues.

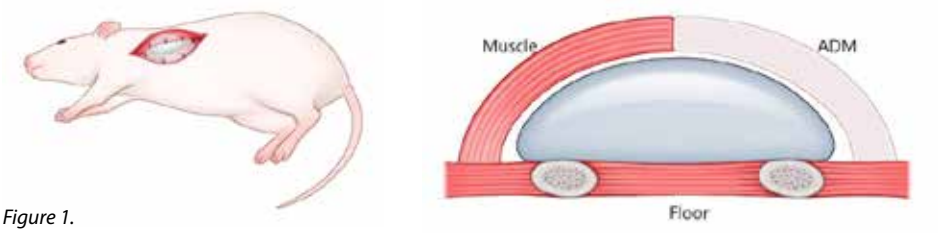


Figure 1.

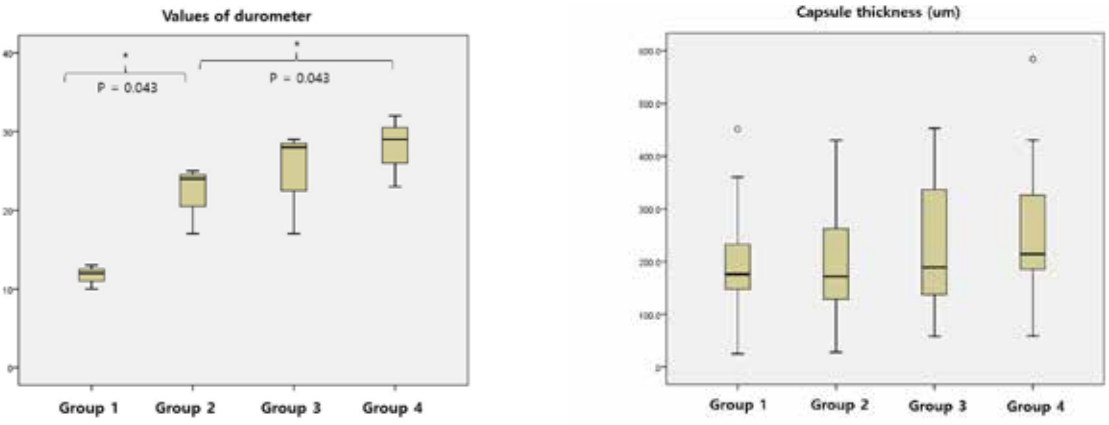


Figure 2.

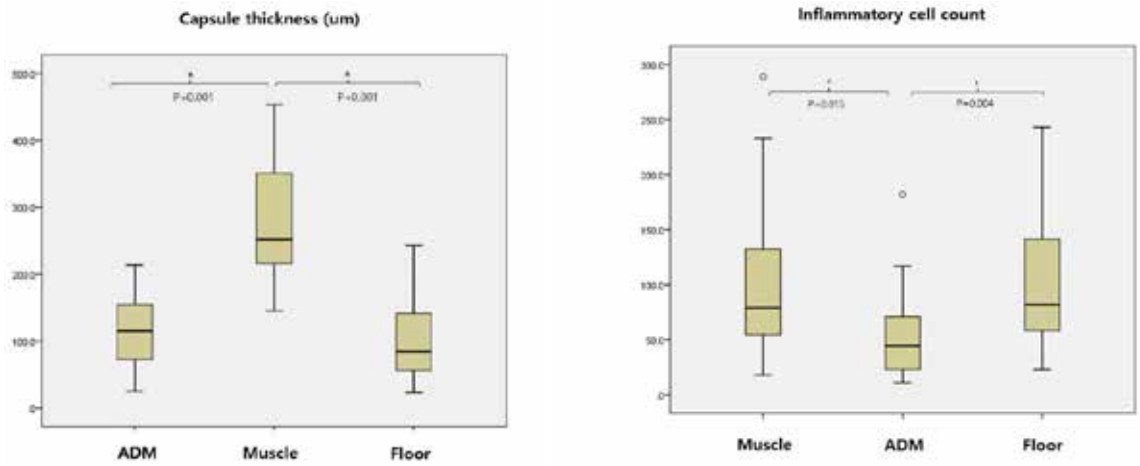


Figure 3.

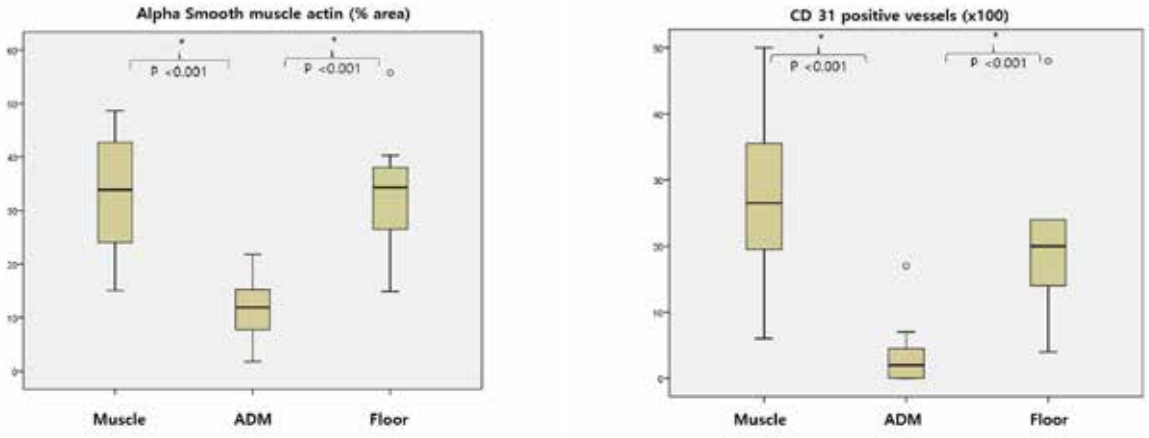


Figure 4.

EP280 EVALUATION OF INSULIN HYDROGEL ON WOUND HEALING

Flávia Zanchetta[1], Thais Prado[1], Beatriz Barbieri[1], Eliana Pereira[1], Pedro Fardim[2], Pieter De Wever[2], Maria Helena Melo Lima[1]

[1]University of Campinas, School of Nursing , Brazil; [2]Katholieke Universiteit Leuven, Chemical Engineering for Health Care

Aim: To characterize and evaluate the Insulin Gel's *in vitro* toxicity and wound healing potential in a wound excisional model. **Method:** The insulin was evaluated in terms of physical characteristics, vitro toxicity and in vivo wound healing. The Insulin Gel's cytotoxicity on human dermal keratinocyte (HaCat) cells was studied by 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. The wound healing properties of Insulin gel were evaluated through an in vivo excisional wound model using C57BL/6JUnib mice. The animals were divided in three experimental groups: Insulin Gel, Placebo Gel, and Saline. Wound photographs were taken every 3-4 days and the wound contraction was calculated by the ImageJ® Software. The histopathological characteristics were analyzed on day 7th, 14th and 20th post wound by Hematoxilin and Eosin (H&E) staining. **Results / Discussion:** MTT assay revealed the HaCaT cells treated with different concentrations of Insulin Gel showed proliferative effects after 24 hours of exposure. The wound-healing rate closure was higher on Insulin group compared to other groups at 3, 10, 7, 14 days after injury. Histological evaluation showed that on the 7th day after injury, the Insulin group showed less inflammation and more organized granulation tissue compared to other groups. On the 14th day after injury, the tissues had similar characteristics in the three groups. On the 20th day after injury, all groups showed complete re-epithelialization, but the INS group showed hair follicle growth and a smaller scar area. **Conclusion:** The results showed suggest that Insulin Gel has potential for skin wound repair.

EP281 CONTROLLED PARENTERAL DELIVERY SYSTEM OF LINOLENIC ACID MODULATES FACTORS RELATED TO CELL SURVIVAL AND IMPROVES THE HEALING PROCESS IN HYPERGLYCEMIC ANIMALS

Thaís do Prado[1], Beatriz Barbieri[1], Flávia Zanchetta[1], Maria Helena Lima[1], Eliana De Araujo[1]

[1]University of Campinas, School of Nursing

Aim: To evaluate the effects of a controlled parenteral delivery system of linolenic acid on wound healing. **Method:** C57BL6J mice were divided into 2 groups. Diabetic group, received streptozotocin intraperitoneally and Control group that received a vehicle. In the fourth week, capillary blood glucose, glucose and insulin tolerance test were performed. Then, both groups were divided into 4 groups, for the insertion of an osmotic pump in the interscapular region, for continuous infusion of ALA 5mMol\Kg\24 in the intervention and vehicle groups. Two excisional wounds were made in the dorsal region. The healing was followed by macroscopic and histological evaluation and by modulation of gene expression, on days 3, 7 and 12 after injury. Groups were compared using Student's t-test and two-away ANOVA. **Results / Discussion:** Diabetic group showed lower cell density and disorganization of collagen fibers. Reduction of neuronal cells in the dermis and of BDNF, greater expression of the Ngfr. In intact skin, there was modulation of Tnf-α, Il-6, Il-10, Igf-1 and F4\80. Treatment with ALA for 7 days, modulated genes for neuronal survival and neurogenesis in the skin (Pecam, Stat3, Vim, Fgf21 and Sox10) associated with increased Tgf-β1, while in nomoglycemic mice, these effects were not observed. There was an improvement in the healing process in diabetic mice, evidenced by a 20% decrease in the wound area compared to the control. **Conclusion:** ALA modulates genes involved in neurogenesis and granulation tissue homeostasis, in diabetic animals, but it did not modulate this process in normoglycemic animals.

EP282 ALPHA-LINOLENIC FATTY ACID CAN ALTER COLLAGEN DEPOSITION AND TGFB1 EXPRESSION IN SCAR TISSUE

Thais Paulino do Prado[1], Aline Rosa Maia[1], Flavia Cristina Zanchetta[1], Joseane Morari[1], Maria Helena Melo Lima[1], Licio Augusto Velloso[1], Eliana Pereira de Araújo[1]

[1]*University of Campinas, Brazil*

Aim: To describe the alpha-linolenic (ALA) fatty acid effect on collagen deposition and tgfb1 modulation during wound healing.

Method: Animal Ethics Committee (5635-1/2020). C57BL/6J isogenic mice were randomized in a diabetic group that received a daily intraperitoneal application, for 5 consecutive days, of streptozotocin (STZ) (50mg/kg) 70 mg/dL, in citrate buffer, and a non-diabetic group treated with citrate buffer. After the fourth week, fasting capillary blood glucose and metabolic characterization were performed. Animals were submitted to an insertion of an osmotic pump in the dorsal interscapular region, for continuous infusion of ALA 5mMol/kg/24h in the intervention groups, and ALA dilution vehicle in the control group. Two dorsal wounds were made with a punch (6mm). The wound healing process was evaluated by macroscopic, histological, gene, and protein modulation, on days 3, 7, and 12 post-wound. Groups were compared using two-way ANOVA ($p \leq 0.05$).

Results / Discussion: The continuous supplementation with ALA fatty acids by 7 days before the injury can accelerate the wound healing processes and alteration de collagen deposit only in hyperglycemia conditions, to similar neuronal dopaminergic gene expression in skin. These changes occur concomitantly with de tgb1 gene modulation. Reducing the closer time is a therapeutic goal of wound healing care. The osmotic pump is a promissory method for chronic wounds therapeutic by minimizing the no adhesion of treatment. The TGFβ pathway is attenuated in nonhealing wounds, and its modulation may lead to the development of novel therapeutic advances for chronic wounds.

Conclusion: Alpha-linolenic fatty acid improves de wound healing by tgfb1 modulation.

EP283 A NOVEL METHOD FOR STUDYING POLYMICROBIAL WOUND BIOFILMS IN VIVO

Mia Hanna[1], Vanessa Vu[1], Nikole Siegmund[1], Lindsay Poland[1], Mitchell Sanders[1]

[1]*Alira Health, Product Development Lab, Framingham, United States*

Aim: Although bacterial biofilms are better understood in the oral care setting, we have a lot to learn about biofilms in wound care. It is well understood that Wound biofilms are polymicrobial and can stall the inflammatory phase of wound healing. Wound biofilms are densely packed with an exopolysaccharide matrix (EPS). The EPS is a complex mixture of polysaccharides, proteins, DNA, RNA, and lipids. Furthermore, the biofilm is a deep-layered community of microbes, many of which are senescent deep in the biofilm, making them resistant to an antibiotics and antimicrobials. Advances in antibiofilm research have been slow to progress in wound care, because the is no ideal model system available *in vitro* and *in vivo* for high throughput screens (HTS).

Method: Our lab has developed a 3D printed polymicrobial biofilm that is resistant to antibiotic and antimicrobial treatments and has less than 2% standard deviation among replicates. This 3D printed model system is ideal for testing compound libraries to destroy bacterial biofilms *in vitro* and in this study, we demonstrate results are reproducible *in vivo* in a diabetic mouse delayed healing model system. The 3D biofilms have 10^7 CFU per 2 mm disks of *S. aureus* and *P.* aeruginosa which can be implanted and absorbed into a wound. We have developed a battery of fluorescent biomarkers to measure the integrity of the biofilm as well as the live/dead ratio of the bacteria which correlates well with sonicated biopsies of the tissue samples.

Results / Discussion: Based on analysis of fluorescence using ImageJ, the 3D printed biofilms have an average relative fluorescent intensity of 152,826 $\pm$ 1,752 while the pig explants have a comparable average signal but a high standard deviation of 18.2% (124,011$\pm$ 22,604). The 3D printed biofilms have a *p* value of 0.0259 using a two-sample unequal variance *t*-test suggesting that the new model system is superior to the classic pig explant model.

Conclusion: Our evidence suggests that these new 3D printed biofilms are robust, reproducible, and significantly translatable to studying complex biofilms in preclinical models and actual biofilms in clinical settings. With this foundational work we hope to accelerate drug discovery for polymicrobial biofilms to provide patents with better outcomes in chronic wound healing.

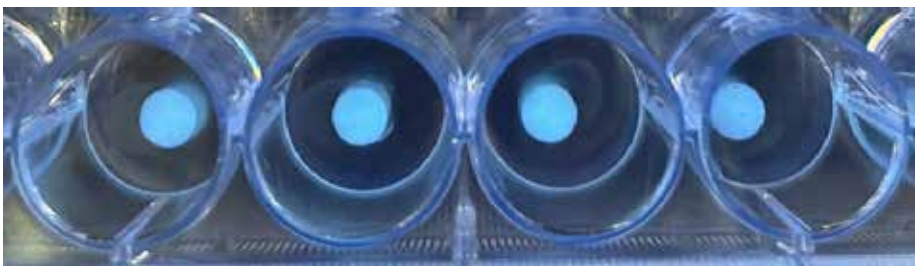


Figure 1. Image of 3D Printed Biofilms

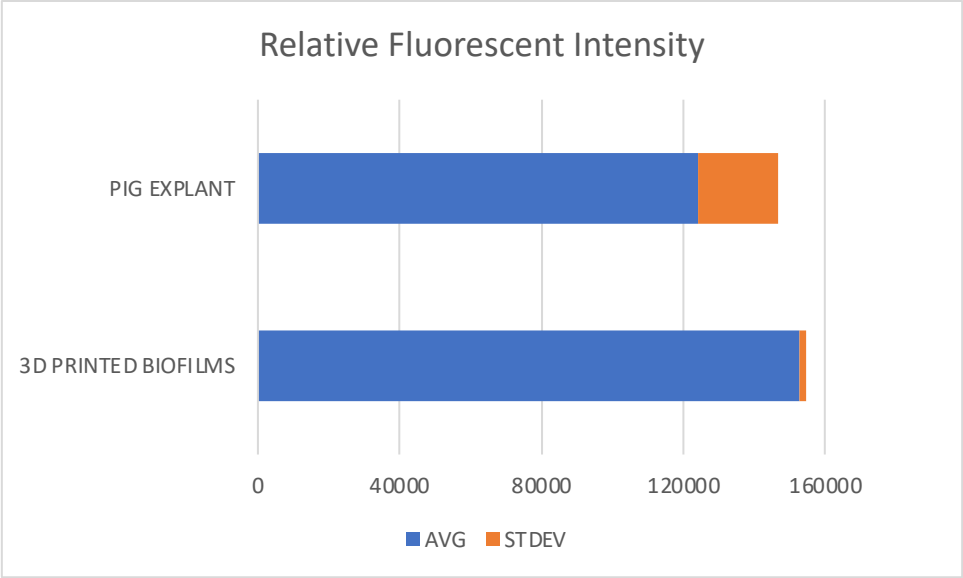


Figure 2. Analysis of Biofilm GFP-Pseudomonas aeruginosa Intensity

References:

1 PL, Sampson EM, Progulske-Fox A, Jin S, Antonelli P, Schultz GS. Development of a novel ex vivo porcine skin explant model for the assessment of mature bacterial biofilms. Wound Repair Regen. 2013 Sep-Oct;21(5):704-14. doi: 10.1111/wrr.12074. Epub 2013 Aug 8. PMID: 23927831.

2 Percival SL. Restoring balance: biofilms and wound dressings. J Wound Care. 2018 Feb 2;27(2):102-113. doi: 10.12968/jowc.2018.27.2.102. PMID: 29424642.2 Daeschlein G. Antimicrobial and antiseptic strategies in wound management. Int Wound J. 2013 Dec;10 Suppl 1(Suppl 1):9-14. doi: 10.1111/iwj.12175. PMID: 24251838; PMCID: PMC7950476.

3 Clinton A, Carter T. Chronic Wound Biofilms: Pathogenesis and Potential Therapies. Lab Med. 2015 Fall;46(4):277-84. doi: 10.1309/LMBNSWKUI4JPN7SO. PMID: 26489671.

4 Mancl KA, Kirsner RS, Ajdic D. Wound biofilms: lessons learned from oral biofilms. Wound Repair Regen. 2013 May-Jun;21(3):352-62. doi: 10.1111/wrr.12034. Epub 2013 Apr 1. PMID: 23551419; PMCID: PMC3648594.

5 Mulcahy LR, Isabella VM, Lewis K. Pseudomonas aeruginosa biofilms in disease. Microb Ecol. 2014 Jul;68(1):1-12. doi: 10.1007/s00248-013-0297-x. Epub 2013 Oct 6. PMID: 24096885; PMCID: PMC3977026.

6 Biofilm Management in Wound Care. Sen CK, Roy S, Mathew-Steiner SS, Gordillo GM. Plast Reconstr Surg. 2021 Aug 1;148(2):275e-288e. doi: 10.1097/PRS.0000000000008142. PMID: 34398099

7 Yang Q, Phillips PL, Sampson EM, Progulske-Fox A, Jin S, Antonelli P, Schultz GS. Development of a novel ex vivo porcine skin explant model for the assessment of mature bacterial biofilms. Wound Repair Regen. 2013 Sep-Oct;21(5):704-14. doi: 10.1111/wrr.12074. Epub 2013 Aug 8. PMID: 23927831.

8 Skogman ME, Vuorela PM, Fallarero A. A Platform of Anti-biofilm Assays Suited to the Exploration of Natural Compound Libraries. J Vis Exp. 2016 Dec 27;(118):54829. doi: 10.3791/54829. PMID: 28060302; PMCID: PMC5226461.

EP284 LIGNIN-COBALT NANO-ENABLED SUPRAMOLECULAR HYDROGEL FOR TREATING CHRONIC WOUND

Giulia Crivello[1], Giuliana Orlandini[1], Gala Morena[2], Clara Mattu[1], Monica Boffito[1], Tzanko Tzanov[2], Gianluca Ciardelli[1]

[1]Politecnico di Torino, Torino, Italy; [2]UPC Terrassa, Terrassa, Spain

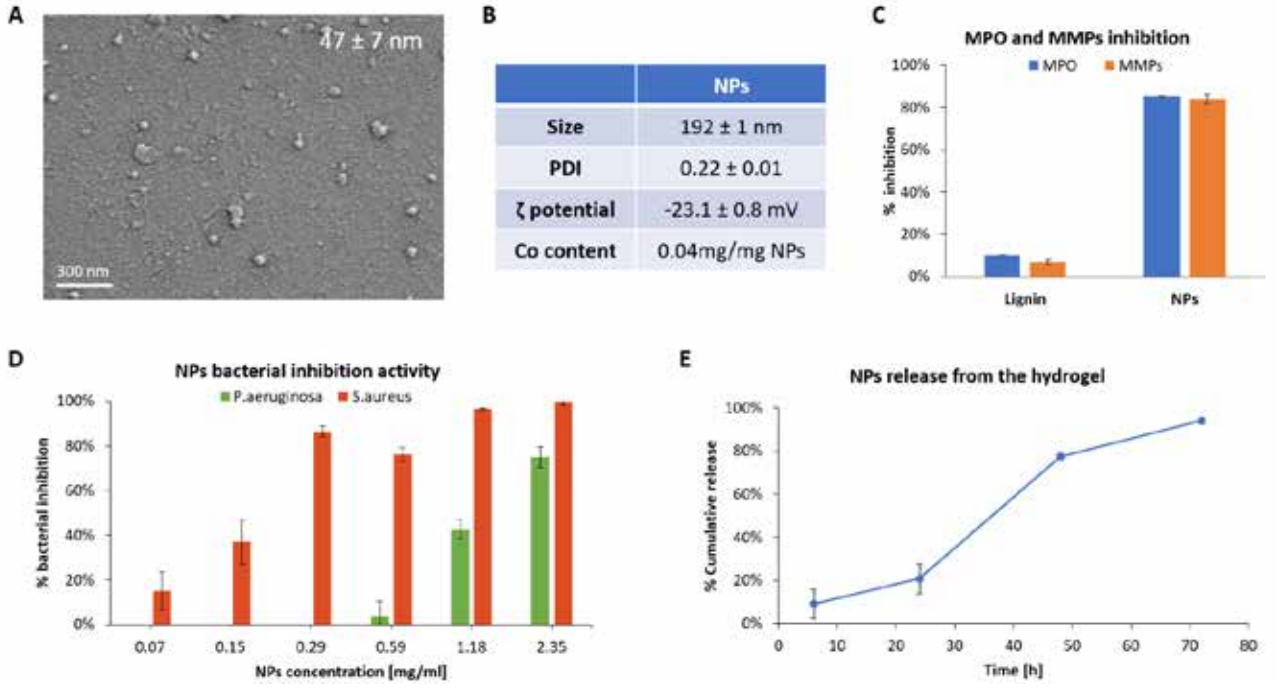
Aim: Infected chronic wounds (CWs) are a rising concern in the health care system. In this context, innovative treatments able to control bacteria burden and reduce inflammation are highly required. In particular, the levels of myeloperoxidase (MPO) and matrix metalloproteases (MMPs) are usually high and should be kept under control to stimulate tissue regeneration. In this contribution, we report the design of an injectable formulation bearing ad-hoc designed nanoparticles (NPs) with antimicrobial, antioxidant, and MPO/MMP inhibitor activities.

Method: A dual-function system was developed comprising an injectable supramolecular hydrogel, based on a custom-made polyurethane and cycoldextrines, loaded with NPs incorporating cobalt (Co) as antimicrobial agent, phenolated lignin as antioxidant and MPO and MMPs inhibitor.

The NPs were physico-chemically characterized, and their antibacterial properties and capacity to inhibit MMPs and MPO evaluated. Then, the NPs were integrated inside the hydrogel and the system was studied through stability tests and rheological measurements. The NPs release kinetics from the gel was also investigated.

Results: The NPs showed an appropriate size to interact with the bacterial membrane, and the presence of Co was confirmed and quantified (Figure 1A-B). They showed inhibitory activity against both MPO and MMPs (Figure 1C) and bacterial inhibition in particular against Staphylococcus aureus (Figure 1D). The release of the NPs from the hydrogel was sustained over time without burst release (Figure 1E). The formulations exhibited stability up to 3 days in water media, self-healing properties and a fully developed gel state, as determined by rheology.

Figure 1. NPs characterization. (A) NPs observed through scanning electron microscopy (SEM). (B) Table summarizing the NPs characteristics. Size, polydispersity



index (PDI) and ζ potential were obtained through dynamic light scattering analysis (DLS). Cobalt content was measured through inductively coupled plasma-mass spectrometry (ICP-MS). (C) NPs capacity to inhibit MPO and MMPs compared with lignin alone. (D) NPs bacterial inhibition obtained through Minimum Inhibitory Concentration (MIC) assay. (E) NPs release from the hydrogel.

Conclusion: Overall, the described results are encouraging towards the design of innovative approaches for CW treatment, considering that the developed system is composed of antibiotic-free NPs with activity against both Gram-positive and Gram-negative bacteria. Moreover, lignin is a natural material rich in phenols with high antioxidant activity. The NPs production process is solvent free and simple. The integration inside the hydrogel allows control of the NPs release and the hydrogel injectability facilitate its application on the wound bed.

EP285 EFFECT OF MORTALIN ON SCAR FORMATION IN HUMAN DERMALFIBROBLASTS AND A RAT INCISIONAL SCAR MODEL

WonJai Lee[1], Bok Ki Jung[1]

[1]Severance Hospital, Yonsei University, Plastic & Reconstructive Surgery, Korea, Rep. of South

Aim: Wound healing is a complicated cascading process; disequilibrium among reparative processes leads to the formation of pathologic scars. Herein, we explored the role of mortalin in scar formation and its association with the interleukin-1 receptor using in vitro and in vivo models.

Method: To investigate the effects of mortalin, we performed an MTT cell viability assay, qRT-PCR, and Western blot analyses, in addition to immunofluorescence and immunoprecipitation studies using cultured fibroblasts. A rat incisional wound model was used to evaluate the effect of a mortalin-specific shRNA (dE1-RGD/GFP/shMot) Ad vector in scar tissue.

Results / Discussion: In vitro, the mortalintreated human dermal fibroblast displayed a significant increase in proliferation of type I collagen, α-smooth muscle actin, transforming growth factor-β, phospho-Smad2/3-complex, and NF-κB levels. Immunofluorescence staining revealed markedly increased mortalin and interleukin-1α receptor protein in keloid tissue compared to those in normal tissue, suggesting that the association between mortalin and IL-1α receptor was responsible for the fibrogenic effect. In vivo, mortalin-specific shRNA-expressing Ad vectors significantly decreased the scar size and type-I-collagen, α-SMA, and phospho-Smad2/3-complex expression in rat incisional scar tissue.

Conclusion: Thus, dE1-RGD/GEP/shMot can inhibit the TGF-β/α-SMA axis and NF-κB signal pathways in scar formation, and blocking endogenous mortalin could be a potential therapeutic target for keloids.

EP286 ACELLULAR FISH SKIN GRAFTS FOR THE TREATMENT OF CHRONIC LEG ULCERA DUE TO DIFFERENT ETIOLOGIES

Philip Düppers[1]

[1]University Hospital Zurich, Department of Vascular Surgery, Zurich, Switzerland

Aim: To present our experience with acellular, meshed fish skin grafts for the treatment of chronic leg ulcera caused by different etiologies.

Method: Retrospective case series of ambulatory and stationary patients with chronic leg ulcera caused by arterial, venous or unusual pathologies after applying fish skin grafts as a single-center experience at our university hospital. Decellularized intact fish skin grafts were meshed and applied once or multiple times to accelerate wound healing after prior wound debridement. Grafts were covered with tulle gras and absorbing dressing and the first complete change was performed after 5-7 days. Patients were followed up frequently until complete wound closure was achieved.

Results / Discussion: Up to date, 8 patients were treated with fish skin grafts (updated and complete data will be presented later, if accepted). Wound etiologies included chronic venous insufficiency (n=5), peripheral arterial occlusive disease (n=2) and fasciitis necroticans (n=1). Wound granulation was accelerated in most cases. No adverse effects were observed. Pain relieve was reported by some patients after application. Final wound closure was supported by mesh skin grafting in 1 patient.

Conclusion: Meshing and application of acellular fish skin grafts in chronic leg ulcers of different etiologies is simple and safe. Preliminary clinical results are promising in terms of wound granulation and accelerated wound healing.

E-POSTER SESSION: LEG ULCER 2

EP287 THE VERSATILE USE OF A NOVEL DUAL COMPRESSION SYSTEM (DCS)* IN THE MANAGEMENT OF LIMB EDEMA ORIGINATING FROM SEVERAL PATHOPHYSIOLOGIES

Debashish Chakravarthy[1], Serge Bohbot[2]

[1]Urgo Medical, Medical Affairs, Fort Worth, United States; [2]URGO Recherche Innovation et Développement, Laboratoires URGO, France

Aim: Compression, the gold standard for venous insufficiency is underutilized on other edematous conditions, particularly diabetes/diabetic ulcer, but also trauma, surgical dehiscence, and mixed venous arterial diseases.

An engineered compression therapy combining long and short stretch bandaged can treat many types of edema of variable origin including diabetes and DFUs. This study aims to demonstrate versatile use of compression in a busy wound center.

Method: Over a 30 day period, every application of DCS was recorded, with primary /relevant secondary diagnosis indicating compression use.

Results / Discussion: 1,090 patient visits occurred from 334 patients, 199 (60%) of who obtained compression at their first visit. 942 total compression bandages were done over 30 days (248 on 199 patients on the first day of compression).

Venous Insufficiency (Ulcer + No Ulcer) 113, DFU 41, trauma 23, orthopedic dehiscence 15, diabetic amputation/dehiscence 4, and BKA 3 were the etiologies presented by the 199 that required compression upon admission. Of these, 102 (51%) had diabetes.

Conclusion: The DCS product is quite versatile. It can treat several underserved edematous conditions e.g diabetes or dehiscence. Venous insufficiency dominated (56% admissions), DFU edema was the indication in 20% of admits. Dehiscence/trauma/amputation edema were also successfully treated (smaller in proportion). For diabetes, detailed vascular consideration was made for every patient. With this protective approach, it is noteworthy that 51% of our admitted patients were successfully treated with compression with no complications seen. Informed clinical practice (vascular diagnosis without exception) and the use of an engineered compression system can treat the diabetic population which is often untreated for reasons of medical concern related circulation impairment caused by compression.

EP289 THE USE OF A NOVEL TWO- LAYER COMPRESSION BANDAGE SYSTEM TO ACHIEVE THE DESIRED PRESSURE IN HUMAN SUBJECTS

Debashish Chakravarthy[1]

[1]Urgo Medical, Medical Affairs, Fort Worth, United States

Aim: Compression bandaging is variable on technique, operator experience, overlap, applied tension and bandage properties. We assessed the average nurse's ability to reach 40mmHg target with two bandages. One, a Traditional Two Layer Bandage (TLB), the second, a Dual Compression System/DCS incorporating a pressure guide and long+short stretch components.

Method: Skilled nurses bandaged calves of six healthy volunteers five times. Training on bandaging, (COVID 19 time), was remote. Interim analysis showed one nurse, proficient in TLB was not applying DCS correctly. She was then trained in person. Pressure measured at 10 cm above the medial malleolus. Consistency/proximity to target pressure were compared between nurses, subjects, position. ANOVA was used at $p< 0.05$.

Results / Discussion: DCS/TLB values were 40±2 and 36±2 mmHg for resting/standing positions combined. DCS values were close to target pressure ($p=0.89$). TBL was significantly different from target ($p< 0.05$). DCS achieved 38% of values in the ranges of 40±5 mm, and TBL achieved 30%, a lower rate of accuracy.

Conclusion: Successful 40 mm achievement is operator dependent and training dependent, even if visual aids on the bandage may be present. Training in person is more effective. One of the nurses had extensive experience using TLB* and achieved higher than optimal values with DCS*, but reached compliance within person training. Nurses naïve to either system did better with DCS*. Taken together, the results show that the pressure guide for the DCS* does allow a more accurate application of target pressure than a system without such visual indicators. But for clinicians who are too familiar with one product may still require more intense training. This finding is counterintuitive.

EP290 IN VITRO PROPERTIES OF TWO COMPRESSION SYSTEMS ON CRITERIA WHICH MAY IMPACT THE QUALITY OF LIFE OF PATIENTS AND THE ACCEPTABILITY OF HEALTHCARE PROFESSIONALS

Debashish Chakravarthy[1], Serge Bohbot[2]

[1]Urgo Medical, Medical Affairs, Fort Worth, United States; [2]URGO Recherche Innovation et Développement, Laboratoires URGO, France

Aim: Despite Compression therapy representing the cornerstone of venous leg ulcer (VLU) treatment, a lack of patient's concordance is often observed due to some factors such as thickness of the system, heat sensation, itchiness, etc. induced by compression systems.

In vitro tests on two compression systems, i.e. a Multi (2) layered bandage consisting of a short-stretch bandage and a long-stretch bandage, Dual Compression System or DCS versus a 100% short-stretch two-layer bandage system (2LB)were performed to compare them on some criteria which may impact concordance of patients or the acceptability of the caregivers.

Method: Thickness of the compression system (mm), breathability (measurement of the air flow passing through the system), stickiness to sheets (evaluation of the friction of both systems on sheets) and absorption level of the first bandage of each system (measured by weighing after immersion in a saline solution (NF-EN13726-1) were assessed through 5-10 repeated measurement undertaken on 3 different batches and healthy volunteers.

Results / Discussion: Results show that the DCS system was found to be thinner (3.2mm vs 5.1mm), and more breathable than the short-stretch multi-layer system, 2LB, (709 vs 390 L/m^2/s). The DCS did not stick to the sheets compared to the short-stretch multi-layer system. The first bandage of the multicomponent system scored higher when absorbing fluids (2536 vs 855 g/m^2)

Conclusion: The DCS system, containing both short and long stretch bandages, has higher *in-vitro* scores on important criteria vis-a-vis a pure short-stretch 2-layer bandage (2LB). These may positively impact on quality of life in favor of DCS of patients presenting with a VLU, thus leading to better concordance to this compression system.

EP291 THE USE OF NOVEL DUAL COMPRESSION SYSTEM (DCS) IN MANAGING EDEMA AND VENOUS LEG ULCERS IN PATIENTS WITH DIABETES: RESULTS OF A COMPARATIVE POST-HOC ANALYSIS

Debashish Chakravarthy[1], Laetitia Thomassin[2]

[1]Urgo Medical, Medical Affairs, Fort Worth, United States; [2]URGO Medical, Laboratoires URGO Medical, Paris, France

Aim: The use of compression in the management of the venous reflux condition is highly recommended but the use of bandages on venous ulcer patients with diabetes is less researched. General concern exists about affecting circulation in diabetic patients via improperly applied compression. The Dual Compression System (DCS) is designed to confidently apply consistent therapeutic pressure (30-50 mm Hg) via visual indicators. A post-hoc analysis of a real-life study on patients with both the venous and diabetic condition is presented.

Method: The clinical data from a large prospective, multicentre, observational study, including diabetic and non-diabetic patients treated with DCS in outpatient/home visits for a maximum duration of six weeks (4 clinician visits maximum) were analysed. Main measures included wound healing/reduction, oedema/ankle mobility, tolerability /acceptance. Circulation was checked in diabetic patients before compression, standard clinical procedure.

Results / Discussion: Of 677 venous ulcer patients studied, 185 (27.3%) were diabetic. At final visit (mean 28d), wound closure (33.9% diabetic vs 30.2% nondiabetic), and oedema resolution (67.3% vs 66.2% p=0.805) were similar between diabetic/nondiabetic. Slippage was same (<4%) in both, most reported no discomfort. At the first interim visit, tightness sensation, warm feeling or pain were more for diabetics. These differences ended at final visit, except pain 11.9% (diabetic) vs 6.1% (non-diabetic). Patient tolerance was comparable, and high, in both groups.

Conclusion: DCS demonstrated similar efficacy and high safety profile in both diabetic/non-diabetic patients. This real-life evidence is consistent with clinical evidence on DCS from RCTs, clinical trials, case series data. Diabetic patients do need to be checked well for circulatory status and some may face more pain than nondiabetic patients with compression.

EP292 COMPLIANCE WITH WEARING A COMPRESSION BANDAGE FEATURING A NOVEL DUAL COMPRESSION SYSTEM (DCS) DESIGN IN PATIENTS WITH LOWER EXTREMITY EDEMA

Debashish Chakravarthy[1], Laetitia Thomassin[2]

[1]Urgo Medical, Medical Affairs, Fort Worth , United States; [2]URGO Medical, Laboratoires URGO Medical, Paris, France

Aim: Compression therapy is the gold standard for venous insufficiency and associated conditions/ulcer management. Patient compliance is essential for success. Reported compliance rates are low, causing patient non healing/patient suffering. Non-compliance has been found to be driven largely by lack of patient comfort with compression wraps. An engineered design, the Dual Compression System, (DCS) contains both short and long stretch bandages. It is designed to increase patient comfort and thus compliance. This study presents compliance data for DCS.

Method: 745 total compression wraps were applied to 174 patients with various diagnoses over a 28-day period in busy wound center in the US. Wraps were changed weekly, and patients were followed longitudinally for up to 28 days or until their wounds were closed to calculate degree of compliance over the study period, and reasons for non-compliance were recorded and assessed. The study was done in the winter months.

Results / Discussion: Compliance rates of 94.5% were seen. When eliminating those patients whose wraps were removed at another medical appointment, compliance rose to 95.7%. Male compliance was lower than female compliance. No differences were found in compliance via age, diagnosis, or laterality.

Conclusion: Comparison of our findings with historically reported data from other compression systems shows a significant improvement in compliance with the DCS. Comfort, absorption, and edema reduction are key factors in patient compliance. Product design impacts the consistent edema reduction leading to improved comfort. DCS manages exudate drainage well by wicking efficiently from the wound, reducing peri-wound maceration. Compliance can ultimately drive patient outcomes which will further lead to health care economic benefits. Repeat study in summer months is indicated.

EP293 COMPARING 2-LAYER (DUAL COMPRESSION SYSTEM*) WITH TRADITIONAL 4-LAYER COMPRESSION THERAPY

Debashish Chakravarthy[1], Emilio Galea[2]

[1]Urgo Medical, Medical Affairs, Fort Worth; [2]HCP Healthcare Asia Pte Ltd, Singapore, Singapore

Aim: Compression bandaging is recommended for venous disease and ulceration. Compliance rates are typically low, and the clinical results inconsistent. An ideal bandage provides the right therapeutic pressure in a consistent manner, stays on, feels comfortable, does not stick to clothing/linen and offers high exudate absorbency. An engineered system that combines both short and long stretch bandages, or the Dual Compression System (DCS) was tested for these factors that predict clinical success, against a traditional 4-layer bandage (4LB).

Method: During the study, all patients indicated for compression at a busy wound center were treated with either the DCS system, or a 4 LB randomly. Patients were surveyed on wear comfort and stickiness to clothing/linen. Providers were asked whether the bandages stayed on and if they were easy to apply. All surveys had three choices, better, worse and same/neutral.

Results / Discussion: 53 patient participants in the study had a total of 62 leg ulcers. Of these, 31 legs were wrapped with DCS and 31 with a 4LB. 13 of the 4LB (42%) and 27 of DCS (87%) were found to achieve the therapeutic pressure of 40+/-5 mm. Among 43 surveys completed, 30 stated that DCS was more comfortable than the 4LB (5 less comfortable 8 neutral). Stickiness: DCS better (34), Worse (1), Same (8). Nurses in all cases (100%) felt that the 2-layer system stayed on better. Exudate absorption, based on the use of dressings, was rated better for DCS (25), 17 (same), 1 (worse).

Conclusion: Based on our findings in this study we predict that DCS will have higher patient compliance rates and thus better clinical success.

EP294 THE EFFECT OF PROPHYLACTIC DRESSING ON PREVENTION OF PRESSURE INJURY IN SURGICAL PATIENTS

Jung Yoon Kim[1]

[1]*Seoul National University Bundang Hospital, WOCN, Bundang-gu, Seongnam-si, Korea, Rep. of South*

Aim: The aim of this retrospective cohort case control study was to examine the preventive effectiveness of P-Dx.

Method: Checking extensive Clinical Database Warehouse (CDW), this study was conducted by extracting a high-risk group of PU based on Scott triggers, and determined the control group before applying P-Dx (Cx)- the experimental group after applying P-Dx (Ex) by 1:1 Propensity Score Matching (PSM) method (SMD<0.1). A total of 3,326 patients were subjected to the study, each group consisted of 1,663. The effectiveness of P-Dx in each group was compared by examining the incidence of PI and the length of hospital stay after surgery, using Chi-squared test, Wilcoxon rank sum test.

Results / Discussion: The incidence of PI was 26 cases in 25 patients (1.5%) in Ex and 93 cases (4.2%) in 70 patients (4.2%) in Cx. There was a statistically significant decrease (χ^2=20.98, $p < .001$) in the incidence of PI. Also, the length of stay was a statistically significant decrease (W=1476485, $p < .001$).

Conclusion: It was confirmed that P-Dx was effective in reducing the incidence of PI and the length of hospital stay after surgery. Therefore, it can be suggested as a nursing intervention to apply P-Dx to high-risk group of PI in surgical patients.

EP295 HOW PRESSURE ULCER DATA IS COLLECTED, VERIFIED AND VALIDATED TO ASSURE ACCURACY IN GLASGOW WITH 18 HOSPITALS AND 5800 BEDS

Heather Hodgson[1]

[1]*NHS Greater Glasgow and Clyde, Tissue Viability, Paisley, United Kingdom*

Aim: To accurately diagnose and categorise pressure damage in a Scottish NHS hospital caring for patients within 18 hospitals and 5800 beds.

Method: Clinicians within NHSGGC follow a policy where it is mandatory to refer all healthcare acquired pressure damage to a wound specialist, the wound specialist then follows a set criteria to:

1. Diagnose Pressure Damage
2. Catergorise Pressure Damage
3. Assess if lessons to be learned /omissions in care/avoidable damage
4. Complete incident report (Datix)
5. Enter data on database.

Results / Discussion: Every 24 hours the data entered on Datix is extracted to populate a dashboard. The dashboard displays information on the following:

1. Number of pressure ulcers
2. Category of pressure damage
3. Number and percentage of avoidable pressure damage
4. Rate per 1000 occupied bed days
5. Areas that have been free from pressure ulcers for over 300 days
6. Hotspots (two incidents in one month or one incident on two consecutive months).

This data can be displayed for entire Health Board and filtered down to individual wards. The data is easily accessible to all clinicians to allow improvement work to be undertaken.

On a monthly basis the data is cross referenced with Datix and tissue viability database to ensure accuracy and validity and a report is sent to all Chief Nurses.

Conclusion: For pressure ulcer data to be considered accurate the diagnosis and category needs verified by a wound specialist and there needs to be a robust data collection system that can assure validity and accuracy otherwise the data should be considered as being flawed. NHSGGC can assure accuracy of the pressure ulcer data.

EP296 PREDICTING THE CUT-OFF POINT FOR INTERFACE PRESSURE IN PRESSURE INJURY ACCORDING TO STANDARD HOSPITAL MATTRESS AND POLYURETHANE FOAM MATTRESS AS SUPPORT SURFACES

Mi Yu[1], Kyung Hee Park[1], Jiseon Shin[2], Ji Hyun Lee[2]

[1]South Korea, Nursing Science, Korea, Rep. of South; [2]South Korea, Nursing

Aim: This study aimed to investigate the interface pressure (IP) of patients using a standard hospital mattress and foam mattress as support surfaces and present cut-off points for interface pressure in patients who exhibited skin changes.

Method: A total of 189 inpatients enrolled from 6 general wards and 3 intensive care units at a Korean University Hospital. Skin changes were classified, and peak IP at the sacral and occipital regions was measured using a pressure scanner. Differences in IPs according to mattress type were analyzed using independent t-tests. The receiver operating characteristic curve was constructed to determine the cut-off point, and the area under the curve with a 95% confidence interval was obtained using the Stata 15.1.program.

Results / Discussion: The IP for a standard hospital mattress was significantly higher than that of a foam mattress. The cut-off points for IP at the sacral region were 52.90 mmHg and 30.15 mmHg for a standard hospital mattress and foam mattress, respectively. The cut-off point for IP at the occipital region was 36.40 mmHg for a foam mattress.

Conclusion: Using IP measurements to prevent pressure injuries is important and employ individualized interventions based on the cut-off points for different support surfaces.

EP297 THE EFFICACY OF A VISCOELASTIC FOAM OVERLAY ON PREVENTION OF PRESSURE INJURY IN ACUTELY ILL PATIENTS

Kyung Hee Park[1]

[1]South Korea, Nursing Science

Aim: To compare a viscoelastic foam overlay (VEFO) to a standard hospital mattress (SHM) for pressure injury (PI) prevention and interface pressures (IPs) of the VEFO to SHM.

Method: Data analysis was based on 110 participants (55 in each group) who were 19 years or older, had a Braden Scale score of 16 or less. The experimental group (EG) were based on a VEFO on top of the SHM used. The control group (CG) were placed on a SHM with/without air overlay. All patients were given standard nursing care for prevention of PI. Skin assessments were completed daily over a period of 2 weeks. We compared IPs of the SHM and the VEFO in participants randomly allocated to the intervention group. IPs were measured over the sacral/coccygeal area with subjects in the supine position.

Pressures were measured immediately before and immediately following placement of the VEFO and just before data collection began.

Results / Discussion: The incidence of PI development was significantly lower in subjects assigned to the EG as compared to those in the CG (3.6%-27.3% over the 2-week data collection period; $P = .001$). The maximum IP was significantly lower on the VEFO with SHM than on the SHM (paired $t = 8.87$, $P < .001$).

Conclusion: Patients managed with a VEFO had a significantly lower incidence of PI than those managed with a SHM.

EP298 PREVALENCE OF PRESSURE INJURIES IN CRITICAL PATIENTS WITH SEVERE COVID-19 PNEUMONIA

Pía Molina Chailán[1], Lorena Astudillo[1]

[1]Hospital Guillermo Grant Benavente, Intensive Care Unit, Chile

Aim: To describe characteristics of pressure injuries (PPIs) and their prevalence in adult critical patients with severe COVID 19 pneumonia.

Method: Descriptive, cross-sectional, retrospective study in critical patients between July 2020 -June 2021. Inclusion criteria: more than 24 hours admission, invasive mechanical ventilation, older than 18 years. Exclusion criteria: non-invasive mechanical ventilation. Data collection were through prevalence and adverse events records. National legislation on ethical research approval. Descriptive statistics including frequency distributions, mean and standard deviation, for study variables were analyzed using SPSS version 25.0. The prevalence was analyzed using X^2 analysis.

Results / Discussion: 398 people admitted, 110 presented PPLs, 63.6% (n=70) male, mean age 56.8 ± 13.7 years, 55.5% (n=61) PPLs were in prone position, and ECMO 2.7% (n=3), 19.1% were recorded during admission to the ICU, mean PPLs was 1.35 ± 0.7 with 1-6 lesions per person. The most frequent anatomical areas were face/head 51.6% (n=77), sacrum 22.1% (n=33) and heels 13.4% (n=20). PPLs stage I 28.2% (n=42) and 69.1% (n=103) stage II. The PPLs prevalence was 27.6% (95%CI 23.2%-32%). Some studies agree with results obtained in this research, the most frequent PPLs are in prone position, mainly in face and head, and stages I- II, with a prevalence higher than that studied in North America.

Conclusion: According to the characteristics of the PPLs and the risk of some procedures performed on critical patients, it is essential to establish preventive measures to avoid their appearance and reduce their prevalence.

EP299 THE RELATIONSHIP BETWEEN SUB EPIDERMAL MOISTURE (SEM) MEASUREMENT AND INFLAMMATORY MARKERS IN THE EARLY IDENTIFICATION OF PRESSURE ULCERS

Natalie McEvoy[1], Declan Patton[2], Gerard Curley[1], Cathal Kearney[3], Zena Moore[2]

[1]Royal College of Surgeons in Ireland, Anaesthesia and Critical Care, Dublin, Ireland; [2]Royal College of Surgeons in Ireland, School of Nursing and Midwifery; [3]Royal College of Surgeons in Ireland, Department of Anatomy, Ireland

Aim: The current gold standard of pressure ulcer (PU) detection involves visual skin assessment (VSA). Reliance on VSA as a method of PU detection is problematic given that PUs' often develop from within the deeper tissues at a microscopic rather than macroscopic level. Further research into the early methods of PU detection is needed in order to facilitate an objective approach to diagnosis.

Method: This study aimed to establish the correlation between Interleukin-1α (IL-1α)/total protein (TP) and sub-epidermal moisture (SEM) measurements in the early identification of PUs in Intensive Care Unit (ICU) patients. This study employed an observational research design using the STROBE guidelines. Following ethical approval, 53 participants were recruited and sebum was obtained using Sebutape from weight-bearing areas (sacrum, heels and a control site). SEM measurements were taken from the same anatomical sites. Both measures were taken at the same time and participants were followed up for 5 days, or until discharge or death. Correlations between SEM delta measurements, IL-1α, TP and PU incidence and other demographic information were explored using Spearman's correlation for data not normally distributed, and Pearson's R correlation coefficient for normally distributed data.

Results / Discussion: Mean baseline SEM delta measurements indicate abnormal readings for all anatomical sites except the control site, consistent with previous studies. Mean baseline IL-1α/TP readings were higher for the sacrum versus both heels and, on average, readings were higher for the control site versus all other anatomical locations. This is conflicting, given that the control site was non-weight bearing. There were very weak or weak correlations between SEM delta measurements and IL-1α/TP readings.

Conclusion: This study provides important information on not only the relationship between IL-1α/TP and SEM measurements as potential biomarkers in the early detection of PUs in adult ICU patients, but also sheds light on the feasibility of these methods in the ICU setting. SEM measurements are quick and easy to obtain and results are instant, however Sebutape sampling takes significantly longer and is challenging to conduct among haemodynamically unstable patients. Obtaining SEM measurements is more practical and feasible than Sebutape sampling to assess for the presence of inflammation, particularly in the ICU setting where results are needed in a timely manner to implement prevention strategies early. Results from this study are consistent with findings from previous studies in terms of SEM delta measurements.

E-POSTER SESSION: PREVENTION

EP300 A MULTI-DISCIPLINARY APPROACH TO DRIVING SYSTEM-WIDE CHANGE IN PRESSURE INJURY PREVENTION

Rosemary Swedenburg-Murphy[1]

[1]*Catholic Health, Risk Management, Rockville Center, United States*

Aim: Corporate risk management observed a trend of increasing numbers of serious safety events related to hospital-acquired pressure injuries across a multi-hospital system. A Common Cause Analysis identified gaps in patient care and documentation, related to inconsistencies in product availability and knowledge deficits. The aim of this project was to design and implement a system-wide pressure injury prevention (PIP) program.

Method: The strategy for change involved multi-disciplinary collaboration and consistency in education, tools, resources, product availability, documentation, and tracking and trending of pressure injury outcomes across the multi- hospital system.

Results / Discussion: One hospital's journey resulted in a 70% decrease in Stage 2, 3, 4, unstageable and DTIs over the first three quarters of 2022, as compared to Quarters 1, 2, 3 in 2021, with an estimated treatment cost savings of $2.5M. There was an 80% decrease in Stage 3, 4 and unstageable pressure injuries over the first three quarters of 2022, as compared to Quarters 1, 2, 3 in 2021, with an estimated treatment cost savings of $522,408.

Conclusion: A collaborative approach to system-wide PIP resulted in clinical and financial outcomes. The success of the program will be sustained through continued monitoring of practice, addressing identified gaps, and focus on long-term goals of risk reduction, patient safety, and improved hospital value-based purchasing, Leapfrog and CMS star ratings, in addition to the patient experience.

EP301 REDUCING TIME SPENT ON RITUALISTIC DOCUMENTATION WITH AN A,B,C,D APPROACH A REVIEW OF WHAT AND HOW NURSES ARE DOCUMENTING CARE PROVIDED… TO ULTIMATELY REDUCE INCIDENCE OF AVOIDABLE PRESSURE ULCER CATEGORISATION DUE TO POOR DOCUMENTATION

Heather Hodgson[1], Sean Chambers[2]

[1]*NHSGGC, Tissue Viability, Scotland, United Kingdom*; [2]*NHSGGC, Ward 14 Vale of Leven, Scotland, United Kingdom*

Aim: To reduce time spent on ritualistic documentation. A review of what and how nurses are documenting care provided… to ultimately reduce incidence of avoidable pressure ulcer categorisation due to poor documentation.

Method: This project involved four different methods:

1. Focus groups with clinical staff
2. Examination of time spent on documentation
3. Case note review
4. Audit.

Outcome of the pre-implementation study using the above methods revealed the following:

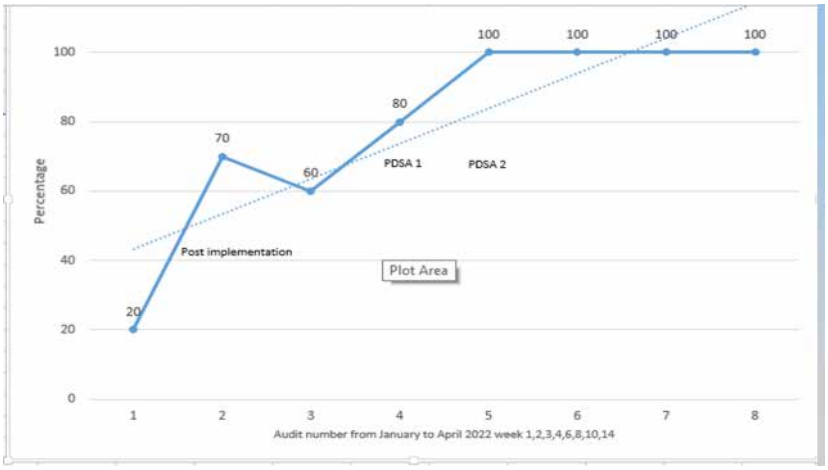
1. Up to 45 minutes were spent by each nurse, each shift documenting in the continuation sheet.
2. Up to 100% of what was recorded was recorded elsewhere or not required.
3. There was a recognition that the process was ritualistic.
4. Opportunity to save time was identified.
5. Realisation to only record what is required and not duplicate.
6. Insight into what needed to be recorded – only 20% of documentation met the set standard.

To address the above six points an improvement project was implemented whereby nurses only documented under four categories headed A, B, C, D:

- Abnormal
- Bedside Charts updated
- Communication that is essential
- Deviation from person centred care plan.

Results / Discussion:

1. Time spent on documentation reduced by 78%.
2. 100% of documentation reached required standard.
3. Pressure ulcer rate per 1000 occupied bed days < 0.4.
4. No avoidable damage due to poor documentation.
5. Time released to provide direct patient care.



Conclusion: Nurses should reflect on what and why they are documenting and focus on only documenting what is required, otherwise they are wasting valuable time which could be spent on direct patient care. It's as easy as ABCD.

EP302 EXPLORING THE IMPACT OF A NEW CLINICAL MATTRESS AND TOPPER SOLUTION ON PRESSURE MANAGEMENT

Jo-Anne Webb[1], Ambreen Chohan[2]

[1]Rehabilitation for Independence Ltd, United Kingdom; *[2]University of Central Lancashire, Allied Health Research Unit, Preston, United Kingdom*

Aim: In hospital and community care, pressure management is key to the successful prevention of pressure ulcer occurrence. This study explores the impact of a new mattress and topper on interface pressure and comfort when lying.

Method: This healthy cohort study (n=27), explored patient-surface interface pressures for a new clinical mattress solution compared to standard hospital and air mattresses, with and without an innovative topper solution. Subjective comfort was measured in each condition alongside quantitative measures for surface area, peak and mean pressure and peak pressure index (head, sacrum and heel). Each intervention lasted for 21 minutes, to allow a 6-minute settling time. Significance level for this study was set to $\alpha = 0.05$.

Results / Discussion: The new clinical mattress solution decreased peak pressure significantly when compared to the standard hospital and air mattresses. Lower peak pressure was seen for the standard hospital mattress compared to the air mattress. Perceived comfort improved using the new clinical mattress solution, whilst it significantly lowered (>30%) pressure at the head and heels compared to other surfaces. Both the comparator mattresses (standard hospital and air) significantly reduced pressure and improved comfort with the addition of the new topper, whilst the topper did not improve the performance of the new clinical mattress solution.

Conclusion: The new clinical mattress solution offers the potential to improve pressure management for patients, whilst the implementation of the topper with existing solutions (air and standard hospital) could improve their pressure management.

EP303 PRESSURE ULCER EDUCATION EFFECT USING OPEN CHATTING

MyoungJean Ju[1]

[1]Kosin University Gospel Hospital, WOCN, Busan, Korea, Rep. of South

Aim: The effect of open chatting on pressure injury education was evaluated.

Method: In order to lower the incidence of pressure injury, accurate skin assessment upon entering the room, preventive intervention according to the stage of pressure injury, and providing appropriate treatment by distinguishing diseases other than pressure injury can be important factors. Moisture-related skin damage, herpes simplex, and skin lesions are confused with second-stage pressure injury, and skin discoloration is mistaken for deep tissue damage, which can increase the incidence of pressure injury.

In order to improve the accuracy of pressure injury classification, an open chatting was operated to evaluate the educational effect through real-time responses according to cases.

The operation method was operated in a way that nurses shared cases of bedsores that were difficult to distinguish and WOCN responded in real time when asked questions. The effectiveness of the program was evaluated by reducing the rate of false reports of pressure ulcers and the level of knowledge about pressure ulcers before and after.

Results / Discussion: The false pressure sore reporting rate was reduced by 4%.

Conclusion: Open chatting can improve visual education and work efficiency.

EP304 PREVALENCE AND ASSOCIATIONS OF COMMON ADVERSE SKIN CONDITIONS IN AGED NURSING HOME RESIDENTS - A REPRESENTATIVE PREVALENCE STUDY

Bettina Völzer[1], Monira El Genedy-Kalyoncu[1], Alexandra Fastner[1], Tsenka Tomova-Simitchieva[2], Janna Sill[3], Katrin Balzer[4], Konrad Neumann[5], Jan Kottner[1 6]

[1]Charité Universitätsmedizin Berlin, Institute of Clinical Nursing Science, Berlin, Germany; *[2]Charité Universitätsmedizin Berlin, Department of Dermatology and Allergy, Berlin, Germany*; *[3]University of* Lübeck, Nursing Research Unit, Lübeck, Germany; *[3]University of* Lübeck, Nursing Research Unit, Lübeck, Germany; *[5]Charité Universitätsmedizin Berlin, Institute of Biometry and Clinical Epidemiology, Berlin, Germany*; *[6]Ghent University, Faculty of Medicine and Health Sciences, Belgium*

Aim: In Europe, the number of elderly people being care dependent and living in institutional long-term care facilities increases continuously. Adequate skin care is a key responsibility of caregivers. The aim of this study was to measure the prevalence of xerosis cutis, skin tears, intertrigo, pressure ulcers/injuries and incontinence-associated dermatitis and possible associations between these conditions.

Method: A population-based cross-sectional prevalence study in institutional long-term care as part of a cluster-RCT has been conducted and n = 314 subjects aged over 65 years were included. A head-to-toe examination by dermatologists was performed. Demographic and health data were collected.

Results / Discussion: Mean age was 85.4 (SD 7.1) years and 68.8% of the participants were female. The majority of nursing home residents was affected by xerosis cutis (95.9%, 95% CI 93.6 to 97.8). The prevalence of incontinence-associated dermatitis was 21% (95% CI 15.6 to 26.3), skin tears 10.5% (95% CI 7.3 to 13.8), intertrigo 35% (95% CI 30.0 to 40.1) and of pressure ulcers 8.0% (95% CI 5.1 to 10.8). 53.2% of the residents were affected by at least two of these skin conditions at the same time but systematic associations were not observed. In addition, there were only few associations regarding mobility, care dependency, incontinence or cognitive impairment.

Conclusion: The prevalence of the investigated skin conditions was high, indicating a substantial burden in this vulnerable population. Results indicate that the occurrence of xerosis cutis, incontinence-associated dermatitis, skin tears, intertrigo and pressure ulcers/injuries is not associated with each other.

EP305 WOUND MANAGEMENT PROTOCOL OF LEFT VENTRICULAR ASSIST DEVICE DRIVELINE EXIT-SITE

Viviana Goncalves[1], Helena Cardoso[2]

[1]São João Universitary Hospital Center, Cardiothoracic Surgery, Porto, Portugal; [2]São João Universitary Hospital Center, Cardiology, Porto, Portugal

Aim: Implantation of left ventricular assist devices is becoming more frequent with the development of mechanical circulatory support technology and the scarce number of organs available for heart transplantation, demonstrating that these devices may improve survival, functional capacity, and quality of life. However, it can cause serious complications such as driveline infection, causing significant morbidity and mortality. Nurses are uniquely positioned to improve driveline wound management, disrupting the chain of infection. Driveline exit-site wound care is crucial for the prevention of infections, although there are no gold-standard of care. Our purpose is that all patients have a uniform care to driveline exit-site wound, ensuring the healing process and prevention of infection.

Method: Literature review to develop wound management protocol of driveline exit-site, supported by the best evidence based scientific research in which we are able to identify all the recommendations to care of the driveline exit-site, mainly the dressing material.

Results / Discussion: This review reveals that there is no standard care for infection prevention. Despite that, a protocol of care based on prevention of infection, nursing care and comfort of the patient was developed with the dressing material adjusted to what is available in our country.

Conclusion: With the increasing number of patients with this device, nurses are challenged to develop interventions that aim to ensure the quality and safety of care. This protocol allows the standardization of wound management to driveline exit-site, leading to the prevention of driveline infections through the improvement of the healing process.

EP306 FEASIBILITY STUDY ON A BED PROVIDED WITH PRESSURE SENSORS FOR ASSESSING THE RISK OF DEVELOPING PRESSURE ULCERS: PRELIMINARY RESULTS OF AN EXPERIMENTAL STUDY ON A POPULATION OF HEALTHY SUBJECTS

Matteo Martinato[1], Valeria Basso[1], Maria Vittoria Chiaruttini[1], Carlotta Borghini[1], Honoria Ocagli[1], Corrado Lanera[1], Giulia Lorenzoni[1], Danila Azzolina[1 2], Rosanna Comoretto[1 3], Dario Gregori[1]

[1]University of Padova, Department of Cardiac-Thoracic-Vascular Sciences and Public Health, Padova, Italy; [2]University of Ferrara, Department of Environmental and Preventive Science, Italy; [3]University of Torino, Department of Public Health and Pediatrics, Italy

Aim: Describe the ability to identify the movement performed by a patient in bed using four pressure sensors and assess how an algorithm describes the movements of the person in bed using data from the sensors to develop continuous assessment of pressure ulcers risk.

Method: Data were collected through a standardized videotaped session in which each subject performed a series of movements/positions in bed (figure 1). Data labeling was manually performed by comparing them with the images.

Results / Discussion: Data analysis has not yet been completed for all the data collected, but that of the first 128 volunteers allows the description of some preliminary results to confirm the feasibility of the system developed and the labeling of signals coming from the sensors that were able to identify the subject's movements. The study conducted so far has demonstrated the feasibility of the system of data collection allowing us to confirm the usefulness and reliability of the data stream transmitted by the bed sensor system, the proper labeling of the originated data, and a proper implementation of the data collection scheme that has so far been used, enabling the development of an automated data labeling system (neural network) that will enable the automation of the active mobilization monitoring system of the bed-occupant.

Conclusion: There are many benefits that the tool could bring to clinical practice, optimizing preventive interventions and individualizing nursing care, but completion of the study and a subsequent trial in the end-use setting by enrolling subjects from a population at risk of pressure ulcers is needed to confirm this hypothesis.

Figure 1 . Videorecorded data collection session

E-POSTER SESSION: QUALITY OF LIFE

EP308 ASSESSMENT OF BEST PRACTICES IN CHRONIC WOUND CARE AMONG CLINICAL NURSES IN TERTIARY HEALTH CARE FACILITIES IN A LOW RESOURCE SETTING

Demilade Omotoyinbo[1 2]

[1]Obafemi Awolowo University Teaching Hospitals Complex, Nursing, Ife, Nigeria; [2]Obafemi Awolowo university, Nursing Science, Ife, Nigeria

Aim: The aim of this study was to assess the level of adherence of clinical nurses to best practices in chronic wound care and also recognize specific areas of deficit in chronic wound care in tertiary health facilities in the low resource setting.

Method: A cross-sectional research design was employed. The purposive sampling method was used to select wards and clinics chronic wounds are managed and clinical nurses are involved. A total of 155 nurses were obtained using Fisher's formula. An adapted checklist of dichotomous response scales that assesses the level of adherence of nurses to best practices in chronic wound care was utilized. The level of adherence was classified as good (> 80%), moderate (60-79%), and poor adherence (<60%) adherence. Data were analyzed using descriptive and inferential statistics. Alpha level was set at $p< 0.05$.

Results / Discussion: The result of the study showed that 52.2% had good adherence to best practices in chronic wound care while 30.0% had poor and 17.8% had a moderate level of adherence to best practices in chronic wound care. It is vital to note that tertiary health care facilities in the research setting were used for this study where majority of the residents seek for health care. Due to the rising incidence of chronic wounds particularly in low resource settings, there is a need for quality and specialized chronic wound care.

Conclusion: It is imperative that special attention should be given to health care providers in low resource settings especially nurses who majorly handles wound care. This includes awareness, training, specialization, and wound management-based facilities or departments.

EP309 AN INVESTIGATION INTO WELL-BEING IN THOSE WHO ARE AT HIGH RISK, OR CURRENTLY LIVING WITH A DIABETIC FOOT ULCER

Claire MacGilchrist[1], Ciara Cuddihy[1], Grainne Gaynor[1], Ciara Kelly[1], Hannah Foster Ryan[1], Molly Ryan[1], Caroline McIntosh[1]

[1]University of Galway, Discipline of Podiatric Medicine, Galway, Ireland

Aim: To investigate wellbeing in those who are at high risk of or living with an active diabetic foot ulcer (DFU) attending a community Podiatry clinic in the West of Ireland.

Method: A total of 25 participants at risk or/ active DFUs were recruited. In addition to demographic information, Phase 1 (n = 25) assessed: Spirituality Self Rating Scale (SSRS), Hearth Hope Index (HHI), Hospital Anxiety and Depression Score (HADS), Rosenberg Self-Esteem Scale (RSES) and Powerlessness Assessment Tool (PAT). Phase 2 (n = 10) utilised a qualitative approach and explored the lived experience of those at high risk (n=4) and those living with active (n = 6) DFU through one-to-one follow-up interviews.

Results / Discussion: Sixty-four percent (n=16) had current ulceration. Mean age was 69.64 (±11.47) and disease duration 21.28 years (±10.76). Male: Female gender distribution was 76% (n = 19)/ 24% (n = 6). The following mean scores were identified: SSRS 21.24 (±6.78), HHI 37.28 (±6.17), RSES 20.84 (±5.02), PAT 28.88 (±7.91), and HADS = 9 (±5.33). Individuals with current DFU presented with lower levels of self-esteem, stronger feelings of powerlessness, higher levels of depression and lower levels of anxiety when compared to those who were at risk, but not currently ulcerated.

Conclusion: Participants living with current DFUs reported stronger feelings of powerlessness, lower self-esteem and higher depression scores than those who are high risk of DFUs. Those with current DFUs reported significantly lower anxiety levels compared to the high-risk group. Healthcare professionals should consider the impact that DFU may have on wellbeing and future work should investigate if addressing these factors can improve patient outcomes.

EP310 NURSING OUTCOMES IN WOUND CARE MANAGEMENT: A MIXED METHOD STUDY

Marzia Lommi[1], Barbara Raffaele[2], Maria Ymelda Tolentino Diaz[2], Graziella Montini[2], Cinzia Puleio[2], Barbara Porcelli[2]

[1]Azienda ASL Roma 2, UOC Care to the person, Roma, Italy; [1]Azienda ASL Roma 2, UOC Care to the person, Roma, Italy

Aim: The specific objectives are: a) measure the treatment's outcomes of a chronic wound and the patient's conditions; b) explore experiences and impact on the patient's life and c) integrate the quantitative and qualitative results to explain the process of self-care in patients with a chronic ulcer.

Method: In the first phase of explanatory mixed method study, data were collected during a longitudinal study, in a convenience sample of 44 patients admitted at the nursing outpatients' clinics. In phase two, 14 patients were interviewed and the data were analyzed using Giorgi's descriptive phenomenological method. In the third phase were integrated the quantitative and qualitative results to explain the process of self-care in patients with a chronic ulcer.

Results / Discussion: Linear regression confirmed the association between patients' quality of life and some socio-demographic and clinical factors. The qualitative analysis showed 3 themes. The first 'Cared by Yourself', includes 3 subthemes: Self-care maintenance, Self-management and Self-monitoring. The second 'Cared by Healthcare Providers', includes 3 subthemes self-management support, symptom management and disease management. The third 'Quality of life' includes the limitations that impact the patients' quality of life.

Conclusion: Suffering from chronic wounds for a long period of time has a negative impact on the patients' quality of life, autonomy, wellnesses and on the self-care process. The middle range theory of chronic conditions can be applied to ulcerative lesions, which are chronic conditions that have a chronic disease as their aetiology.

EP311 SATISFACTORY LEVEL OF HIPERSKIN TR® TRANSPARENT FILM DRESSINGS IN POST OPERATIVE PATIENT : A PRIMARY HOSPITAL INDONESIA EXPERIENCE

Bramastha Rosadi[1], Terry Renata Lawanto[1], Astrid Paula[1], Jupri Jupri[1]

[1]Tebet Regional Public Hospital, South Jakarta, Department of Surgery, Jakarta Selatan, Indonesia

Aim: Present satisfactory experience using transparent film dressing for post operative cases in primary care hospital Indonesia.

Method: A descriptive study**,** total population of clean post operative wound from September – November 2022. *Hiperskin TR®*, a transparent film dressing was applied after cleaning the remaining debris. A questionnaire based on *Bluebell Wound Healing Questionnaire®* was given at day 1 and day 7, to measure the satisfactory level of patients, and wound healing process experience.

Results / Discussion: 54 participants qualified for this study, but 6 were drop out. All of them were grouped by gender, age, and satisfactory level. Mostly were female (58%), with age ranging from 15-68 years old. The overall satisfaction of wound healing was good (66 %), they felt secured (83,33 %) and more comfortable using transparent dressing (83,33%). 12 patients (25%) needed to be changed before day 7 by health workers due to detachment of the dressing related to excessive/vigorous activities. 8 patients felt discomfort, 6 (12,5%) complained reddish and 2 patients (4,16%) have significant exudate within 1 week of follow up. **Conclusion:** The use of transparent film dressing for clean post operative wound at tropical country could be recommended, as it may decrease the patient's disability in doing their daily activity and increasing patient's satisfactory level.

EP312 TORONTO SYMPTOM ASSESSMENT SYSTEM FOR WOUNDS – VALIDATION FOR PORTUGUESE

Helena Vicente[1], Elisabete Nunes[2], Paulo Alves[3], Dora Franco[4], Cristina Silva[4], Sara Carvalhal[4]

[1]Instituto Português de Oncologia de Lisboa Francisco Gentil, Lisbon, Portugal; *[2]Universidade Católica Portuguesa, Portugal*; *[3]Universidade Católica Portuguesa*; *[4]Instituto Português de Oncologia de Lisboa Francisco Gentil*

Aim: To validate the Toronto Symptom Assessment System for Wounds (TSAS-W) for Portuguese speaking countries and to analyse the feasibility of its application by nurses.

Method: Methodological transversal, trans-cultural, quantitative, observational, and descriptive study; developed in two phases: phase I consisted in adapting the TSAS-W cultural and linguistically for Portuguese; in phase II the new "Escala de Toronto para Avaliação de Sintomas em Feridas – Portugal" (TSAS-W-PT) was evaluated for its reliability for the Portuguese context.

Results / Discussion: The data collection took place in Portugal in two oncologic centres and in one palliative care centre between October 2018 and May 2019, in 90 patients with 94 malignant wounds.

7 different wound types were found, 61,7% malignant wounds (MW) and 26,6% pressure ulcers (PU). The most common localizations were head and neck (20%) and thorax/breast (14%).

Overall, pain and exudate were the symptoms with the highest average score, and pruritus and hemorrhage, the symptoms with the lowest mean score.

Cronbach's alpha was 0,827 in the first evaluation and 0,867 in the second evaluation, confirming TSAS-W-PT internal reliability.

Nurses confirmed that this assessment system is feasible in the real-life nurse care setting.

Conclusion: The validation of the TSAS-W-PT in Portuguese, and for the Portuguese context, came to fill the absence of recording instruments for non-healing wounds and in the context of palliative care, especially MW and PU.

EP313 QUALITY OF LIFE AND CARE PERCEPTION: AN OBSERVATIONAL STUDY

Paula Mota Martí[1], Águeda Fernández Martínez[1]

[1]CST, CAP Sant Llàtzer, Terrassa, Spain

Aim: This study assessed the influence between the perception of care and the quality of life (QoL) described by people with Chronic Venous disease (CVD) in a primary health care center.

Method: A transversal observational study was developed with 52 diagnosed CVD people between 50 and 85 years old who accepted the non-probability sampling invitation to the research. Exclusion terms were used such as palliative or bedridden patients, the presence of cognitive impairment or an important language barrier.

The questionnaire tools selected were CIVIQ-20, a validated scale for measuring people's perception of nursing care and a template to fill with sociodemographic, clinical and lifestyle information.

Results / Discussion: There was found a correlation between the score obtained by the patients at general QoL and the perception of care given by registered nurses (significance 0,776). Similar results were seen when filtering by emotional (E-QoL) and functional QoL (F-QoL).

However, when comparing F-QoL and E-QoL, the distribution was uneven (significance 0,004). The E-QoL showed significant differences (0,011 and 0,003, respectively) while comparing the group of highest F-QoL (F-QoL 1) with the lowest (F-QoL 4), and, between F-QoL 1 and F-QoL 3.

Conclusion: A professional and assertive approach to patients is crucial so as to help them to manage the ups and down of their health; not only considering their feelings and perceived needs, but also developing a relationship based in trust, support and acceptance where people can be empowered and accepted.

E-POSTER SESSION: ANTIMICROBIALS 1

EP315 DETERMINING ANTIMICROBIAL EFFECTS OF WOUND DRESSINGS – FROM PLANKTONIC BACTERIA TO 3D-BIOFILM MODELS

Kirsten Reddersen[1], Jörg Tittelbach[1], Cornelia Wiegand[1]

[1]*University Hospital Jena, Department of Dermatology, Jena, Germany*

Aim: Chronic wounds present a major challenge in medical care, especially if bacterial biofilm infections occur. Antimicrobial treatment strategies are increasingly utilized in management of chronic wounds to govern important pathogens like S.aureus, E.coli, A.baumannii or P.aeruginosa. Antimicrobial activity of wound dressings has often been judged using challenge or suspension tests with planktonic bacteria. Recently, different biofilm models were proposed to rate the efficacy of wound dressing in a more application-oriented setting.

Method: Silver and polihexanide dressings were compared for their antimicrobial activity using the challenge test JISL1902. Moreover, the dressings were examined for efficacy to eradicate a 2D-biofilm of S.aureus grown on a glass surface. Finally, the effect of the dressings was tested in new 3D-multispecies-biofilms.

Results / Discussion: A strong antibacterial effect of silver and polihexanide dressings was determined according to the challenge test. In a 2D-S.aureus-biofilm, polihexanide achieved complete eradication, while silver exhibited a lesser biomass reduction. The established 3D-biofilms closely mimic the chronic wound, where bacteria communities occur in clusters surrounded by extracellular matrix located throughout the tissue-substitute. The highest antimicrobial effects was again observed for polihexanide. However, no dressing achieved complete bacteria eradication.

Conclusion: Appropriate biofilm models are needed to improve transferability of bench-side data to bedside treatment of chronic wounds. Simplistic planktonic bacteria models might result in over interpretation of antibacterial effects. Surface attachment is crucial for 2D-biofilm-models, which does not occur in chronic wounds in this manner. The proposed 3D-biofilm-models are well suited for antimicrobial testing and can detect differences in the efficacy of antimicrobial substances.

EP316 USE OF LOW-FREQUENCY CONTACT ULTRASONIC DEBRIDEMENT WITH AN WITHOUT POLYHEXAMETHYLENE BIGUANIDE IN HARD-TO-HEAL LEG ULCERS:AN RCT

Alison Vallejo[1], Marianne Wallis[1 2 3], David McMillan[4]

[1]*UniSC University of the Sunshine Coast, Sippy Downs, Australia*; [2]*Southern Cross University, Gold Coast Campus, Health Faculty, Bilinga, Australia*; [3]*Griffith University, Gold Coast Campus, Health Faculty, Southport, Australia*; [4]*UniSC University of the Sunshine Coast, Biomedical Research Cluster, Sippy Downs, Australia*

Aim: This investigation compared the combination effect of polyhexamethylene biguanide (PHMB) and low-frequency contact ultrasonic debridement (LFCUD) on the bacterial load in hard-to-heal wounds in adults, to ultrasonic debridement alone. Secondary outcomes included wound healing, quality of life (QoL), and pain scores. Bacterial species were also identified.

Method: In this single-blinded, randomised controlled trial, fifty participants were randomised to two groups. All participants received LFCUD weekly for six weeks, plus six weeks of weekly follow-up (12 weeks total). The intervention group received a 15-minute topical application of PHMB solution post-LFCUD, at each dressing change and in a sustained dressing product. The control group received non-antimicrobial products and the wounds were cleansed with clean water or saline. Wound swabs were taken from all wounds for microbiological analysis at weeks 1,3,6 and 12.

Results / Discussion: The intervention group (n=25) had a lower bacterial load at week 12 compared with the control (n=25, $p<0.001$). No difference was seen in complete wound healing between the groups ($p=0.47$) or wound related QoL ($p=0.15$). However, more wounds deteriorated in the control group (44%) compared with the intervention group (8%, $p=0.01$). More wounds reduced in size in the intervention group (61% versus 12%, $p=0.019$). Pain was lower in the intervention group at week six, compared with controls ($p=0.04$). Bacterial species found at baseline were *Pseudomonas aeruginosa* (56%), *Staphylococcus aureus* (44%) and *coagulase-negative Staphylococci* (12%), with 52% of wounds containing polymicrobial loads.

Conclusion: LFCUD without the addition of an antimicrobial agent such as PHMB, cannot be recommended. Further research requires longer follow-up time and would benefit from being powered sufficiently to test the effects of multiple covariates.

EP317 DEVELOPMENT OF NEW CHEMICAL ANTI-BIOFILM AGENT FOR TREATMENT OF CAVITY-TYPE COMPLEX CHRONIC WOUND

Hyung-Sup Shim[1], Jiah Park[2]

[1]The Catholic University of Korea, St. Vincent`s Hospital, Suwon, Korea, Rep. of South; [2]Design Lab of Technology Commercialization Center, Industry-University Cooperation Foundation of Hanyang University

Aim: In the era of aging society, non-healing and chronic wounds emerged as one of the main factors of rising social cost. Among them, cavity-type complex chronic wound combined with biofilm is resulted from old patients with pressure sore, diabetic ulcers and artificial prosthesis which is frequently proven to be intractable wounds (Figure 1). We developed a new chemical agent for treatment of this type of wound in old-aged patients in which we cannot manage with aggressive surgical treatment, and present with preliminary results.

Method: We planned to create cavity-type chronic wound with a Sprague-Dawley rat model. A glass sphere contaminated with S. aureus was utilized as wound-inductor within the back skin of the rat, and the presence of chronic cavitary wound was proven by histological examination and bacterial counting colorimetric assay (BCCA, Figure 2). The wounds were divided as control(A) and experimental(B) group, which group A was treated with mechanical debridement whereas group B was with pure alcohol combined with antibacterial peptide. The result was analyzed with histology and BCCA.

Results / Discussion: A total of 16 wounds was analyzed to evaluate the efficacy of the new chemical agent. Histologic examination showed no difference in the reduction percentage of the biofilm (87.1±4.1 vs 85.4±6.4, p=0.3), and BCCA also showed efficacy of chemical agent (4.4±2.1 vs 4.7±1.7, relative viability, p=0.27).

Conclusion: With the objective evaluation modality, we could prove the efficacy of the new chemical agent consisted of pure alcohol and antibacterial peptide compared with standard surgical treatment. Our future study will be the production with clinically applicable agent with variable combination, with a more larger experiment data.

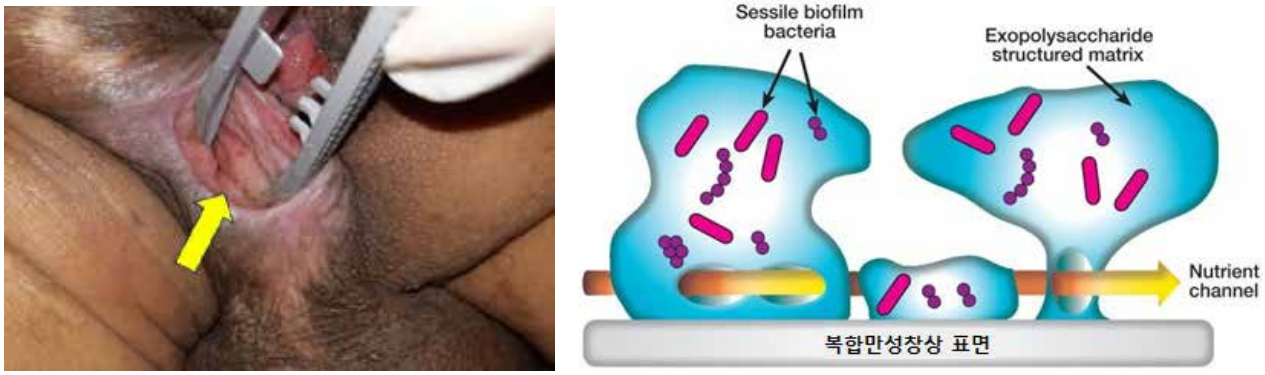


Figure 1.

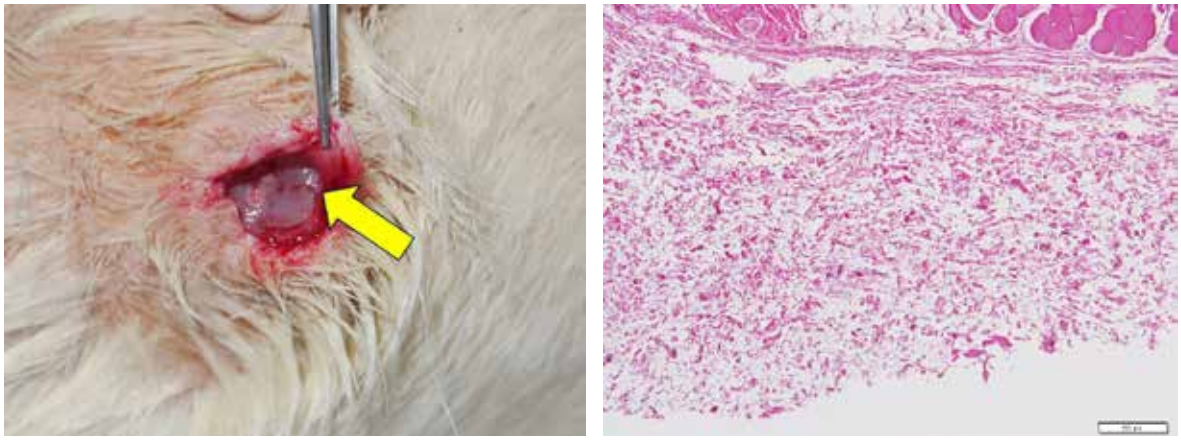
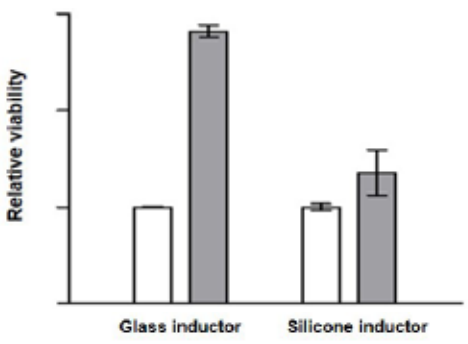


Figure 2.



EP318 IN VITRO EVALUATION OF ANTIBACTERIAL ACTIVITY OF A PLANT EXTRACT-LOADED WOUND DRESSING

Moussa Diop[1], blanchemain nicolas[2]

[1]Cheikh Anta Diop University, Pharmacie, DAKAR, Senegal; *[2]Université de LIlle, INSERM U1008 - Advanced Drug Delivery System, lille, France*

Aim: To determine the in vitro efficacy of a mixture of avocado and mango extracts used as antibacterial agents loaded into a wound dressing to prevent wound infection.

Method: The minimum inhibitory concentrations of plant extracts on the tested strains were carried out in Petri dishes. A mixture of the active extracts in equal parts of petroleum ether extract of avocado kernel and methanolic extract of mango kernel was then tested. This mixture was incorporated into a dressing consisting of a non-woven fabric and a gel containing carboxymethyl cellulose and beta cyclodextrin polymer as absorbent. After incorporation of the extract mixture into the gel and fixation to the textile, Kirby-Bauer and kill time tests were eventually realized on the dressing containing the extract mixture.

Results/Discussion: The 1:1 avocado/mango mixture incorporated into the dressing induced a 3.5 log reduction in Staphylococcus aureus (ATCC 6538). However, due to a lower activity observed against Gram-negative bacteria (Pseudomonas aeruginosa) and fungi (Candida albicans), the dressing could therefore be indicated on non-superinfected wounds (absence of Pseudomonas). Regarding the absorption capacity (1.72 g/100 cm 2), this type of wound dressing is a medium absorption wound dressing and could be recommended for acute and chronic wounds with low exudative activity in the budding stage.

Conclusion: Our results demonstrate the effectiveness of the starch gel and textile dressing with incorporated plant extracts.

EP319 COMPARISON OF THE EFFECTS OF NORMAL SALINE AND ANTIMICROBIAL ON EARLY PERISTOMAL INFECTION RATES IN PATIENTS WITH PERCUTANEOUS ENDOSCOPIC GASTROSTOMY TUBE: A RANDOMIZED DOUBLE-BLIND STUDY

Kezban Akcay[1], Hatice Ayhan[2], Rana Ceren Sezer[3], Cem Simsek[4], Osman Abbasoglu[5]

[1]Hacettepe University Hospital, Nutritional Support Unit, Ankara, Turkey; *[2]University of Health Sciences Turkey, Gulhane Faculty of Nursing, Department of Surgical Nursing, Ankara, Turkey*; *[3]Hacettepe University , Surgical Nursing Department, Faculty of Nursing, Ankara, Turkey*; *[4]Hacettepe University Faculty of Medicine, Department of Gastroenterology, , Ankara, Turkey*; *[5]Hacettepe University Faculty of Medicine, Department of General Surgery, Ankara, Turkey*

Aim: To compare the efficacy of normal saline versus antimicrobial solution in the early peristomal skin care after percutaneous endoscopic gastrostomy placement in terms of peristomal infection incidence.

Method: It is a randomized controlled double-blind study conducted at a university hospital in Turkey between December 2019 and April 2021. All patients who underwent percutaneous endoscopic gastrostomy and met the inclusion and exclusion criteria were included in the study. The study population consisted of 64 patients randomized to Group 1: normal saline (n=31) and Group 2: antimicrobial solution (polyhexamethylene biguanide) (n=33). Daily peristomal skin care was performed for seven days, starting 24 hours after insertion. Peristomal skin was evaluated by two blinded researchers with Peristomal Infection Scoring Form before each dressing. Data analysis was performed with descriptive statistics, Chi-square analysis, Fisher's Exact Test, Shapiro-Wilkins, Mann-Whitney U and Cochran's Q tests.

Results / Discussion: There was no statistically significant difference between the groups in terms of peristomal infection rates (Group 1: 12.9%, Group 2: 9.07%, $p>0.05$). It was found that redness, which is one of the signs of peristomal infection, increased from the fourth day in Group 1 and from the fifth day in Group 2, and the exudate increased in both groups from the fifth day, and this increase was statistically significant ($p<0.05$). There are no randomized controlled studies comparing normal saline and polyhexamethylene biguanide in the peristomal area.

Conclusion: Both solutions can be used within the framework of standard protocols arranged in accordance with the policies of the institutions for peristomal area care. In future studies, it is recommended to compare normal saline with antimicrobial solutions with different properties.

EP320 ANTIBACTERIAL EFFICACY OF HONEY IN PROTEOLYTIC WOUND-LIKE ENVIRONMENT

Juraj Majtan[1], Veronika Bugarova[1], Marcela Bucekova[1], Jana Godocikova[1], Jarmila Farkasovska[1]

[1]*Institute of Molecular Biology, Slovak Academy of Sciences, Department of Microbial Genetics, Laboratory of Apidology and Apitherapy, Bratislava, Slovakia*

Aim: Honey is a well-known remedy in wound care and it has successfully been used in treatment of a broad spectrum of injuries including chronic infected wounds. Antibacterial/antibiofilm activity of honey is the major factor responsible for its wound healing properties. However, the antibacterial efficacy of non-manuka honey in proteolytic wound environment is questioned. Therefore, the aim of study was to characterize *in vitro* antibacterial efficacy of honey and its proteinous compounds in proteolytic wound-like environment.

Method: Determination of honey antibacterial activity was carried out by a broth micro-dilution assay. Glucose oxidase (GOX) enzyme, responsible for production of hydrogen peroxide (H_2O_2), was purified from honey. Several chronic wound exudates were checked for proteolytic activity and incubated with different honey samples. Proteinase K was used as a model protease in order to mimic proteolytic wound environment and incubated with honey samples and purified GOX. GOX enzymatic activity and overall concentration of H_2O_2 was determined by a GOX assay calorimetric kit.

Results / Discussion: Collected chronic wound exudates, containing MMP-9 and MMP-2 proteases, exhibited proteolytic activity. Incubation of honey with the most potent wound exudate resulted in a significant degradation of GOX enzyme. Despite the proteinase K-mediated degradation of all protein content of honey as well as purified GOX, antibacterial activity of non-manuka honey and capability to produce H_2O_2 was not affected, respectively.

Conclusion: Obtained results showed that antibacterial activity of honey may not be negatively affected in proteolytic wound environment and indicated that GOX is a rapid and effective enzyme in generation of H_2O_2.

Acknowledgements: This work was supported by the Slovak Research and Development Agency under Contract No. APVV-21-0262.

EP321 METHOD FOR INVESTIGATING THE MODE OF ACTION FOR BIOFILM PREVENTING OR BIOFILM DISRUPTING WOUND PRODUCTS USING GENE EXPRESSION ANALYSIS

Chris Ball[1], Laura Sellars[1], Samantha Westgate[1], Stefania Fabbri[1]

[1]*Perfectus Biomed, Cheshire, United Kingdom*

Aim: The CDC Biofilm Reactor® is widely used for commercial product testing of biofilm established onto solid state coupons. Bacterial quantification through standard microbiological techniques is mainly used in the assessment of biofilm removal or prevention. However, it widely known that bacteria alter gene expression profiles as environmental pressures evolve. A greater understanding of key genes in response to the presence of antimicrobial products will allow wound companies to understand further about the mode of action of their products in relation to biofilm prevention and biofilm removal.

Method: A Pseudomonas aeruginosa inoculum was prepared and transferred to a CDC Biofilm Reactor® containing stainless steel coupons. The reactor was incubated for 72 hours at 37oC under shaking conditions.

Both biofilm bacteria attached to the coupons and planktonic bacteria were recovered at six time points between 2 hours and 72 hours as the biofilm developed, and gene expression was monitored from both coupons.

Results / Discussion: All investigated genes were significantly upregulated by 18 hours, with four (*pelA*, *rsaL*, *pcrV* and *gyrA*) peaking at 18 hours, and the remaining four (*pslA*, *psqC*, *acpP* and *cbrA*) peaking at 24 hours.

Conclusion: Results showed that the peak expression for all eight genes under typical *P. aeruginosa* biofilm formation occurred between 18-48 hours post inoculation, which coincides with biofilm development. In addition, despite a similar bacterial load, most genes had over 100 times fold change in biofilm samples compared to planktonic, providing the framework for analysing mode of action for wound care products targeting biofilms. This novel method would be recommended for screening antibiofilm products for their ability to prevent and disrupt biofilms.

EP322 METHOD FOR DETECTION AND QUANTIFICATION OF BACTERIAL ADHERENCE TO WOUND DRESSINGS USING QPCR AND GENE EXPRESSION ANALYSIS

Chris Ball[1], Laura Sellars[1], Samantha Westgate[1], Stefania Fabbri[1]

[1]*Perfectus Biomed, Cheshire, United Kingdom*

Aim: The presence of bacteria in a wound can prevent wound healing and lead to chronic infections. Commercial wound dressings may aim to physically remove bacterial load from a wound through attachment to a dressing surface. Bound bacteria are then removed during the dressing change. With repeated applications, the bacterial load of the wound can be reduced to allow the immune system to fight the infection. In this study we analyzed key genes involved in the bacterial attachment process alongside bacterial quantification, to further understand the wound dressing mode of action.

Method: A Pseudomonas aeruginosa inoculum was prepared and 100 µL were applied to the surface of a commercial wound dressing, standard gauze, and a positive control. Each sample was incubated for 24 hours at 37oC under static conditions.

Following incubation, 1 mL of planktonic bacteria were taken from each sample and the remaining bacteria were removed from the sample by washing in sterile PBS. Adhered bacteria were recovered in PBS and both DNA and mRNA were extracted for analysis using qPCR or RT-qPCR:

Results / Discussion: Viable-only quantification of P.aeruginosa:

No significant difference was detected in bacterial quantification between adhered samples and planktonic samples following 24 hours incubation ($p > 0.05$).

Transcription profiles of the pelA and rsaL genes:

Statistical difference was detected in the pelA and rsaL genes between the commercial wound dressing and the gauze following 24 hours incubation ($p < 0.05$).

Conclusion: These results demonstrated that despite a similar bacterial load, transcription data differentiated between test items making this a novel but simple method for detection and quantification of bacterial adherence to a wound dressing.

EP323 MEDICAL GRADE HONEY ENHANCES THE HEALING OF CAESAREAN SECTION WOUNDS AND DOES NOT COMPROMISE IN THE PREVENTION OF INFECTIONS WHEN COMPARED TO ANTIBIOTICS COMBINED WITH POVIDONE-IODINE – A PROSPECTIVE CONTROLLED TRIAL

Amadou Bocoum[1], Senna van Riel[2 3], Soumana Oumar Traoré[1], Elisabeth Florine Ngo Oum[1], Youssouf Traoré[1], Augustin Tioukani Thera[1], Seydou Fané[1], Bakary Tientigui Dembele[4], Niels Cremers[5 6]

[1]*Center Hospitalitier Universitaire Gabriel Touré, Gynecology-Obstetrics Department, Bamako, Mali*; [2]*Zuyderland Medical Center, Department of Gynecology and Obstetrics, Heerlen, Netherlands*; [3]*Maastricht University Medical Centre+, Department of Gynecology and Obstetrics, Maastricht, Netherlands*; [4]*Center Hospitalitier Universitaire Gabriel Touré, Department of General Surgery, Bamako, Mali*; [5]*Triticum Exploitatie BV, Maastricht, Netherlands*; [6]*Maastricht University Medical Centre+, Maastricht, Netherlands*

Aim: Caesarean sections (CS) are increasingly popular. The antibiotic resistance crisis and relentless risk of infections, especially in developing countries, demand alternative treatments. Medical grade honey (MGH) exerts antimicrobial and healing properties. The aim of this study is to evaluate the effect of MGH treatment on CS wound healing and postoperative complications when compared to conventional treatment (antibiotics in combination with povidone-iodine).

Method: In this prospective controlled trial, 766 CS patients were included and evenly divided into two groups. The treatment group (n=383) received an MGH-based formulation (L-Mesitran Soft) and the control group (n=383) received antibiotics (Amoxicillin) combined with povidone-iodine. The wound healing time and complication rate were determined, and predisposing factors for complications among the baseline characteristics (age, parity, gravidity, BMI, education level, occupation) and non-patient-related parameters (hospital admission, duration hospitalization, presence of membrane, delay CS after membrane rupture, duration CS, anesthesia, suture technique) were analyzed.

Results / Discussion: Baseline characteristics were similar for both study groups, supporting a homogenous distribution of the patients. MGH is equally effective in the prevention of surgical wound infections and complications as conventional antibiotics in combination with povidone-iodine. BMI, age, duration of hospitalization, anesthesia, and duration of CS could affect the risk of complications. MGH showed significantly faster healing till day 42 compared to the control group. After this time point, significance was lost due to the small number of remaining patients having a wound.

Conclusion: MGH is a potent alternative treatment to replace antibiotics and povidone-iodine, while simultaneously promoting healing.

E-POSTER SESSION: ACUTE WOUNDS 1

EP324 EFFECTIVENESS OF DISCHARGE EDUCATION FOR PATIENTS UNDERGOING GENERAL SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS

Brigid. M Gillespie[1 1 1 2 3]

[1]1National Health and Medical Research Council Centre of Research Excellence in Wiser Wound Care, , Menzies Health Institute Queensland,, Gold Coast, Australia; [1]1National Health and Medical Research Council Centre of Research Excellence in Wiser Wound Care, , Menzies Health Institute Queensland,, Gold Coast, Australia; [3]1National Health and Medical Research Council Centre of Research Excellence in Wiser Wound Care, , Menzies Health Institute Queensland,, Gold Coast,

Aim: To assess the effect of discharge education versus standard education given to general surgery patients prior to, or up to 30-days of hospital discharge on clinical and patient-reported outcomes.

Method: A systematic review with meta-analysis was undertaken. MEDLINE, CINAHL, EMBASE and the Cochrane Library were searched in 2022. Randomised controlled trials (RCTs) and non-randomised studies of interventions (NRSI)s published between 2010-2022, with adults having general surgery receiving discharge education on postoperative recovery, including wound management, were eligible. Quality appraisal was undertaken using the Cochrane Risk of Bias 2 and the Risk of Bias Assessment Tool for Nonrandomized Studies. The Grading of Assessment, Development, Recommendations, and Evaluation was used to assess the certainty of the evidence base.

Results / Discussion: Ten studies (6 RCTs; 4 NRSI) with 965 patients were included. Six RCTs assessed the effect of discharge education interventions on 28-day readmission (OR 0.88, 95% CI 0.56-1.38, p=0.52). Two RCTs assessed the effect of discharge education interventions on SSI (OR= 0.84, 95% CI 0.39- 1.82, p=0.31). Results for these outcomes were pooled but were not statistically significant. Results of the NRSI were not pooled because of heterogeneity in outcomes. The risk of bias was either moderate or high, and the body of evidence using GRADE was very low for all outcomes.

Conclusion: The evidence base on the impact of discharge education on clinical and patient-reported outcomes in general surgical patients is highly uncertain. To gain a better understanding of the impact of discharge education interventions in this population, robust multicentre RCTs including parallel process evaluations are needed.

EP325 POST-SURGICAL INCISION WOUND CARE: A SURVEY OF OBSTETRICIANS AND GYNAECOLOGISTS IN THE ASIA-PACIFIC REGION

Kylie Sandy-Hodgetts[1], Diane Eng[2], Gilbert Madriaga[3], Jeff Wang[4], John Timmons[5], Randy Schwartz[6]

[1]Murdoch University, Centre for Molecular Medicine & Innovative Therapeutics, Australia; [2]Monlycke Health Care Asia-Pacific, Medical and Professional Affairs, Singapore; [3]Monlycke Health Care Asia-Pacific, Medical Affairs, Singapore; [4]Molnlycke Health Care , Medical Affairs, China; [5]Molnlycke Health Care AB, Medical Affairs, Sweden; [6]Molnlycke Health Care US, Medical and Professional Affairs, United States

Aim: This survey aimed to determine factors influencing decision-making in postoperative incision care from obstetricians and gynaecologists (OB/GYN) across the Asia-Pacific (APAC) region and to expand further the understanding of current practice in postoperative incision care for the OB/GYN patient in the region.

Method: OB/GYNs from the APAC region were invited to participate in an online survey on post-surgical incision wound care practices from September to October 2022.

Results / Discussion: A total of 163 OB/GYNs participated in the survey. About half of the respondents (56%) used Enhanced Recovery After Surgery or similar fast-track programmes in their practice. Almost all respondents (95%) believe that the postoperative care recommendations in these programmes are limited. Commonly used post-operative dressings were bordered foam (30%) and fabric island type (29%) dressings, with the most frequent reasons for dressing selection being the performance of product / treatment (36.7%) and surgeon's preference (34.8%). Almost half of the respondents (49%) leave the post-operative dressing in place for 1-2 days before changing; the most common reason for changing the dressing is the need to inspect the wound (38%). Thirty-one per cent of participants strongly agree that post-operative dressings impact scar outcomes, and 24% of the respondents were highly satisfied with their choice of post-operative dressing with regard to scar outcomes.

Conclusion: This survey identified gaps in post-operative incision wound care in OB/GYN practice. Aside from limited recommendations from fast-track programmes on post-operative care, the concept of undisturbed wound healing and the role of post-operative dressings in scar management may require further consideration.

EP326 FENESTRATED-TYPE ARTIFICIAL DERMIS IN ONE-STAGE RECONSTRUCTION OF FINGERTIP CRUSHING-AMPUTATION INJURIES: A CASE SERIES STUDY

Hsu-Tang Cheng[1]

[1]*Asia University Hospital, Plastic Surgery, Taichung City, Taiwan*

Aim: Reconstruction of skin and soft-tissue defects of the fingertip crushing-amputation injuries is functionally and aesthetically important. Recent advances in wound healing technology allow the use of artificial dermis. The authors studied the clinical efficacy of fenestrated-type artificial dermis in one-stage reconstruction of fingertip defects based on Allen's classification.

Method: From July 2019 to July 2021, we consecutively collected hand trauma cases involving fingertip crushing-amputation injuries. All wounds were treated with surgical debridement and fenestrated-type artificial dermis coverage. We used the Analysis of Variance (ANOVA) to analyze the wound healing time for Allen's type II, III, and IV injuries.

Results / Discussion: A total of 108 hand digits from 93 patients with fingertip crushing-amputation injuries were included in the study. The mean wound healing time for Allen's type II, III and IV crushing-amputation injuries were 42.48±10.26 days (range 27 -60), 43.2±11.38 days (range 28 -59), and 69.79±26.60 days (range 42 -129), respectively. Compared to type II and III crushing-amputation injuries, patients with type IVinjuries had significantly longer healing time ($p<0.001$), whereas there is no difference between type II and type III regarding wound healing time ($p=0.991$).

Conclusion: Reconstruction of fingertip crushing-amputation injuries by using the fenestrated-type artificial dermis treatment is an easy and effective approach to restore defects after injury with good results.

EP328 COMPARISON OF HYBRID ABDOMINAL FLAP VERSUS HOMODIGITAL NEUROVASCULAR ISLAND FLAP FOR FINGERTIP AMPUTATION

Jun Ho Park[1], Dae Hyun Kwon[1]

[1]SMG-SNU Boramae Medical Center, Plastic and Reconstructive Surgery

Aim: Amputation at the level of the distal phalanx is a common hand injury and is normally treated with replantation. However, if the level of injury is distal or the vessels of the stump have been crushed by injury, replantation cannot be a viable option. The aim of this study is to evaluate the functional and aesthetic outcomes of the 'Hybrid Abdominal Flap,' which consists of a random-pattern abdominal skin flap and an autologous bone graft.

Method: A retrospective analysis was performed on fingertip amputation patients from March 2019 to April 2021. Patients were managed by either hybrid abdominal flaps (HAFs) or homodigital neurovascular island flaps (HNIFs). Functional and aesthetic outcomes were assessed three months after operation. In this study, total of 20 fingers treated with either HAFs or HNIFs.

Results / Discussion: There was a significant difference in the range of motion (ROM) and scar quality between the two groups. All the flaps survived without flap necrosis, and non-union of the bone was not observed. The patients were satisfied with the appearance and the function of their finger, including ROM and sensory aspects.

Conclusion: Our novel HAF is a functionally and aesthetically valid option for fingertip amputations with crushed stumps.

EP329 EXTENSIVE WOUNDS IN CHILDREN IS OUR TREATMENT CONCEPT

Sholpan Mukasheva[1], Dina Saginova[2], Sergey Shmidt[1]

[1]Professor H. Makazhanov Multidisciplinary Hospital, Pediatric Othopedic Department, Karaganda, Kazakhstan; *[2]National Center Traumatology And Orthopedics Named After Academician N.Batpenov, Center For Applied Scientific Research, Astana, Kazakhstan*

Aim: To evaluate the results of complex surgical treatment of wounds and open fractures in children.

Method: In 2018-2022, 87 children with injuries were treated in the department, which is 2.0% of the total number of children with injuries. Of these, 28 children had extensive wounds (21 boys (75%), girls 7 (25%)). Patients underwent wound treatment with the Sonoka-180 ultrasound dissector, as well as pulse-lavage of wounds with a volume of antiseptic solutions up to 5 liters. In the first 3-4 days, dressings are usually applied, and then Vacuum drainage is applied to reduce and sanitize wounds. For fractures, an external fixation was applied, with the transition to extrafocal distraction-compression osteosynthesis, flexible nails, locked nail intramedullary osteosynthesis (for children over 14-15 years old). The final stage of autodermoplasty with a split flap to the defect site.

Results / Discussion: As a result of treatment, a good result was obtained in 17 patients (61%), a satisfactory result in 9 patients (32%), and an unsatisfactory result in 2 (7%) patients - contracture of the fingers and nerve damage.

Conclusion: Early stabilization of fractures in children with the use of external fixation often exacerbates the healing of both wounds and fractures. Timely and adequately performed surgical treatment using ultrasonic cavitation of cavities, vacuum drainage helps prevent the spread of purulent infection.

EP330 SURGICAL TREATMENT OF SKIN NECROSIS AT EXTRACORPOREAL MEMBRANE OXYGENATION SITES

Kwang Sik Seo[1], Min Wook Kim[2], Jung Yeol Seo[2]

[1]Pusan National University, School of Medicine, Plastic and Reconstructive Surgery, Yangsan, Korea, Rep. of South; *[1]Pusan National University, School of Medicine, Plastic and Reconstructive Surgery, Yangsan, Korea, Rep. of South*

Aim: Extracorporeal membrane oxygenation systems (ECMO) are life-saving treatment devices for patients with severe heart and lung dysfunction. Because ECMO tubes are large in diameter and inserted percutaneously, it is easy to develop groin skin necrosis after ECMO removal. Our plastic surgery clinic introduces optimal treatment through proper management and surgery for these wounds.

Method: This study introduces 28 cases of 22 patients who underwent plastic surgery treatment for groin skin necrosis at the ECMO removal site at a single institution from March 2018 to October 2022.

Results / Discussion: The mean age of the 22 patients (13 males and 9 females) was 60.5 years (range, 11–89 years). Most of patient treated with ECMO treatment for ischemic heart disease, and five patients received high-intensity immunosuppressive drugs for heart transplantation. The average time of wound demarcation was 6.7days, during which a simple dressing was applied once daily. All surgeries were performed under local anesthesia, followed by debridement, bacterial culture, and reconstruction with local flaps. There was no lymphatic drainage in all wounds, and no negative pressure wound treatment or skin graft was performed. In bacterial culture, Acinetobacter baumannii was detected in one patient, and hematoma developed in the other as a postoperative complication. Wound healing was achieved within 2 weeks in all patients, no complications such as wound dehiscence have been observed since discharge

Conclusion: This study suggests that surgical treatment may be a simple, timesaving and effective treatment option for skin necrosis at the site of ECMO removal.

EP331 TREATMENT STRATEGY FOR ENTIRE LOWER EXTREMITY DEGLOVING INJURY

Nam Kyu Lim[1], Sungyeon Kim[1]

[1]*Dankook University Hospital, Plastic and Reconstructive Surgery, Cheonan, Korea, Rep. of South*

Aim: Degloving injuries over the entire lower extremities may result in significant complications such as infection and may even lead to death. Therefore, the establishment of an effective treatment strategy is important.

Method: In this study, we propose a treatment strategy after examining cases of patients with entire lower extremity degloving injuries. A retrospective analysis was conducted on three patients who were all treated according to the established strategy. We divided the strategy into three time sequences: initial treatment; intensive medical care and wound bed preparation for skin graft; and skin graft. The patients' progress was assessed to demonstrate the efficacy of the strategy.

Results / Discussion: Three female patients with no underlying diseases were included, and the mean age was 58.0±15.7 years (range, 44–75 years). The mean C-reactive protein level was the highest on day 3 after the injury and sharply reduced up to day 14.3 on average. After treatment, joint motion was limited in all cases, but it gradually improved with rehabilitation. Unfortunately, all patients suffered from post-traumatic stress disorders.

Conclusion: We established a treatment strategy for patients with entire lower extremity degloving injury using a comprehensive approach and achieved satisfactory results.

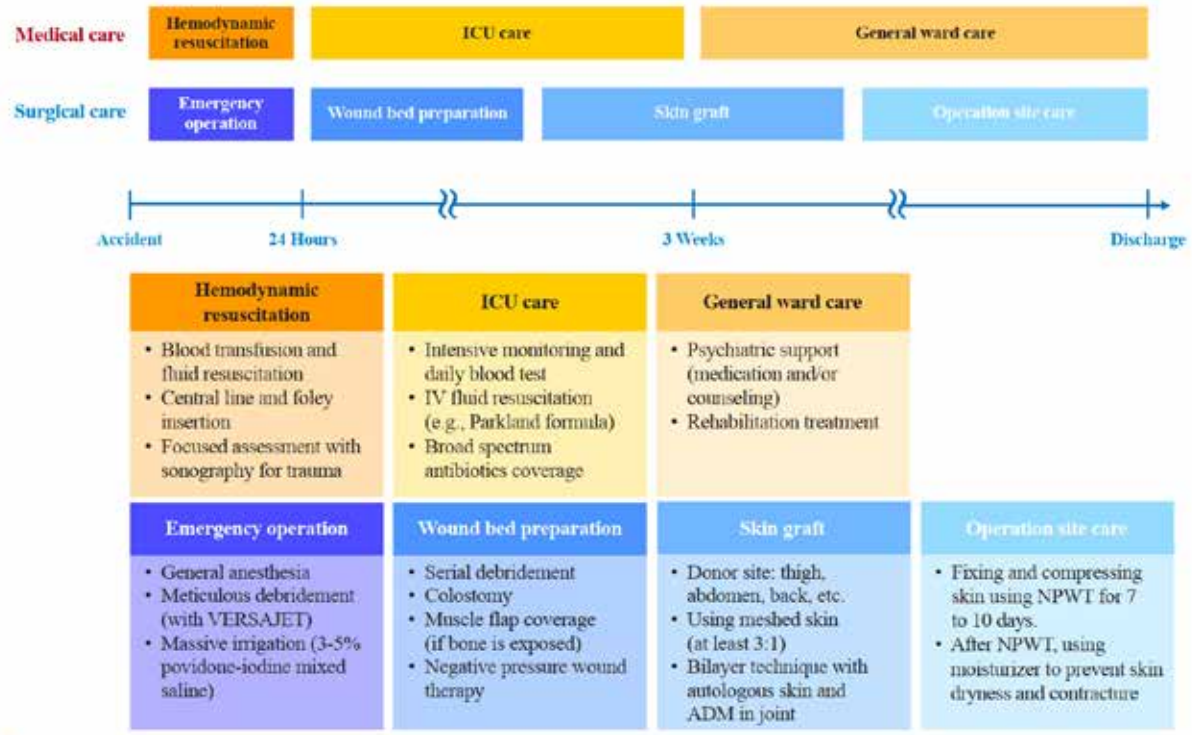


Fig. 1. A schematic image for the treatment strategy. ICU, intensive care unit; IV, intravenous; ADM, acellular dermal matrix; NPWT, negative pressure wound therapy.

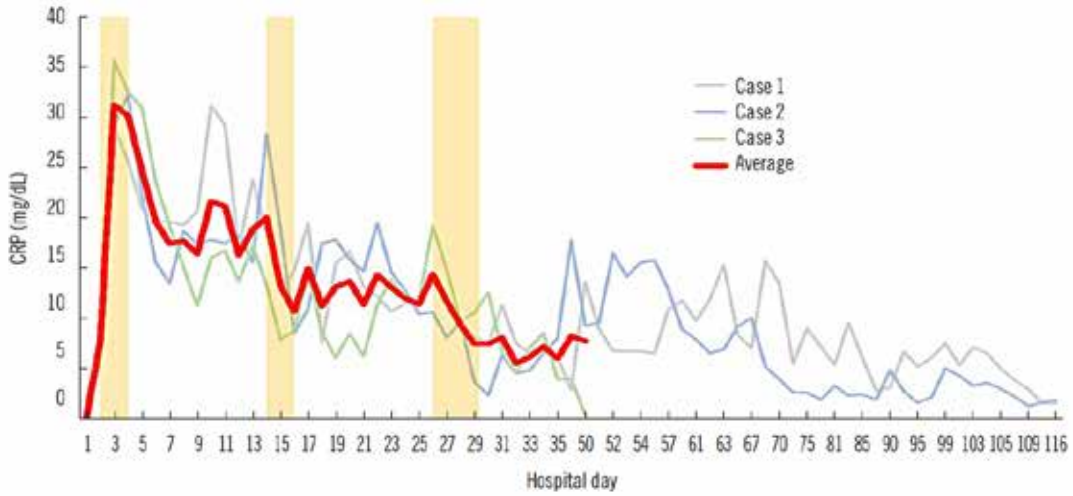


Fig. 2. Graph of three patients' C-reactive protein (CRP) levels during hospitalization. CRP levels peaked at 3 days on average and declined below 10 mg/dL at 15 days. CRP levels were usually stable after 4 weeks.

Fig. 3. Clinical photograph of case 1. (A) Initial wound. (B) Preoperative photograph just before the first skin graft. (C) Six months after the last skin graft.

Fig. 4. Clinical photograph of case 2. (A) Initial wound. (B) Preoperative photograph just before the first skin graft. (C) Three months after the last skin graft.

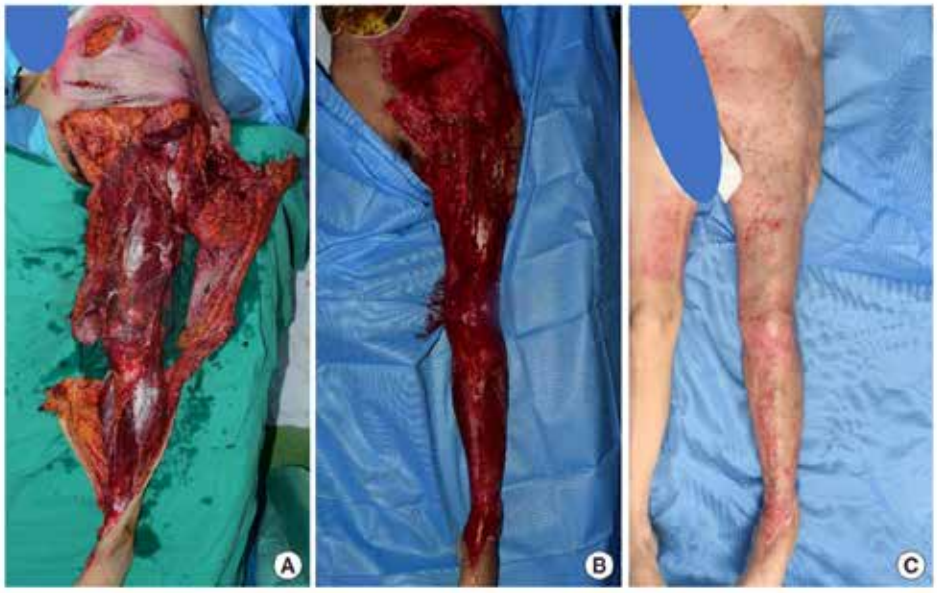


Fig. 5. Clinical photograph of case 3. (A) Initial wound. (B) Preoperative photograph just before the first skin graft. (C) Three months after the last skin graft.

Characteristics	Case 1	Case 2	Case 3	Mean±SD
Age (yr)	44	75	55	58.0±15.7
Sex	Female	Female	Female	
Past medical history	None	None	None	
Cause of trauma	Motorcycle TA (bus crash)	Pedestrian TA (by bus)	Pedestrian TA (by fork lift)	
Survival probability (%)[a]	97.8	75.6	82.5	85.3±11.4
Trauma region (TBSA, %)	Left inguinal to toe (18.0)	Right inguinal to ankle and left knee to ankle (22.5)	Left lower abdomen to ankle (22.0)	
Combined injury	Left toe, ankle and fibular fracture	Left ankle and pelvic fracture	Pelvic fracture and rectovaginal fistula	
Total LOS (day)	314	181	188	227.7±74.8
ICU LOS (day)	11	70	29	36.7±30.2
Total no. of operation	48	42	31	40.3±8.6
Flap coverage	1	1	0	0.7±0.6
Skin graft	5	3	3	3.7±1.2
Amputation	4	0	0	1.3±2.3
Etc.[b]	38	38	28	34.7±5.8
Anesthesia type				
General	19	19	19	19.0±0.0
Spinal	1	0	0	0.3±0.6
Local	28	23	12	21.0±8.2
Discharge disposition	Home	Home	Home	

TA, traffic accident; TBSA, total body surface area; LOS, length of stay; ICU, intensive care unit.
[a]Trauma injury severity score; [b]Surgical debridement, cleansing with antiseptic dressing or negative pressure wound therapy.

Table 1.

Table 2. Post-treatment sequelae and complications

	Case 1	Case 2	Case 3
Evaluation time (days after final skin graft)	196	210	138
Joint disability			
Joint/action (normal ROM)			
Hip	Left	Right Left	Left
Flexion (125°)	Full	90 90	80
Extension (15°)	Full	0 0	–30
Abduction (45°)	Full	30 30	35
Adduction (20°)	Full	0 0	0
Internal rotation (45°)	Full	10 10	15
External rotation (45°)	Full	10 10	15
Knee			
Flexion (130°)	80	60 10	55
Extension (0°)	0	0 0	0
Ankle			
Plantar flexion (45°)	Uncheckable	40 40	45
Dorsi flexion (20°)	Uncheckable	–20 –20	–45
Ambulation	Crutch gait	Wheelchair ambulation	Crutch gait
Psychiatric disability	PTSD	PTSD	PTSD

ROM, range of motion; PTSD, post-traumatic stress disorder.

EP332 USEFULNESS OF PISCINE WOUND MATRIX IN THE TREATMENT OF SPLIT SKIN GRAFT DONOR SITES IN ELDERLY PATIENTS

Eunsoo Park[1], Younghun Kang[1], ChangYong Choi[1]

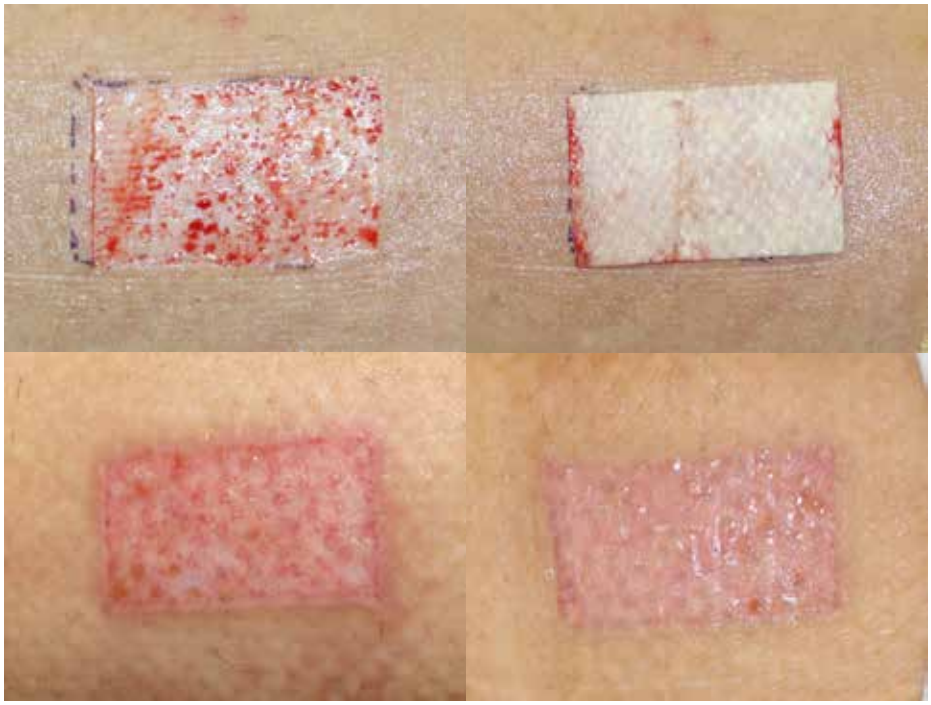
[1]Soonchunhyang University Bucheon Hospita; Plastic & Reconstructive Surgery, Bucheon, Korea, Rep. of South

Aim: When dressing off the STSG donor site of the elderly, tearing is likely to occur in the surrounding area, which can make more delayed healing. We designed this study to solve this problem by using piscine wound matrix in the STSG donor site of the elderly, focusing on the anti-inflammatory and pain control effects of piscine wound matrix omega3.

Method: From January 2021 to May 2022, a study was conducted on people who used piscine wound matrix (at the donor site for those who underwent STSG at the age of 65 or older. After harvesting the skin, hydrated piscine wound matrix for 1 minute was raised according to the size of the donor site, and dressing was applied with foam with silicone border. In order to compare that it usually takes about 14 days for the STSG donor site to recover, the dressing was off 7 days after surgery to determine how much recovery, whether there was any infection, and the degree of pain. After follow-up, how long it takes to total healing and the occurrence of scars were checked.

Results / Discussion: Piscine wound matrix was applied to the STSG donor site of a total of 30 elderly, and an average of 50% healing was achieved for 7 days. The time taken until total healing was 11.2 days. There was no infection or abrasion around the donor site, and no hypertrophic scar was observed among those who followed-up for more than 3 months.

Conclusion: The piscine wound matrix in this study represented an effective treatment option at the donor site of split thickness skin graft in old age.



E-POSTER SESSION: TRANSLATIONAL SCIENCE

EP333 FIBERLAB: A POINT-OF-CARE TESTING STRIP FOR RAPID MEASUREMENT OF INFLAMMATION MARKERS IN CHRONIC WOUNDS

Schyrr Bastien[1], Fabien Sorin[1]

[1]*EPFL, Lausanne, Switzerland*

Aim: Despite a better understanding of the underlying mechanisms and biomarkers of wound healing, biochemical information remains mostly unexploited in daily practice due to the complexity and cost of centralized laboratory analysis. To bridge this gap, we propose a point-of-care testing solution to analyze wound exudate for inflammation markers directly at the patient bedside.

Method: Our group has recently developed a low complexity microcapillary device that can be used to precisely sample and analyze wound exudate in a single step. The functional multichannel test strip allows passive liquid sampling by simple contact, which triggers several pre-loaded colorimetric assays in parallel. Analyte quantification is achieved on a dedicated portable reader based on automated image analysis. Here we report on the implementation of 4 different laboratory assays for pH, CRP, lactate and proteases as part of our manufacturing process, and on the performance of the produced test strips in laboratory settings.

Results / Discussion: Different types of commercially available colorimetric assays were selected to demonstrate the versatility of the test: a simple pH indicator, a CRP immunoagglutination assay, an enzymatic reaction for lactate, and a chromogenic substrate for proteases. Testing relies on a simple dip-and-read procedure, which involves contacting the liquid for direct sampling of approximatively 20uL, after which the test strip is inserted in a portable reader and analyzed for 10min. From a volume of 20uL of sample, the proposed test strips were able to monitor pH in the range from pH 6 to 8.5 with a precision of 0.2 units, measure lactate up to 3mM with a limit of detection of 0.1mM, detect CRP induced agglutination at a threshold of 2.5 – 5 µg/mL CRP, and assess protease activity with a limit of detection of 0.03mg/mL of trypsin. Preliminary results demonstrated a minimal shelf-life of 2 months without refrigeration using a low humidity packaging. The simple testing procedure combined with a rapid time-to-answer means that this device can be used for routine analysis in the timeframe of a medical consultation.

Conclusion: The proposed device aims at complementing clinical observations with quantitative biochemical data. Low cost, rapid and easy-to-use, these microcapillary tests could support caregivers during routine evaluation of healing progress or support investigations of wounds that failed to heal with standard of care, at home and in the clinics, as well as provide new evidence for the rational use of advanced therapies.

EP334 THE EFFECTS OF NERVE REGENERATION USING HYDROGEL OF MUSSEL ADHESIVE PROTEIN

Young Joon Jun[1]

[1]*The Catholic University of Korea Seoul St. Mary's Hospital, plastic and reconstructive surgery, seoul, Korea, Rep. of South*

Aim: Autologous nerve grafting has been applied as the best method of treating peripheral nerve defects but it has problems such as donor site morbidity. If the defect is more than 2 cm, direct suture is difficult and the nerve conduit is used for nerve regeneration. In addition, nerve repair by suture can damage nerve tissue. Therefore, we use mussel adhesive protein to induce nerve regeneration without suture of nerve injury site and compare with conventional nerve repair.

Method: We made a 10mm long defect in the sciatic nerve of 46 rats and divided to subgroups. 1) Normal (positive control), 2)Sham (negative control), 3)Direct anastomosis –suture, 4)Direct anastomosis by fibrin glue, 5)Direct anastomosis by Mussel adhesive protein(MAP), 6)Direct anastomosis by MAP with Substance P, 7)15 mm gap model with silicon tube by suture, 8)15 mm gap model with silicon tube by fibrin glue, 9)15 mm gap model with silicon tube by MAP 10) 15 mm gap model with silicon tube by MAP with substance P. After 6 weeks, nerve conduction velocity (NCV) and histological observations were made.

Results / Discussion: *In vivo* results revealed that the NCV was improved more in the experimental groups after 6 weeks from nerve repairing by MAP than in the control group(suture). Histologic (H&E, Toluidine blue staining) and immunohistochemistry (Nestin, MAP–2, GFAP) staining showed more regenerated nerve findings.

Conclusion: In this study, we propose nerve repair by MAP because of shortening operation time and additional nerve damage by suture, Additionally Mussel adhesive protein with substance P propose to be a good method of promoting nerve regeneration.

EP335 PROMOTION OF DERMAL TISSUE ENGINEERING IN A RAT MODEL BY USING A COMPOSITE 3D PRINTED SCAFFOLD WITH ELECTROSPUN NANOFIBERS AND RECIPIENT-SITE PRECONDITIONING WITH EXTERNAL VOLUME EXPANSION DEVICE

Taehee Jo[1]

[1]*Keimyung University Dongsan Hospital, Department of Plastic and Reconstructive Surgery, Daegu, Korea, Rep. of South*

Aim: We hypothesized that use of a composite three-dimensionally (3D) printed scaffold with electrospun nanofibers in conjunction with recipient-site preconditioning with an external volume expansion (EVE) device would enable successful dermal tissue regeneration of a synthetic polymer scaffold.

Method: Cell viability, cell infiltration, extracellular matrix deposition, scaffold contraction, and mRNA expression by dermal fibroblasts cultured on three different scaffolds; 1) 3D-printed scaffold with a collagen coating, 2) 3D-printed scaffold with an electrospun polycaprolactone nanofiber and collagen coating, and 3) 3D-printed scaffold with an electrospun polycaprolactone/collagen nanofiber, were measured. Before scaffold implantation, rats were treated for 2 h with an EVE device to evaluate the effect of this device on the recipient site.

Results / Discussion: Cell proliferation rates were significantly higher on the 3D-printed scaffold with electrospun polycaprolactone nanofiber and collagen coating than on the other scaffolds. In cell invasion studies, the 3D-printed scaffold with electrospun polycaprolactone nanofiber and collagen coating showed better cell integration than the other scaffolds. Under stereomicroscopy, fibroblasts adhered tightly to the electrospun area, and the fibroblasts effectively produced both collagen and elastin. Rat skin treated with an EVE device exhibited increased HIF-1α protein expression and capillary neoformation compared with control skin. Invasion of CD8+ cytotoxic lymphocytes surrounding the scaffold decreased when the recipient site was preconditioned with the EVE device.

Conclusion: The composite 3D printed scaffold with electrospun nanofibers provided a favorable environment for proliferation, migration, and extracellular matrix synthesis by fibroblasts. Recipient-site preconditioning with an EVE device allowed for scaffold incorporation with less inflammation due to improved angiogenesis.

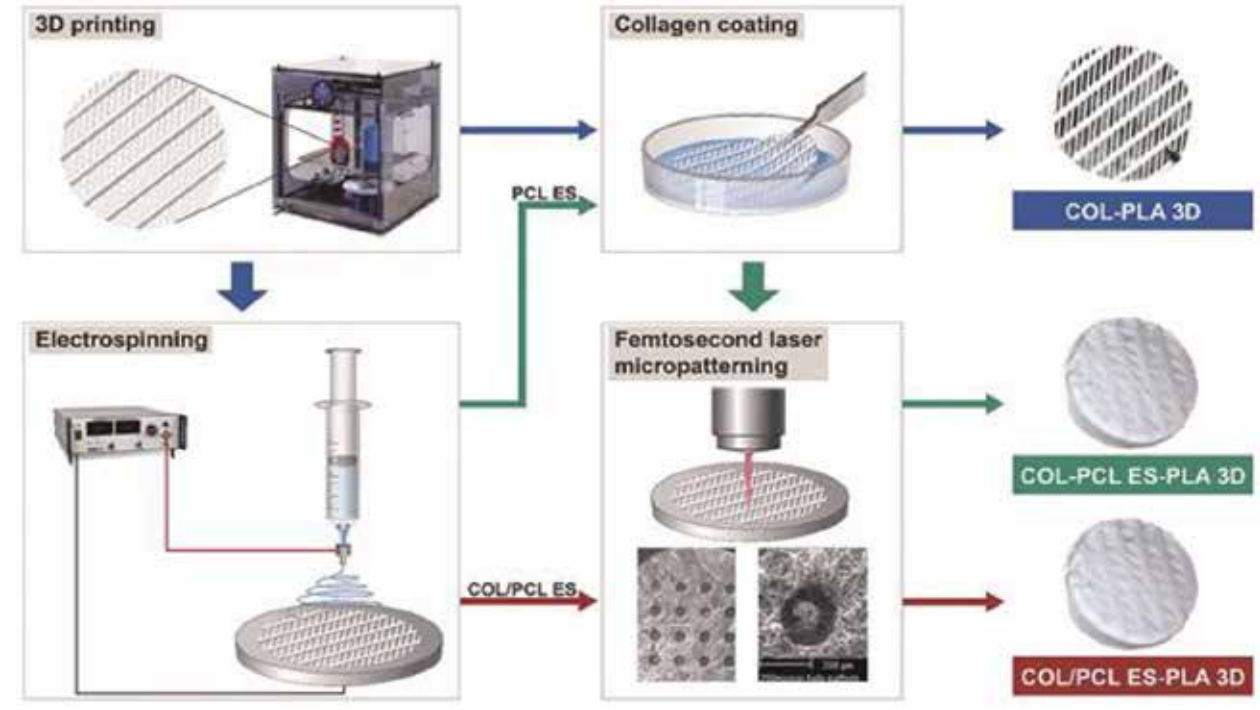


Fig 1. Schematic illustration of the experimental process of creating scaffolds.

EP336 DEVELOPMENT OF NATURAL DERMACEUTICALS BASED ON A NOVEL ATELOCOLLAGEN COMPLEX FOR ONCOLOGICAL WOUND HEALING

Marianna Prokopi[1], Demetra Wiedl[2], Anna Katsioloudi[3], Despoina Kokkinidou[4], Anna Christofini[1], Danae Georghiou[2], Zacharoula Xenou[2 4], Helena Topouzi[1], Konstantinos Kapnisis[4], Andreas Anayiotos[4], Marios Christofinis[5], Costas Pitsillides[1]

[1]RSL Revolutionary Labs Ltd, Cyprus; *[2]Promed Bioscience Ltd, Cyprus*; *[3]Theramir Ltd, Cyprus*; *[4]Cyprus University of Technology, Cyprus*; *[5]Limassol Dermatological Centre, Cyprus*

Aim: Current cancer treatments, although effective in increasing patient survival rates, still present with significant dermatological toxicities. Skin side effects often lead to patients' noncompliance with receiving treatment and available options for skin care management are still limited and often ineffective. The present study concerns the development of natural topical products based on a novel water-soluble atelocollagen complex specially formulated to penetrate through skin layers, alleviate skin issues and promote wound healing.

Method: Triple-helix atelocollagen was developed from porcine tendons via enzymatic and thermal modifications resulting in a protein complex of three distinct MW (up to 120kDa). Atelocollagen was modified to a water-soluble state and characterized using SDS-PAGE, amino acid and SEM analysis. Mechanical testing was performed by swelling test, viscosity, solubility and contact angle assays. Formulation blending using natural extracts was performed at different phases and concentrations while the final topical formula was tested for *in vitro* biocompatibility, irritation, toxicity and efficacy using cell monolayers, 3D-skin assays and *ex vivo* blood/skin assessment.

Results / Discussion: The novel atelocollagen complex retained the 3D-characteristic structure, with a super hydrophilic and Newtonian profile. Exposure to reconstructed skin models indicated no toxicity or irritation compared to controls and hydrolyzed collagen peptides. Wound healing assays showed increased proliferation and migration of keratinocytes and fibroblasts resulting in accelerated wound closure. *Ex vivo* imaging demonstrated deep epidermal penetration and increase of COL1, COL2 and ELASTIN local production.

Conclusion: A novel water-soluble triple-helix atelocollagen was developed and tested for oncological wound healing applications. The successful retention of triple helices was key for collagen binding with wound exudating growth factors and cytokines, promoting hydration and accelerated healing.

EP337 IMPACT OF FISH SKIN GRAFTS ON WOUND HEALING IN A STANDARDIZED PRE-CLINICAL MODEL

Anna-Lisa Pignet[1 2], Elisabeth Hofmann[1 2], Julia Fink[1], Anna Schwarz[1 2], David Hahn[1], Manuel Prevedel[1], Andrzej Hecker[1 2], Lars-Peter Kamolz[1 3], Petra Kotzbeck[1 2]

[1]Joanneum Research Forschungsgesellschaft mbH, COREMED - Centre of Regenerative Medicine and Precision Medicine, Graz, Austria; *[2]Medical University Graz, Research Unit for Tissue Regeneration, Repair and Reconstruction, Division for Plastic, Aesthetic and Reconstructive Surgery, Graz, Austria*; *[3]Medical University Graz, Division for Plastic, Aesthetic and Reconstructive Surgery, Graz, Austria*

Aim: Fish skin grafts have proven to be effective in acute and chronic wound healing. Multiple human studies have to date demonstrated that products from fish skin grafts accelerate wound healing and are efficacious, safe and cost-effective. The aim of this study was to investigate the effects of fish skin grafts on wound healing properties in a full-thickness skin defect pig model.

Method: Fish skin grafts were tested in a standardized full thickness skin defect (3 cm x 3 cm) pig model (n=6; male landrace pigs) and compared intra-individually to control wounds (foam dressing). The experiment lasted for 21 days and one-time reapplication of tested dressing was carried out after 9 days post wounding. Wound scoring, thermography, photo-documentation and non-invasive imaging (laser speckle, hyperspectral imaging) of wound perfusion were carried out 5, 9, 14 and 21 days post wounding.

Results / Discussion: During the experiment period, fish skin grafts showed similar epithelialization compared to control wounds. On day 9, 14 and 21 fish skin grafts showed significantly more granulation tissue compared to control wounds. In contrast to fish skin grafts, control wounds showed significant signs of contraction. Thermography showed significant higher surface temperature in fish skin-treated wounds on day 9 and day 14. There were no differences in oxygenation and perfusion.

Conclusion: Fish skin grafts showed promise as an agent to support wound healing due to accelerated granulation tissue growth in pre-clinical full thickness wounds.

EP338 AUTOLOGOUS PLATELET-RICH PLASMA AS A PERSONALISED THERAPY FOR TREATING CHRONIC WOUNDS: A PROSPECTIVE COHORT STUDY

Verónica Salgado Pacheco[1 2], Ramon Oller-Pique[3 4], Marta Casals Zorita[1 5], Clara Masó Albareda[1 5], Marta Ferrer Solà[1 5], Emma Puigoriol-Juvanteny[6], Elisabet Sarri-Plans[1 7], Marta Otero Viñas[1 2]

[1]Institute for Research and Innovation in Life and Health Sciences in Central Catalonia (IrisCC), Tissue Repair and Regeneration Laboratory (TR2Lab), Vic, Spain; [2]University of Vic – Central University of Catalonia, Biosciences , Vic, Spain; [3]Institute for Research and Innovation in Life and Health Sciences in Central Catalonia (IrisCC), Data Analysis and Modeling (DAM), Vic, Spain; [4]University of Vic – Central University of Catalonia, Economy and Buisiness, Vic, Spain; [5]Hospital Universitari de la Santa Creu de Vic, Vic, Spain; [6]Hospital Universitari de Vic, Vic, Spain; [7]Fundació d'Estudis Superiors en Ciències de la Salut, Medicina, Vic, Spain

Aim: Chronic wounds are difficult to heal with conventional treatments. The patients' profile who better benefit from autologous platelet-rich plasma (PRP) therapy is not clear. This study is focused on the identification of influential variables in the success of this therapy to analyze the personalized-therapeutical potential of PRP for treating chronic wounds.

Method: Observational pilot study in patients with chronic wounds treated with autologous PRP. We analyzed socio-demographic data, etiology, clinical and analytical parameters, healing rate and healing time. Data were analyzed using descriptive statistics, principal component analysis (PCA), cluster analysis and survival analysis.

Results/Discussion: The study included 56 patients (33 women, mean age 75.07±14.7), of whom 55% have mild and moderate frailty (VIG index: 0.16-0.35). Wound etiologies: 20% venous, 18% suture dehiscence, 12% pressure ulcers, 12% traumatic, 9% diabetics, 9% arterial, and 20% others. The mean wound size was 17.65 cm2. Higher healing rate was observed in patients with lower VIG and in wounds < 10 cm2. A total of 3 patients' clusters have been identified according to their analytical parameters. Cluster patients with high values of erythrocytes, hemoglobin, hematocrit, platelets, and albumin showed the highest healing rate. The survival analysis showed: a) 15% of ulcers healed at 5 weeks, 55% at 10 weeks, and 79% at 15 weeks; and b) patients with wound size < 4cm2 or VIG < 0.35 had the lowest healing time.

Conclusion: PRP therapy success depends on wound size, patients' frailty, and analytical parameters, suggesting that personalization of PRP therapy might be recommended.

EP339 MODELLING OF INTERKINGDOM SPECIES-SPECIES INTERACTIONS IN A CHRONIC WOUND MODEL TO ASSESS ANTIBIOTIC TOLERANCE

Stine Sørensen[1], Lasse Kvich[1], Thomas Bjarnsholt[1 2], Ida Clement Thaarup[1]

[1]Copenhagen University, Department of Immunology and Microbiology, Copenhagen, Denmark; [2]Rigshospitalet, Department of Clinical Microbiology, Copenhagen, Denmark

Aim: Chronic wounds continue to be a heavy burden on healthcare systems, and their occurrence is predicted to increase. The presence of biofilms within chronic wounds is thought to delay the healing process and cause high amounts of tissue damage. Unfortunately, biofilms are known for their high tolerance towards antibiotics and antimicrobial agents, thus challenging to eliminate. Wounds contain several different bacterial species, along with fungi and viruses. Recent studies suggest that the co-occurrence of certain fungi and bacteria may cause an increased tolerance towards antibiotics. Such interkingdom interspecies interactions complicate treatment options and are rarely incorporated in wound models. We wanted to investigate these interactions in a chronic wound model.

Method: In the present study, we have established an interkingdom, tri-species chronic wound model containing *C. albicans*, *S. aureus,* and *P. aeruginosa*. The model is based on a collagen scaffold solely containing mammalian-derived components, such as whole blood, serum, fat, and meat digest.

Results / Discussion: We hypothesize that antibiotic tolerance profiles will be significantly altered compared to single- and dual-species consortia. The effect of antibiotic treatments will be evaluated using bacterial and fungal counts on selective plates, and microsensor measurements of pH and oxygen will be used to assess alterations that can explain the difference in antibiotic sensitivity. In addition, the spatial location of the species within the model will be visualized using confocal microscopy.

Conclusion: We expect that the use of an interkingdom, tri-species chronic wound model will elucidate interspecies interactions, including increased antibiotic tolerance.

EP340 NANOPARTICLE-ENHANCED LASER TISSUE SOLDERING

Oscar Cipolato[1], Inge Herrmann[1]

[1]ETH Zentrum, Zürich, Switzerland

Scopo: Le suture sono comunemente utilizzate in chirurgia per unire i tessuti. Tuttavia, sono spesso la causa di perdite che rappresentano una minaccia significativa per la guarigione delle ferite e la vita del paziente. La saldatura laser di tessuti (o Laser Tissue Soldering – LTS) è una tecnica emergente in grado di formare forti legami a tenuta stagna e può essere utilizzata come alternativa alle suture e ai punti metallici. Sebbene molto promettente, il controllo termico nella saldatura laser del tessuto è della massima importanza. Temperature al di sotto della temperatura target non consentono la formazione di legami forti, mentre temperature superiori alla temperatura target danneggiano i tessuti circostanti e ostacolano il processo di guarigione. Le nanoparticelle sono in grado di confinare efficacemente la produzione di calore nell'area desiderata. Inoltre, possono fornire capacità di rilevamento, rendendo LTS più accurato. In questo lavoro viene presentato un nuovo materiale utilizzato come pasta saldante per la saldatura laser di tessuti.

Metodi: Per studiare il processo di saldatura è stato utilizzato un modello computazionale implementato con COMSOL. Un laser nell'infrarosso è stato utilizzato per saldare pezzi di intestino di maiale, sia ex vivo e in vivo, e la temperatura è misurata tramite la fluorescenza delle nanoparticelle e tramite una camera termica. Le proprietà meccaniche sono state investigate tramite test del carico di rottura e test di pressione. Campioni istologici dei tessuti dopo la saldatura sono stati raccolti ed analizzati.

Risultati: Le nanoparticelle sono in grado di informare correttamente sulla temperatura a livello di saldatura durante il processo di saldatura. Ciò è possibile anche in una configurazione di saldatura di tessuti "in profondità" in cui le misurazioni della temperatura dalla termocamera sono pericolosamente fuorvianti. È possibile ottenere un forte legame nella saldatura dei tessuti vicino alla superficie e in profondità. Inoltre, la tenuta stagna è stata verificata.

Conclusioni: Le nanoparticelle nella pasta saldante aiutano a superare alcuni dei principali inconvenienti della saldatura laser del tessuto, consentendo una saldatura più sicura e sbloccando nuove configurazioni di saldatura. La saldatura laser dei tessuti potenziata dalle nanoparticelle porta a una buona adesione ai tessuti ex-vivo e in-vivo, oltre a buone proprietà di tenuta.

EP341 EFFECT OF CHRONIC WOUND EXUDATES ON HUMAN ADIPOCYTES

Nicole Schöfmann[1], Anna Schwarz[2], Petra Kotzbeck[2], Barbara Wolff-Winiski[1]

[1]Akribes Biomedical GmbH, Vienna, Austria; *[2]Joanneum Research Forschungsgesellschaft mbH, Graz, Austria*

Aim: Preclinical studies have shown a positive effect of dermal white adipose tissue (dWAT) on wound healing. Adipocytes can contribute to the formation of granulation tissue by differentiating into myofibroblasts and by secreting factors which induce fibroblast migration. However, an excess of adipose tissue inhibits wound closure. In this study, we investigated whether exudates from chronic wounds affect proliferation of primary adipocytes.

Method: Human preadipocytes were isolated from surgically excised adipose tissue. Cells were grown and differentiated into adipocytes in 96- and 384-well plates. Wound exudates and compounds were added to preadipocytes or mature adipocytes for 3 – 6 days. The evaluation comprised microscopic observation, metabolic activity of live cells, and staining for lipid droplets, DNA and cellular protein on fixed cells.

Results / Discussion: The PPAR-gamma agonist rosiglitazone and the glucocorticoid dexamethasone proved essential for adipocyte differentiation, as demonstrated by the addition of corresponding antagonists to the induction medium. While exudates from healing wounds as well as human serum had no negative effect on adipocytes, increasing concentrations of non-healing (chronic) exudates resulted in cell damage and even toxicity.

Conclusion: Chronic wound exudates damage adipocytes, thus preventing them from exerting possible beneficial effects on the healing process. Our finding may explain that tissue damage in chronic wounds frequently reaches into the adipose tissue.

EP342 BIOCHEMICAL PROFILING OF PORCINE BURN WOUND HEALING FOLLOWING TREATMENT WITH ACELLULAR FISH SKIN GRAFTS

Ottar Rolfsson[1], Aristotelis Kotronoulas[1], Christian Christiansen[1], Adrian Lopez Garcia de Lomana[1], Giorgios Stamatakis[2], Marieke Heijink[3], Martin Giera[3], Martina Samiotaki[2], Hilmar Kjartansson[4], Randolph Stone II[5]

[1]University of Iceland, Center for Systems Biology, Reykjavík, Iceland; [2]Biomedical Sciences Research Center Alexander Fleming, Vari, Greece; [3]Leiden University Medical Center (LUMC), Center for Proteomics and Metabolomics, Leiden, Netherlands; [4]Landspitali University Hospital, Reykjavík, Iceland; [5]US Army Institute of Surgical Research, Houston, United States

Aim: Acellular fish skin graft (AFSG) and fetal bovine skin graft (FBS) are commonly used biomaterials with molecular and structural properties that support wound healing resulting in less scar tissue formation and pain. However, how AFSG modulates the biochemical profiles of wound healing is not understood. We aim to understand how AFSG influences lipid, metabolite, and protein profiles of burn wound healing using a mass spectrometry-based data-driven approach.

Method: Partial (PTBW) and full (FTBW) thickness burn wounds were created on Yorkishire pigs. PTBW were treated with AFSG or FBS; FTBW were treated with AFSG or cadaver skin, followed by a split-thickness skin graft. Punch biopsies were collected over time to measure approximately 50 derivatives of EPA, DHA, arachidonic acid, linoleic acid metabolic pathways by targeted UPLC-MS/MS. Untargeted metabolomics using UPLC/Q-TOF-MS, and label-free quantitative shotgun proteomics by UPLC/Orbitrap-MS were also performed.

Results / Discussion: In the PTBW, EPA and DHA derivatives, including 18-HEPE and 17-HDHA, were significantly increased at day 7 in the AFSG-treated wounds. A similar trend was observed in FTBW. Prostaglandin F2a and its 15-keto derivative from the AA pathway and 13-HODE and 13-HOTrE from the LA pathway increased significantly at day 7, independent of treatment. Untargeted metabolomics revealed differences in amino acid, nucleoside, and carbohydrate profiles only at day 7, irrespective of wound type. Changes in proteomic profiles were primarily characterized by downregulation of proteins involved in keratinization and the immune response in both PTBW and FTBW.

Conclusion: Burn wound treatment with AFSG leads to earlier formation of lipid mediators involved in the resolution of inflammation partly driven by changes to protein and/or cellular composition of the wound.

E-POSTER SESSION: PAIN AND HOME CARE

EP343 PATIENTS RECEIVING WOUND CARE AT HOME: COMPLEX OR NOT COMPLEX ?

Stéphane Coffre[1], Fanny Vallet[1], Catherine Busnel[1]

[1]*Institution Genevoise de Maintien à Domicile, Carouge, Switzerland*

Aim: Home care nurses request Clinical Nurse Specialist intervention (CNSI) when they encounter difficulties in complex situations. Over 40% of these CNSI request reasons involve wounds. The objective was to examine 1) whether home care patients receiving wound care are more complex than those not receiving wound care, and 2) whether wound care patients with CNSI are more complex than wound care patients without CNSI.

Method: Data from 4885 adults receiving home care were collected with the HCSuisse interRAI (resident assessment instrument for home care) and COMID (multidimensional complexity assessment) during the second half of 2021. Available CNSI information on wounds was matched. Analyses were chi-square comparisons.

Results / Discussion: Of 4885 patients, 10.7% of the sample (N=524) had received wound care in the past 3 days. Complex situations were more common in patients with wound care (30.3%) than in those without (21.3%; X2=22.088, p<.001). Among the 524 patients with wound care, a CNSI was required for 13.7% (N=72). Complex situations were not significantly more frequent for patients with CNSI request (30.6%) than for patients without (30.3%; X2=0.002, p=.966).

Conclusion: First, because patients receiving wound care are more complex, it would be interesting to further study their profile, not only in terms of complexity, but also in terms of frailty. Second, given that no significant difference in complexity was noted between situations with and without CNSI requests, it would be interesting to understand the reasons for these requests and may provide insight into potential training needs for home care nurses.

EP344 INTERVENTION PLAN TO SUPPORT THE NEEDS OF THE FAMILY CAREGIVER OF A PERSON WITH A CHRONIC WOUND

Alexandre Rodrigues[1 2 3], Vitorino Baião[4], João Simões[1], Pedro Sardo[1], Rosa Maria Linhares Nascimento[3 5], Nuno Correia[6]

[1]*University of Aveiro, Health School, Aveiro, Portugal*; [2]*Center for Health Studies and Research of the University of Coimbra (CEISUC), Portugal*; [3]*Associative Group for Wounds Research (GAIF), Portugal*; [4]*Centro de Saúde de Guimarães, Guimarães, Portugal*; [5]*Centro Hospitalar Universitário de Santo António, Intensive Unit, Portugal*; [6]*Centro Hospitalar Universitário de Santo António, Portugal*

Aim: To identify the needs of the family caregivers of a person with chronic wound; To define the nursing interventions required for each need of the family caregivers.

Method: Qualitative, exploratory and descriptive study with 38 Portuguese registered nurses who were divided into groups of 3 or 4 elements to participate in a Focus Group during 2019. All ethical considerations were address prior the investigation beginning. Content analysis was performed using the WEBQDA Software.

Results / Discussion: The main needs of the family caregivers identified in the Focus Group were: "knowledge", "wound impact", "care management", "quality of life", "overburden", "role recognition". Considering each need identified, several nursing interventions emerged in the Focus Group discussion and allowed the development of a global intervention plan.

Based on our results, the main strategies to improve the "knowledge" of the family caregivers of a person with a chronic wound should be focus on "wound physiopathology", "wound evolution" and "activities organization". When we consider the preventing care aspects, the nursing interventions should aim to "instruct" and "train" the family caregivers about specific practices and preventive procedures.

When the family caregivers are not prepared for the "wound impact" additional teaching strategies are necessary to ensure dressing activities without having direct contact with the wound bed and to develop some coping strategies.

The balance between "care management" and family caregivers' personal life was identified as a major challenge. Considering this, nurses could play an important role in care management, helping the family caregivers prioritizing their care activities during the day and/or during the week in order to guarantee that they have time enough to their own activities.

To preserve family caregivers' "quality of life" and avoid "overburden" it is important to identify a secondary (family or non-family) caregiver. Nonetheless to be an effective support for the main family caregiver and to ensure tasks delegated, this secondary caregiver also needs training and guidance.

Finally, the "recognition of caregiving role" is very important to maintain the family caregivers motivate. Thus, the positive feedback about the family care giver performance could be an important strategy which will be reflected in the quality of care.

Conclusion: This Focus Group identified several needs of the family caregivers of a person with chronic wound and propose a directed intervention plan based on the needs identified. This study highlights that nursing interventions are crucial to improve the family caregivers' "knowledge", minimize the "wound impact", improve "care management", avoid "overburden", increase the family caregivers' "quality of life" and to valorize the "caregivers' role".

It is important to identify specific indicators to grow the visibility of nursing and family caregivers' care.

EP345 EFFICACY AND SAFETY OF SEVOFLURANE AS A LOCAL ANALGESIC IN WOUNDS. SYSTEMATIZED REVIEW

Pere Coca[1], Joan Enric Torra-Bou[2], Cristina Jimenez[1], Joan Blanco[2]

[1]Parc Sanitari Sant Joan de Deu, Chronic Wounds Unit / Diabetic Foot Unit, Sant Boi de Llobregat, Spain; *[2]Falcutad de Enfermería y Fisioterapia, Lleida, Spain*

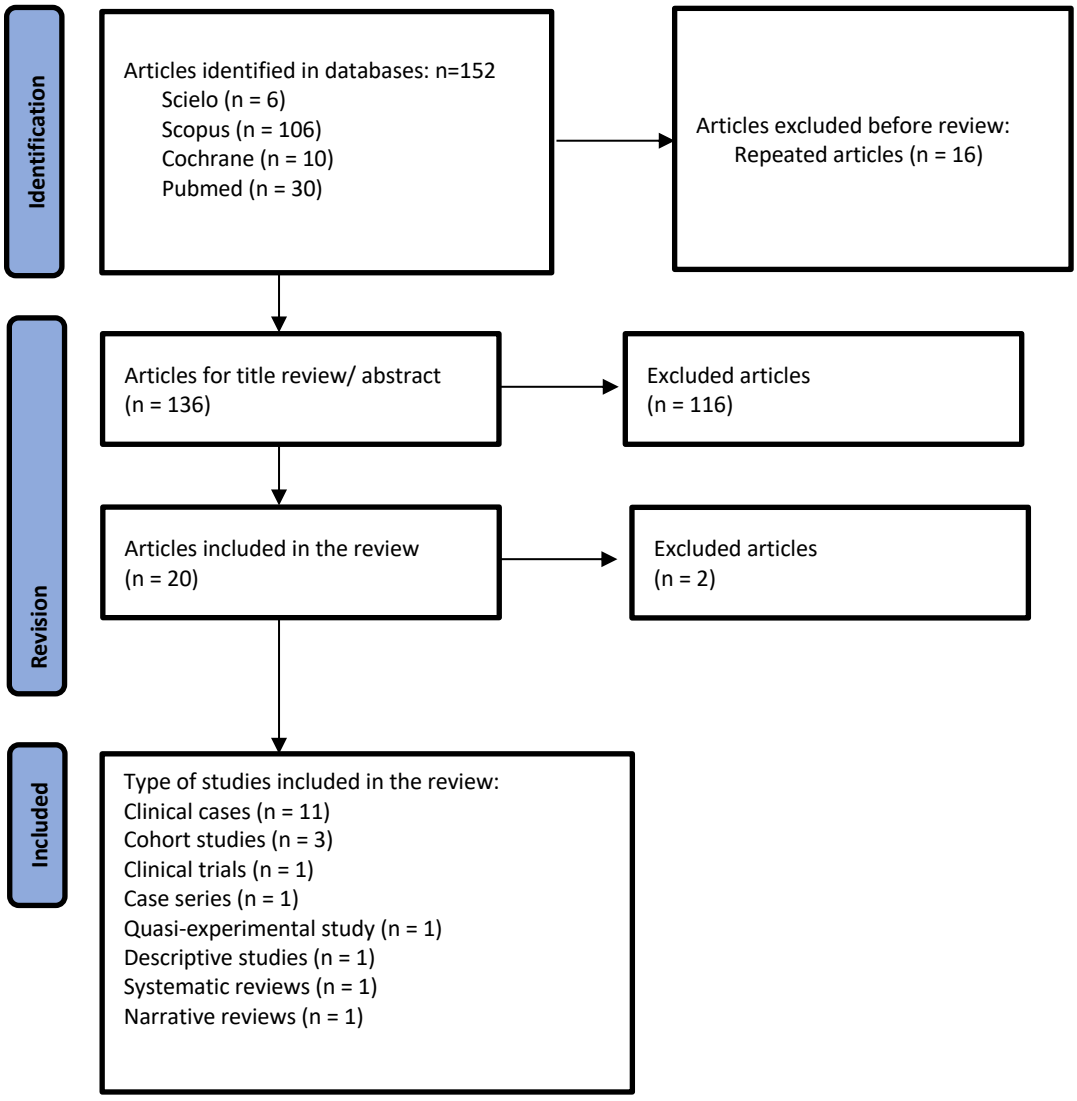
Aim: With this work we try to synthesize the scientific literature published until 14/09/2022 in relation to the safety and efficacy of sevoflurane as a local analgesic in painful wounds.

Method: Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines have been followed.

Results / Discussion: The studies analysed include 120 patients who have been assessed the appearance of side effects to the topical application of sevoflurane, appearing in 30 of them. In all cases they were local, mild and transient reactions. They were resolved by minimizing the contact of the drug with healthy skin.

All studies conclude that topical sevoflurane is effective. Most of them demonstrate a powerful, fast and prolonged analgesic effect.

Conclusion: Existing evidence indicates that the use of topical sevoflurane provides intense, rapid and long-lasting analgesia. Its use is safe for the patient, describing few side effects being these local and mild.



EP346 PATIENTS WITH NO DFU PAIN EXPERIENCE SUPERIOR QUALITY OF LIFE COMPARED TO DFU PAIN WHERE BOTH NEUROPATHIC AND NOCICEPTIVE PAIN COEXIST

Adam Mcilwaine[1], Ghadeer Alfarhan[1], Caroline McIntosh[1]

[1]*University of Galway, Galway, Ireland*

Aim: To investigate pain in patients with Diabetic foot ulcer (DFU) and its impact on their HRQOL.

Method: This was a cross-sectional descriptive study, obtained sample of 30 participants from MPPC, Galway, Ireland. Pain was assessed using short-form McGill questionnaire (SF-MPQ), HRQOL was assessed Cardiff Wound Impact schedule (CWIS) questionnaire.

Results / Discussion: DFU pain was reported by 70% (n=21) of participants. The majority of participants (n=16) experience "mild" to "distressing" pain, the remaining 23 % (n=5) experiencing "severe" pain. The most common sensory pain descriptors reported were "tender", "aching", and "throbbing", indicating nociceptive pain. Significant correlations between VAS and total SF-MPQ score were observed across all CWIS domains and the total CWIS score. Social life (r_s=-0.710, p=<0.001) and Physical symptoms and daily living and (r_s=-0.665, p=<0.001) demonstrating the strongest negative correlations. Patients with no DFU pain experience superior quality of life (Mr=22, P=0.09) compared to DFU pain where both neuropathic and nociceptive pain coexist (Mr=9, P=0.09). With statistically significant differences in the domains Social Life (Mr=22, Mr=90).

The presence of DFU negatively impacts patients' health-related quality of life (HRQOL) due to many factors, one of which is pain. There is a general misconception that patients with DFU do not experience wound-related pain due to the high incidence of diabetic neuropathy among them, attributing the presence of any DFU pain to ischaemia, infection and/or Charcot arthropathy. A growing evidence base challenges previous presumptions surrounding DFU pain, reporting this as a significant factor effecting HRQOL among people with DFU.

Conclusion: This study identifies classification of DFU pain as a viable contributor to the identification and implementation of effective DFU management strategies.

EP347 IS THAT ALL POSSIBLE AT HOME?

Brenda Vlemminx[1], Jannie Jongedijk[1]

[1]*Qualityzorg B.V., Netherlands*

Aim: To provide suitable care, the right care at the right place. Improve wound care in the home situation by using skilled Nurse practitioners (NP)

Method: The nurses from the regional home care teams are educated by the Nurse practitioner (NP) in wound care, observation and clinical reasoning. If they discover a wound that isn't healing, or the situation is fragile, to complex (for example with a diabetic foot ulcer) or they need medical test, like Ankle Brachial Index or a toe brachial pressure index, they ask the NP. By this approach we add expertise and increasing knowledge.

If a patient presents himself at the Family doctor it's also possible that he/she makes a medical referral directly to the NP. When she consults the patient she studies the medical history, conducts physical examinations and determines the care plan.

The NP keeps the involved disciplines informed.

When necessary a referral to a Hospital can be made. The NP has good connections with the hospital in the region.

Results / Discussion: Referral to the hospital of the 400 included patients with complex wounds in the period 2021 - 2022 was 3% compared to 30% reported in a study on a national level.

Fragile and older patients don't have to go straight to the hospital when there is a complex wound but can get a diagnosis and treatment at home. Total wound healing realised was 70 %.

Conclusion: Suitable care is treatment at home when it's possible, in a hospital when its needed. The quality of wound care at home can be significantly improved by NP's

EP348 PHOTOBIOMODULATION: A NEW "WEAPON" TO FIGHT PAIN

Cristina Galuzzi[1], Elisa Illuminato[1], Roberto Cassino[1], Agnieszka Kopniak[2], Alina Ilisan[2], Chiara Spinardi[2], Gabriela Sofia Barrionuevo Moreno[1], Irena Cela[1], Monica Pittarello[3], Elia Ricci[3]

[1]"Sacra Famiglia" Korian Nursing Home, Geriatrics - Long Term Care, Pieve del Cairo, Italy; [2]"Heliopolis Residences" Korian Nursing Home, Geriatrics - Long Term Care, Binasco, Italy; [3]San Luca Clinic, Critical Wounds Unit, Pecetto Torinese, Italy

Aim: Pain is an important factor in wound care, especially when the problem is due to Incontinence-Associated Dermatitis (IAD); the aim of this study is to assess the pain reported by the patients during and after the treatment with "blue light PhotoBioModulation" (PBM)*.

Method: We enrolled 16 elderly patients, guests at long term care residential facilities, 11 with IAD and 5 with painful chronic wounds. The treatment protocol was a "blue light" application twice a week of one minute every 25 cm^2. All patients were dressed with olive oil derived stable ozonides** in spray, cream, alginate and gauze formulation for ulcers, in barrier cream formulation for IAD. Dressing change two/three times a week for wounds and daily for IAD. The treatment lasted 10 weeks. NRS (Numerical Rating Scale) and Painad (Pain Assessment IN Advanced Dementia) were used for pain assessment, before and after the "blue light" sessions.

Results: All patients with wounds had a decrease in pain of more than 70%; in patients with IAD the pain disappeared completely. The most significant finding is the healing of IAD within three weeks of treatment and the significant reduction in pain (>50%) after the first two sessions of "blue light".

Conclusion: this work demonstrated that PhotoBioModulation can induce a statistically significant reduction in pain due to ulcers and IAD; this allows for a reduction in the use of painkillers and greater patient compliance.

* EmoLED (EmoLED-Italy)
**Ozoile Rigenoma Line (Erbagil-Italy)

EP349 EXPERT PERCEPTION ON THE IMPACT OF COMPLEX INJURY DUE TO SICKLE CELL ANEMIA: EXPERIENCE REPORT

Juliana Lucinda dos Santos[1], Clarissa Nunes[2], Everton Rocha[3], Christielle Montenegro[4]

[1]Prime Care Cuidados Integrados à Feridas, Santo André , Brazil; [2]Helianto Farmacêutica, São José Rio Preto, Brazil; [3]Cicatricare, Diretora Tecnica, Santa Catarina, Brazil; [4]EMAD, Especialista clinica, Rio Branco, Brazil

Aim: Sickle cell anemia is a genetic disease. The most common and severe form of the disease that prevents blood and oxygen circulation, justifying complications and wounds that locate in legs and evolve with extreme pain and chronicity. From the sickle cell arises by a mutation decreasing the amount of oxygen in the blood. The aim is to report the efficacy of biguanide polyhexanide bandage (PHMB) and non-ionic cream, indicated for any stage of healing. Observing tissue evolution, wound progression and pain reduction (numerical scale).

Method: This is a descriptive and explanatory study in the form of experience reporting. Performed in 2 female patients in home care in São Paulo- Brazil. Initial therapeutic management. Initial characteristic: extensive lesion with 100% unfeasible tissue, severe pain during manipulation, important edema and pulse present. The daily dressings were performed with 0.9% saline solution in irrigation, application of dermatological cream with silver impregnated, occluded with bandage gauze secondary to the dressing.

Results / Discussion: Therapeutic modification due to the timer scale. Ankle-arm index with values 1, 08/ 1.30 Therapeutic approach: bed preparation with Biguanide polyhexanide solution, application of phmb cream and AGE, associated with inelastic therapy impregnated with moisturizing cream based on polyunsaturated Essential Fatty Acids and Polypropyl Biguanide. Trade twice a week. We observed autolytic debridement, decreased devitalized tissue, supply of viable tissue.

Conclusion: In patients with sickle cell anemia the item pain and alteration of blood flow are important due to the physiological condition of the pathology. With therapeutic adjustment, we offer the effectiveness of the tissue process, with improvement of pain and provide tissue acceleration.

E-POSTER SESSION: DRESSINGS 3

EP350 IMPACT OF CERAMIC WOUND DRESSING ON WOUND HEALING IN INFECTED WOUNDS

Andrzej Hecker[1 2], Nikolaus Watzinger[3], Anna-Lisa Pignet[1 2], Petra Kotzbeck[1 2], Lars-Peter Kamolz[1 2]

[1]Medical University Graz, Research Unit for Tissue Regeneration, Repair and Reconstruction, Division for Plastic, Aesthetic and Reconstructive Surgery, Graz, Austria; [2]Joanneum Research Forschungsgesellschaft mbH, COREMED – Cooperative Centre of Regenerative Medicine, Graz, Austria; [3]Medical University of Graz, Division of Plastic, Aesthetic and Reconstructive Surgery, Department of Surgery, Graz, Austria

Aim: Ceramic wound dressings have an impact on wound healing due to capillary suction force and large absorbent surface. This can result in an improvement of the micro-moist environment. The primary aim was to investigate the healing properties of a new primary ceramic dressing in infected wounds. The secondary aim was to examine the absorbing properties of the new ceramic dressings for a diagnostic purpose.

Method: Eight patients with conservative treated infected wounds and stable wound sizes (<10 % reduction within one week) were enrolled. Within the first three days, ceramic dressing was applied daily, then every three days for a period of four weeks. Wound surface measurements, wound swabs, dressing sonication and measurement of wound exudate amount were carried out at each visit. The sonicate of the removed dressing was used for analysis of bacterial load and composition and compared to wound swabs from each wounds.

Results / Discussion: After a 4-week treatment period, a significant mean reduction of wound surface from 1768.1mm^2 (SD +/-2021.9) to 1187.4mm^2 (SD +/-1424.1) was observed (p = 0.03125). The amount of wound exudate initially slightly increased in the first week of treatment but then declined and stabilized until the end of the study period. The sensitivity of bacteria detection was 82.7% in the sonicate from the wound dressings, whereas only 59.6% in the conventional wound swabs.

Conclusion: The new ceramic wound dressing seems to have a positive impact on wound healing in infected wounds and could be used as a promising tool for biomarker monitoring.

EP351 SMART WOUND DRESSINGS - MODIFIED BACTERIAL NANOCELLULOSE

Andrzej Hecker[1 2], Ives Bernardelli de Mattos[3], Judith Geissler[1], Sebastian Nischwitz[1], Gerhard Mohr[4], Elisabeth Hofmann[2], Julia Fink[2], Petra Kotzbeck[1 2], Martin Funk[5], Lars-Peter Kamolz[1 2]

[1]Medical University Graz, Research Unit for Tissue Regeneration, Repair and Reconstruction, Division for Plastic, Aesthetic and Reconstructive Surgery, Graz, Austria; [2]Joanneum Research Forschungsgesellschaft mbH, COREMED – Cooperative Centre of Regenerative Medicine, Graz, Austria; [3]Fraunhofer Institute for Silicate Research ISC, Translational Center Regenerative Therapies, Würzburg, Germany; [4]Joanneum Research Forschungsgesellschaft mbH, MATERIALS – Institute for Surface Technologies and Photonics, Weiz, Austria; [5]EVOMEDIS GmbH, Graz, Austria

Aim: Bacterial nanocellulose (BNC) is a hydroactive wound dressing in the treatment of acute wounds, especially second-degree burns. We aimed at functionalizing BNC dressings by either loading of different antiseptic solutions to achieve drug delivery or crosslinking with indicator dyes to achieve a pH-sensitive dressing.

Method: To investigate drug delivery of antiseptics, BNC was loaded with four different clinically used antiseptic solutions. Antibacterial action and antiseptic concentration was measured in punch biopsies of the loaded BNC at different time points. For pH monitoring, BNC sheets were chemically functionalized with the indicator dye GJM-534. pH-donors with increasing pH were subsequently applied to the created indicator dressing. To investigate temporal resolution we used circular pH-donors with different pH (7 and 10).

Results / Discussion: Within 30 minutes of antiseptic loading, clinically relevant concentrations of antiseptics can be achieved in BNC-based wound dressing. Antiseptic solutions combined with BNC showed a good dose-dependent efficacy against Staphylococcus aureus. Functionalizing BNC with the indicator dye, a gradual colouring from yellow to dark orange were observed with increasing pH in steps of 0.3. A ring-like pattern with alternating colour change corresponding to the pH was observed in the continuous monitoring experiment.

Conclusion: Combination of antiseptics with BNC showed to be an efficient approach to control bacterial infections. A pH indicator was successfully linked to an advanced, temporary, alloplastic wound dressing material. We were also able to show the possibility of pH monitoring by the dressing itself. Modifications of BNC represent clinically feasible approaches to improve wound situations.

EP352 WOUND DRESSING WITH THE ADDITION OF COPPER

Slađana Đokić[1], Irena Jovišić[1], Igor Frangež[1]

[1]*University Medical Center Ljubljana, Slovenia*

Aim: The aim of this study was to evaluate the clinical effects of using wound dressings with the addition of copper; copper oxide with patients with chronic wounds.

Method: In the Surgical Department for Surgical Infections, we use wound dressings with the addition of copper and they are suitable for the care of acute and chronic wounds. We have used it in 12- patients with chronic wounds in the period of 3. months and all wounds succesfully healed.

Results / Discussion: The role of copper; copper oxide can eliminate Gram- positive and Gram- negative bacteria, viruses and fungi with its antimicrobial effect and due to its antimicrobial action it plays a role in faster wound healing. In this article we present our clinical experience and the effectiveness of wound dressing with the add addition of copper; copper oxide for the treatment of chronic wounds.

Conclusion: In our several month study with innovative wound dressings with addition of copper; copper oxide, we found a wide range of applications. Wound dressings are suitable for all types of chronic wounds in all periods of healing. The wound dressing proved extremly good in reducing the antibacterial load in critically colonized and infected wounds, where we observed a reduction in signs of inflammation around the wounds, granulation and epithelization took place faster. There was no pain mentioned by the patients during the installation and changing of the wound dressing.

EP353 THE OVINE EXTRACELLULAR MATRIX IN ACUTE AND CHRONIC WOUNDS: OUR PRELIMINARY EXPERIENCE

Carlotta Scarpa[1], Franco Bassetto[1], Vincenzo Vindigni[1], Roberta Carpenito[1]

[1]*UOC Chirurgia Plastica e Ricostruttiva, Neuroscienze, Padova, Italy*

Aim: To evaluate the safety and efficacy of an ovine extracellular matrix (ECM) for acute and chronic wounds.

Method: We considered 10 patients: 7 affected by chronic ulcers of the leg; 1 affected by second degree burn of the arm, 1 diabetic patient affected by a loss of substance of the fifth left finger and 1 affected by an umbilical loss of substance after postbariatric surgery. After mechanical debridement, we applied the ovine extracellular matrix wet by saline and we covered it with an antiadherent dressing as secondary dressing.

We checked the patients after one week and, if necessary, we performed the same kind of dressing every week for a month.

Results / Discussion: After the first week all the patients demonstrated an improved healing of the wounds; we obtained an average 90% rehepitelization after 1 month in all the patient (range 75%-100%). No significative differences were noticed between the different etiopathogenesis of the lesions. No adverse events have been reported.

Conclusion: In our experience the ovine extracellular matrix has been a safe and effective matrix. We didn't notice any adverse events and no significative differences have been reported between the etiopathogenesis of the lesions. The dressing procedure is easy and unpainful for the patient.

E-POSTER SESSION: DRESSINGS 1

EP354 FABRICATION OF SKIN GRAFTS CONTAINING DECELLULARIZED HUMAN DERMAL EXTRACELLULAR MATRIX USING 3D BIO-PRINTING TECHNOLOGY FOR REGENERATIVE AND RECONSTRUCTIVE MEDICINE APPLICATIONS

Fadime Kiran[1], Sultan Golpek[1]

[1]*Ankara University, Turkey*

Aim: The aim of this study is to produce hybrid dermal grafts containing human skin extracellular matrix (HS-ECM) using 3-dimensional (3D) bio-printing technology.

Method: The dermis layer of the human skin tissue obtained from aesthetic surgery operations was separated from epidermis by enzymatic reactions and removed from its cells using four different decellularization protocols. The most effective protocol was selected according to DNA content, histological analysis and FTIR spectrums of ECM. HS-ECM based hydrogel (1%) with alginate (2%) and gelatin (7%) was used as an ink for 3D bio-printing. The characterization of 3D hybrid graft was evaluated in terms of mechanical strength, swelling and biodegradability. For biocompatibility analysis, human keratinocyte cells seeded on 3D hybrid graft were analyzed under laser scanning confocal microscope using Live-Dead and F-actin-DAPI staining.

Results / Discussion: The protocol number IV which reduced the amount of DNA, exhibited normal tissue integrity, and similar collagen and glycosaminoglycan contents compared to natural tissue was chosen. FTIR spectrums of natural tissue and HS-ECM were displayed similar patterns. Following the 3D bio-printing, 0.480 mm and 5-layer grid prints were obtained. They exhibited a maximum tensile strength of 4 kPa, and an elongation of 10% with a strain value of 0.1. 3D hybrid grafts preserved their structural integrity in 7 days, and the keratinocyte cells were able to survive for 14 days and shown their normal morphology.

Conclusion: The present study suggests that the fabricated 3D hybrid grafts have potential to be used for regenerative and reconstructive medicine applications.

EP355 THE UTILITY OF NOVEL FISH-SKIN DERIVED ACELLULAR DERMAL MATRIX (KERECIS) AS A WOUND DRESSING MATERIAL

Jun Ho Park[1], Dae Hyun Kwon[1]

[1]*SMG-SNU Boramae Medical Center, Plastic and Reconstructive Surgery*

Aim: The newly approved Kerecis is a piscine acellular dermal xenograft. This piscine acellular dermal matrix (ADM) has specific bioactive lipid mediators, omega-3 polyunsaturated fatty acids, and has a positive effect on the process of wound healing. This study aimed to explore the utility of this novel material by comparing healing rates, and suggest the proper timing for applying Kerecis.

Method: Patients who visited the hospital with acute or chronic deep dermal wounds from June 2019 to May 2020 were enrolled in the study. A total of 48 patients were assessed. All wounds in the experimental group (n=16) were treated only once with Kerecis and a non-adherent absorptive foam material (Therasorb) to cover the ADM. In the control group, daily conventional dressings were provided. All wounds sizes were measured with mass-market computer software in a method suggested by the authors for the first time.

Results / Discussion: The mean healing rate proved to be faster in the Kerecis group ($P < 0.05$) versus the control group, and no complications were observed. It was statistically proved that treating burn wounds with the ADM showed better healing rates than the conventional method ($P < 0.05$).

Conclusion: This study establishes that managing wounds with the ADM is likely to heal wounds faster than traditional dressings. In addition, for burn wounds, a prolonged application (10 days vs. 5 days after the onset) showed a better wound healing rate (98.8%±2.5% vs. 67.0%±14.3%, respectively, $P=0.029$).

EP356 THE COMBINED USE OF SUCROSE OCTASULFATE WITH TLC-AG HEALING MATRIX AND POLYABSORBENT FIBERS IN THE DEBRIDEMENT OF NON-VIABLE TISSUE IN NEONATES, PAEDIATRICS AND ADULTS - CASE SERIES

Viviana Goncalves[1]

[1]*São João Universitary Hospital Center, Cardiothoracic Surgery, Porto, Portugal*

Aim: The presence of devitalized tissue in the wound bed is a physical barrier to healing, and debridement should be the primary intervention. The combined use of sucrose octasulfate with TLC-Ag healing matrix and polyabsorbent fibers showed a superior ability to debride non-viable tissue, protecting the edges and granulation tissue, compared to the exclusive use of TLC-Ag healing matrix. Case series was carried out, in wounds of adults, children and neonates, with the objective of demonstrating the effectiveness of this procedure, with reduction of pain in the debridement and improvement of quality of life.

Method: Case series were carried out, using this combination until complete debridement of non-viable tissue, without any other debridement technique. Polyurethane was used as a dressing for exudate management. In paediatrics, treatment was performed every 48 hours and in adults every 72 hours. We made 30 cases in adults, in sternotomy and saphenectomy. In paediatrics were made 10 cases and in neonatology 12 cases, in sternotomy and thoracotomy.

Results / Discussion: All wounds were completely covered with devitalized tissue, no relevant signs of infection. With the application of this combination, debridement was completed after 3 to 4 treatments on average, without pain for the patient and with an increase in healing. All wounds healed in about 3 weeks, resulting from surgical wound dehiscence. There were no complications or side effects, with rapid debridement in a short period of time.

Conclusion: Debridement is a procedure that can be very painful, however the use of material that can promote it, painlessly and effectively, is an asset in the management of complex wounds and incrementing healing. This combination may be the answer for fast and effective healing, with protection of granulation tissue and removal of devitalized tissue.

E-POSTER SESSION: BURNS 2

EP357 EXTENSIVE BURN RECONSTRUCTION USING ANASTOMOTIC CHIMERIC FREE FLAP

Youn Hwan Kim[1]

[1]*Hanyang University Medical Center, Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South*

Aim: Burn injuries are not only extremely hard to manage medically, but also greatly difficult to reconstruct. 'Extensive burn' is defined as burn cases requiring more than one free flap to resurface.

Method: Between October 2012 and April 2022, total of 17 extensive burn cases underwent reconstructive operation in our clinic. They consisted of 8 upper extremity, 7 lower extremity, and 2 trunk burn cases, all of which had two free flap reconstruction performed with or without skin graft. Either thoracodorsal artery perforator (TDAP) flap or Latissimus dorsi (LD) muscle flap was used in all cases, combined with anterolateral thigh (ALT) flap in 11 cases and deep inferior epigastric artery perforator (DIEP) flap in 6 cases.

Results / Discussion: Reconstructions of all 17 cases were successful with few reported complications. The mean flap dimension of TDAP/LD muscle flap, ALT flap, and DIEP flap were 293, 218 and 684 respectively. Partial flap loss was reported in 6 cases, followed by additional procedures such as skin graft. For better aesthetic outcome, secondary procedures such as debulking procedure or scar revision were performed in 16 cases.

Conclusion: Although extensive burn reconstruction is still regarded as one of the most challenging reconstructions, it can be managed successfully using anastomotic chimeric free flap. Regardless of the severity or location of extensive burn, dual flap reconstruction should always be put into a surgeon's consideration.

Figure 1. 44 year-old male presenting with burn scar contracture deformity on left forearm caused by flame burn. Harvested Anterolateral thigh flap with the dimension of about 20x10cm. Harvested Thoracodorsal artery perforator flap with the dimension of about 25x10cm.

EP358 SUPRATHEL® OR MEPILEX® AG FOR TREATMENT OF PARTIAL THICKNESS BURNS IN CHILDREN: A CASE CONTROL STUDY

Matilda Karlsson[1], Ingrid Steinvall[2], Moustafa Elmasry[2]

[1]*Department of Hand Surgery, Plastic Surgery and Burns, Linköping;* [2]*Department of Hand Surgery, Plastic Surgery and Burns, Linköping, Sweden*

Aim: The study aim was to investigate if Suprathel® can be an adequate alternative to Mepilex® Ag for the treatment of partial-thickness scalds in children.

Method: A retrospective study including 58 children admitted to The Burn Centre in Linkoping, Sweden between year 2015 and 2022. Of the 58 children 30 were dressed with Suprathel ® and 28 with Mepilex ® Ag. Outcomes investigated were healing time, burn wound infection (BWI), the need of operations and number of dressing changes.

Results / Discussion: There were no significant differences in any of the outcomes. In the Suprathel ® group 17 children were healed within 14 days and in the Mepilex ® Ag group 15 children. Ten children from each group required antibiotics for suspected BWI and two from each group required an operation with skin grafting. Each group had on median 4 dressing changes.

Conclusion: Two different treatments were compared for children with partial-thickness scalds, and the data indicates that similar results are received with both dressings.

EP359 WOUND HEALING ABILITY OF ACELLULAR FISH SKIN GRAFT: CHARACTERIZATION AND CLINICAL APPLICATION

Yong Suk Cho[1]

[1]*Seoul, Critical Care and Burn Surgery, Korea, Rep. of South*

Aim: Due to its high polyunsaturated fatty acid content, acellular fish skin has emerged as a dermal substitute for the promotion of wound healing as it decreases scar formation while providing pain relief. However, various systematic studies on acellular fish skin, such as its biophysical analysis, in vitro activities, and clinical application, have not been sufficiently investigated.

Method: In this study, we conducted a comparative study to evaluate the wound healing ability of acellular fish skin graft (Kerecis®) with that of the widely used bovine collagen skin graft (ProHeal®). The skin grafts were evaluated not only in terms of their biophysical properties, but also their in vitro cellular activities, using fibroblasts, keratinocytes, and human endothelial cells. The clinical study evaluated wound healing in 52 patients with acute burns who underwent skin grafting on donor sites from January 2019 to December 2020. The study was conducted with two groups; while only Kerecis® was tested in one group, Kerecis® and ProHeal® were compared in the other. In both groups, the application time of the dressing material was one to two days after split-thickness skin grafting to the donor sites.

Results / Discussion: The Kerecis®-treatment group experienced faster healing than the other treatment group. In particular, the average wound healing time using the Kerecis® treatment and the ProHeal® treatment was 10.7 ± 1.5 days and 13.1 ± 1.4 days, respectively.

Conclusion: We believe that the faster healing of the Kerecis® treatment, compared to that of the ProHeal® treatment, maybe due to the synergistic effect of the unique biophysical structure and the bioactive components of acellular fish skin.

EP360 DEEP BURNS TREATMENT PROTOCOLS USING ENZYMATIC DEBRIDEMENT BASED ON BROMELAINE - A CLINICAL STUDY

Camelia Tamas[1], Dan Moraru[1], Caterina Lorenzi[1], Audrey Clebant[1], Costel Dobre[1], Diaconu Oana[1], Alexandru Robul[1], Radu Tataru[1], Angela Tecuceanu[1]

[1]*Universitatea de Medicină și Farmacie „Grigore T. Popa" din Lași, Plastic Surgery, Lași, Romania*

Aim: To evaluate the efficiency of the enzymatic debridement using bromelaine powder in combination with different techniques for skin reconstruction or devices for burn wound healing.

Method: We evaluated 22 patients (14 men, 8 women), hospitalized in our Burn Department, during a 4-year period (2019-2022), which met the application criteria for bromelaine powder debridement. All the patients suffered thermal injuries, with a total burn area ranging from 5 to 55% tbsa, IIA, IIB and III degree. We applied the enzymatic therapy within the first 3-6 days after the injury.

The enzymatic debridement was performed on upper limbs (9 cases), lower limbs (8 cases), neck (2 cases), trunk (3 cases). We combined the enzymatic debridement with different protocols, trying to stimulate the healing process: local applications of ointments based on low molecular weight hyaluronic acid (LMW-HA) in IIA burns - 9 cases, with skin graft reconstruction and LMW-HA topics in IIB-III burns (13 cases). In addition, we used NPWT (negative pressure wound therapy) in 6 cases, to stimulate development of granular tissue or to help skin graft healing.

Results / Discussion: The survival rate was 72% (16 cases). In 11 cases the wounds had negative bacteriological secretions. The patients were satisfied due to fast healing, good esthetic and functional results.

Conclusion: The combination between burned tissue enzymatic debridement and different protocols for healing stimulation reduces the hospitalization period and costs, saving skin graft donor zones.

Keywords: burns, enzymatic debridement, bromelaine, eschar removal

EP361 MANAGEMENT OF BURN WOUNDS BY A TECHNOLOGY LIPIDO-COLLOID POLYACRYLATE DRESSING IMPREGNATED WITH SILVER: A CASE SERIES FROM VIETNAM

Truong Thi Anh Nguyet[1], Vo Thi Tam Trang[2], Dang Thi Cam Van[1], Do Manh Hieu[3], Emilio Galea[4]

[1]Khanh Hoa General Hospital, Orthopaedics Department, Nha Trang , Viet Nam; [2]Binh Dinh General Hospital , Orthopaedics Department, Quy Nhon City, Viet Nam; [3]Military Hospital , Ho Chi Minh City, Viet Nam; [4]HCP Healthcare Asia, Medical Affairs, Singapore, Singapore

Aim: The following cases were conducted to evaluate the outcomes of management of burn wounds in Vietnam with a cohesive poly-absorbent fibres impregnated with a silver lipido-colloid healing matrix (UrgoClean Ag®).

Although encouraging results were reported in European trials, the authors wanted to evaluate the outcomes of the same dressing in patients in Vietnam. Social factors, alteration in expression of different genes and changes in the local cutaneous environment may impair wound healing - is a reality that social and climate differences may be relevant to outcomes in wound healing[6] and varying temperature and relative humidity may influence on certain key aspects of dressing performance[7].

Method: Nine cases of burns from Vietnam are included. The cases range in severity, patient age and healing stage.

1. 31-year-old man presented with a burn over the dorsum of his left arm, caused by gasoline
2. 28-year-old man presented with a burn over his back and left arm, caused by gasoline
3. 33-year-old man presented with extensive electrical burns extending from his left arm to mid-torso and upper thigh
4. 36-year-old man was referred after sustaining an electrical burn on his abdomen
5. 42-year-old man was referred after sustaining a burn injury to the lower part of his left arm
6. 3-year-old child was referred with a scald burn on his chest, abdomen, and left arm
7. 3-year-old girl presented with a scald burn over her back
8. 6-year-old boy was referred after a scald burn to his thigh and scrotum

Results / Conclusion: The outcomes were encouraging, with good progression in all wounds presented. The evidence behind the dressing is of high quality, including Randomised Control Trials, but notably for the authors were the results achieved in other real-life studies in Europe. With the results obtained in this case series, it may be concluded that similar outcomes have been achieved in Vietnam, notwithstanding the different geographical location, culture and climate.

References:

1. Jeschke MG, van Baar ME, Choudhry MA, Chung KK, Gibran NS, Logsetty S. Burn injury. Nature Reviews Disease Primers. 2020 Feb 13;6(1):1-25.
2. Kartal SP, Altunel CT, Bayramgurler D. Hot topics in burn injuries. BoD–Books on Demand; 2018 May 23. Accessed 21/06/2022.Avaialble from: https://www.intechopen.com/chapters/57720
3. World Health Organization (WHO). Burns – Fact Sheets. 2018. Accessed 21/06/2022. Available from: https://www.who.int/news-room/fact-sheets/detail/burns#
4. Maslova E, Eisaiankhongi L, Sjöberg F, McCarthy RR. Burns and biofilms: priority pathogens and in vivo models. npj Biofilms and Microbiomes. 2021 Sep 9;7(1):1-9.
5. Al-Aali KY. Microbial profile of burn wound infections in burn patients, Taif, Saudi Arabia. Arch Clin Microbiol. 2016;7(2):1-9.
6. Fayne RA, Borda LJ, Egger AN, Tomic-Canic M. The potential impact of social genomics on wound healing. Advances in wound care. 2020 Jun 1;9(6):325-31.
7. Thomas S. The effect of the weather and other environmental factors on the performance of surgical dressings. Wounds: a Compendium of Clinical Research and Practice. 2012 Dec 1;24(12):335-8.

EP362 BURNS BY MOXIBUSTION: CHARACTERISTICS OF WOUND AND CLINICAL MENIFESTATION

Hongsil Joo[1], Kunyong Sung[2]

[1]Hanil general hospital, Department of Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South; [2]Kangwon National University Hospital, Department of Plastic and Reconstructive Surgery, Chuncheon, Korea, Rep. of South

Aim: Moxibustion is an herbal treatment and based on the theory of traditional Chinese medication that has been passed on for long time. In East Asia, moxibustion has been used on variety range of disease for therapeutic purpose. Traditional moxibustion works by the heat generated by burning herbal materials. During it has been working, burning herb contact with skin directly or indirectly. Because of heating of the skin during moxbustion working, we supposed that there would be the risk of burn injury. To date, there is no report about the burn injury of moxibustion, we wound report the characteristics of burn by moxibustion.

Method: We did the retrospective patient's chart review who had treated from January 2017 to December 2019. The patients were treated in out-patient clinic or hospitalized. Survey factors were gender, age, reason for using moxibustion, burned lesion and size, type of treatment, underlying disease, period between the day of injury and the day when treatment begins and location which patient were injured.

Results / Discussion: The mean patient was a 64.46 year old female and the most common reason for moxibustion was joint pain. The most common region of burn was lower extremities (50%) and mean size of wound was 7.81cm^2. The length and width of wound was similar in many cases. Average period to start treatment is 22.6days. Type of treatment was mainly local flap (65.7%).

Conclusion: Despite burn by moxibustion is often severe burn, such side effect is not known. We recommend that the informed about the risk of burns should be communicated when using moxibustion and there should be more investigation for this problem.

EP363 THE USE OF HYALURONIC ACID SILVER POWDER SPRAY FOR BURNS THERAPY - A CLINICAL STUDY

Camelia Tamas[1], Catalina Pintilie[2], Traian Gherman[1], Andreea Corduneanu[1], Irina Jemnoschi-Hreniuc[3], Ioana Munteanu[1], Cristina Stanescu[4]

[1]Universitatea de Medicină și Farmacie „Grigore T. Popa" din Iași, Plastic Surgery, Iași, Romania; [2]Universitatea de Medicină și Farmacie „Grigore T. Popa" din Iași, ORL, Iași, Romania; [3]Universitatea de Medicină și Farmacie „Grigore T. Popa" din Iași, Anatomy, Iași, Romania; [4]Universitatea "Dunărea de Jos" Galați, Plastic Surgery, Galați, Romania

Aim: To describe the results after using a topical spray which combines the antimicrobial effect of silver ions with the effect of hyaluronic acid, in partial thickness burns treatment.

Method: We evaluated 26 patients treated during 12 months,with I-IIA/IIB burn lesions on a surface area of 5-20% TBSA (total burn surface area).

For all the patients (21-85 years old), we performed surgical (14 cases) or enzymatic debridement (bromelaine - 6 cases, collagenase - 6 cases). We applied the topical spray starting 48-72 hours after injury/surgery. Bacteriological surveillance of the wounds showed no collonization or infection in 9 cases during the hospitalisation period. In 17 cases, we found: wound collonization (7) or infection (10).

In 8 cases we combined the topical action of hyaluronic acid sylver powder spray with negative pressure wound therapy for 5-10 days, to isolate the wounds and stimulate the debridement (3 cases) or skin graft healing (5 cases).

Results / Discussion: We evaluated the progression of the healing process by estimating the wound surface and thickness with a laser Doppler blood perfusion imagery (day one, day 15, discharge day).

The duration varied between 15 - 20 days, for negative wounds (average value of 18.8 days), respectively 21 – 30 days for positive wounds (average value of 22.2 days), with good functional and aesthetic results in all the cases.

Conclusion: The hyaluronic acid silver spray powder suspension adheres to the lesion, protects the wound against bacteria, creating a micro-environment suitable for rapid healing.

E-POSTER SESSION: ANTIMICROBIALS 2

EP365 THE STUDY OF THE ANTIMICROBIAL ACTIVITY OF ESSENTIAL OILS IN THE MANAGEMENT OF CHRONIC WOUND INFECTIONS

Mara Mădălina Mihai[1 2 3], Veronica Lazar[1 2], Carmen Chifiriuc[1 2], Mircea Popa[4], Alina Maria Holban[1 2], Carmen Curutiu[1 2], Florica Marinescu[1 2 5], Andreea Elena Boglarka Ifrim[1 2], Lia- Mara Ditu[1 2]

[1]Research Institute of the University of Bucharest, Bucharest, Romania; [2], Department of Microbiology and Immunology, Faculty of Biology, University of Bucharest, Bucharest, Romania; [3], Department of Oncologic Dermatology- „Elias" Emergency University Hospital, „Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania, Bucharest,; [4], Department of Microbiology II- Cantacuzino Institute, Faculty of Medicine, "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania, Bucharest, Romania; [5]National Institute for Research and Development in Environmental Protection, Bucharest, Romania, Bucharest, Romania

Aim: To establish the phenotypic profiles of virulence and antibiotic resistance of bacterial strains isolated from chronic wounds, as well as the antibacterial activity of natural essential oils against the isolates.

Method: The study was performed on 43 strains isolated from chronic wounds: *Staphylococcus aureus (32*), *Enterococcus faecium (*2), *Enterococcus faecalis* (1), *Morganella morganii* (1), *Serratia marscescens* (4), *Pseudomonas aeruginosa* (3). The virulence phenotypic screening included the expression of eight soluble virulence factors and the ability to develop biofilms *in vitro*. The antibacterial resistance phenotypic screening was assessed by the disk diffusion method. The antibacterial activity of eight essential oils (usnic acid diluted in dimethyl sulfoxide; sage, propolis tincture, propolis spray, sandalwood, ylang ylang, juniper berry, cajeput essential oils diluted in ethanol) was evaluated by the qualitative method (adapted diffusimetric method), the quantitative method (binary dilutions in liquid medium), and co-cultivation.

Results / Discussion: The evaluation of the antibacterial activity of essential oils demonstrated the high sensitivity of Gram-positive strains to most essential oils tested compared to Gram-negative strains, with very good effectiveness for sandalwood, ylang-ylang, and propolis tincture oils. Gram-negative strains were more sensitive to sandalwood, juniper and ylang-ylang essential oils.

Conclusion: Sandalwood essential oil, ylang-ylang, and propolis tincture may represent effective therapeutic alternatives for chronic wound infections, problematic due to bacterial tolerance and resistance to antibiotics. While products containing essential oils are easily accepted and tolerated by the patients, the possibility to induce cutaneous dysbiosis should be taken into consideration.

This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS/CCCDI – UEFISCDI, project number PN-III-P1-1.1-PD-2019-1225, within PNCDI III.

EP366 A FIRST-IN-HUMAN CLINICAL STUDY INVESTIGATING THE SAFETY AND ANTIMICROBIAL EFFICACY OF STABILIZED HYPOCHLOROUS ACID IN PATIENTS WITH CHRONIC LEG ULCERS

Klaus Kirketerp-Møller[1], Julia Robertson[2], Glenn Gundersen[2], Thomas Bjarnsholt[3], Magnus Mustafa Fazli[4]

[1]Bispebjerg Hospital , Copenhagen Wound Healing Center, Copenhagen, Denmark; [2]SoftOx Solutions , Oslo, Norway; [3]University of Copenhagen , Institute of Immunology and Microbiology, Copenhagen, Denmark; [4]SoftOx Solutions, Copenhagen, Denmark

Aim: Biofilm infections in chronic wounds are common and pose a significant clinical challenge, which we have addressed by developing the SoftOx Biofilm Eradicator (SBE) composed of hypochlorous acid and acetic acid with strong broad-spectrum antimicrobial activity. We performed a first-in-human study, investigating the safety, tolerability, and antimicrobial efficacy of SBE in chronic leg wounds.

Method: The study was divided into two: a randomized, blinded, Single Ascending Dose (SAD) phase (n=16 SBE; n=4 placebo), followed by an open label, Multiple Ascending Dose (MAD) phase (n=8), where patients were treated with SBE once-daily or twice-daily over five days.

Results / Discussion: The results demonstrated that SBE was safe and well-tolerated. There were no significant differences in pain during and after treatment with SBE or placebo (saline). The SBE treatment consistently reduced bioburden in wounds compared to baseline, with 98% and 49% median reduction after the SBE or the placebo treatment, respectively. A dose dependent reduction in wound size was observed in the MAD groups. The median reduction in wound size was -1.22 (-0.31, 12.65) cm^2 in the pooled SBE group and 0.08 (-1.5, 1.5) cm^2 in the placebo group. Better wound size reduction was observed in the MAD groups where the median change was -2.99 (-14.25, -1.5) cm^2 in the once-daily and -10.48 (-17.95, -0.38) cm^2 in the twice-daily groups.

Conclusion: We demonstrated the safe use of SBE in chronic wounds with immediate antimicrobial action and a beneficial effect on wound healing. Larger studies with longer treatment are needed to confirm the SBE performance in chronic wounds.

EP367 ANTIBACTERIAL POTENTIAL OF HONEY AND ITS COMPOUNDS AGAINST INTRACELLULAR STAPHYLOCOCCAL INFECTION OF KERATINOCYTES

Marcela Bucekova[1], Juraj Majtan[2]

[1]Institute of Molecular Biology, Department of Microbial Genetics, Laboratory of Apidology and Apitherapy, Bratislava, Slovakia; [2]Institute of Molecular Biology, Department of Microbial Genetics, Laboratory of Apidology and Apitherapy, Bratislava, Slovakia

Aim: Recently**,** honey is being investigated in the treatment of allergic inflammatory diseases associated with bacterial infection such as atopic dermatitis, in which intracellular infection of skin cells by *Staphylococcus aureus* complicates treatment. The aim of the study was to characterize the mechanisms of action of various honeys and their biologically active compounds on elimination of intracellular Staphylococcal infection of epidermal keratinocytes.

Method: HaCaT keratinocytes were intracellularly infected with *S. aureus*. The effect of Manuka, Honeydew and Jarrah honey (0.25 – 1.0%), and their active compounds MGO (5 – 250 μM) and hydrogen peroxide (H_2O_2) (5 – 500 μM) were determined by the decreased number of bacteria from cell lysate.

Results / Discussion: The most effective honey was 0.5 % manuka. Moreover, 10 μM MGO was the most effective compound, which significantly reduced the bacteria load. Our results show that MGO present in manuka honey is the substance eradicating intracellularly localized *S. aureus* in human keratinocytes *in vitro*. Honeydew, Jarrah honey and H_2O_2 non-significantly reduced the bacterial load inside the cells.

Conclusion: Manuka honey and its active compound MGO are able to penetrate into human keratinocytes and eradicate intracelular *S. aureus*.

This work was supported by the Slovak Research and Development Agency Contract No. APVV-21-0262.

EP368 A COMPARATIVE STUDY BETWEEN CERAMIC DRESSINGS AND SILVER IMPREGNATED DRESSINGS FOR REDUCTION OF BACTERIA LOAD BELOW 104 CFU/GRAM IN INFECTED WOUNDS AND THE RATE OF WOUND CLOSURE OVER A PERIOD OF 4 WEEKS

Rene Lessing[1], Febe Bruwer[2]

[1]Hautecare Clinic, Pretoria, South Africa; [2]Nianwi Health Centre, Johannesburg, South Africa

Aim: To compare the efficacy of Ceramic wound dressings to reduce bacterial load and rate of wound closure in infected wounds, with two silver-impregnated dressings.

Method: Sixty participants with infected wounds visible on fluorescence imaging (>10^4 CFU/g) were recruited. The study protocol was approved by Pharma Ethics (South Africa) and informed consent was obtained. Participants were randomly divided into two groups – Silver-impregnated dressings (control) and Ceramic wound dressings (study group). Fluorescence images as well as wound images was taken on day 0, 3, 7, 14, 21 and 28. Strata interval data was used to do a survival analysis of bacterial load and T-Test for reduction of wound area.

Results / Discussion: After the 28 day treatment period, the survival of visible bacteria was 63% in the control group compared to 21% in the study group with 2 cases of re-infection in the control group. The mean decrease in wound area after the 28 period was 53% in the control group and 67% in the study group.

The purpose of the study was to show non-inferiority of this non-medicated dressing to physically remove infection rather than the use of an antimicrobial agent.

Conclusion: The Ceramic dressings had a positive impact on the reduction in bacterial load as well as an improved rate of healing compared to the silver impregnated dressings used. The study shows that ceramic dressings can be effective in the treatment of infected wounds without the use of antimicrobial agents.

EP369 EFFECT OF PHMB ON THE DEVELOPMENT OF PSEUDOMONAS AERUGINOSA AND STAPHYLOCOCCUS AUREUS BIOFILMS

Xinxin Gao[1], Jiaao Yu[1]

[1]*The First Hospital of Jilin University, Burn Department, Changchun, China*

Aim: To explore the effect of polyhexanidine (PHMB) on the biofilm formation of Pseudomonas aeruginosa and Staphylococcus aureus in vitro. To investigate the effect of polyhexanidine (PHMB) on mature *P.aeruginosa* and *S.aureus* biofilms in vitro.

Method: 1. Strain isolation and culture: Three strains each of *P.aeruginosa* and *S.aureus* isolated and cultured from the wounds of burn and skin wound repair surgery patients in the First Hospital of Jilin University in 2019 were collected and screened for dominant membrane-forming strains. The experiment was divided into PHMB experimental group and blank control group. 2.0.2%PHMB configuration: The PHMB and pure water are configured with 0.2% concentration; 3. Establishment of mature bacterial biofilm. 4.0.2%PHMB on mature bacterial biofilm.5.0.2%PHMB on the formation of bacterial biofilm.

Results / Discussion: 1. Under confocal laser microscope, after 0.2%PHMB was applied to mature *P.aeruginosa* and *S.aureus* biofilms, the bacterial density decreased significantly and the rate of dead bacteria increased significantly. 2. Under scanning electron microscope, it was observed that after 0.2%PHMB was applied to mature *P.aeruginosa* and *S.aureus* biofilms, the density of the bacteria decreased, the morphology of the bacteria was significantly deformed or cracked, and the filamentous structure between the bacteria was broken. 3.0.2%PHMB was co-cultured with *P.aeruginosa* and *S.aureus*, no typical bacterial biofilm formation was observed in the culture dishes of the two types of bacteria under laser confocal microscope.

Conclusion: *P.aeruginosa* and *S.aureus* isolated from burn patients can form a typical and firm bacterial biofilm in vitro. 2.0.2%PHMB can continuously destroy the mature *P.aeruginosa* and *S.aureus* biofilms within 12 hours. 3.0.2%PHMB can significantly affect the biofilm formation of *P.aeruginosa* and *S.aureus*.

EP370 EFFECT OF SILVER NANOPARTICLES ON GROWTH AND BIOFILM PRODUCTION BY PSEUDOMONAS AERUGINOSA STRAINS ISOLATED FROM INFECTED WOUNDS

Madalina Preda[1 2], Mara Mădălina Mihai[1 3], Alina Maria Holban[4], Alexandru Mihai Grumezescu[5], Gabriela Loredana Popa[1 6], Veronica Lazar[4], Ioan Mircea Popa[1 7]

[1]*Carol Davila University of Medicine and Pharmacy, București, Romania*; [2]*National Institute of Pneumology Marius Nasta, București, Romania*; [3]*Elias Emergency University Hospital, Bucharest, Romania*; [4]*University of Bucharest, Department of Microbiology and Immunology, , București, Romania*; [5]*Politehnica University of Bucharest, București, Romania*; [6]*Colentina Hospital, București, Romania*; [7]*Cantacuzino National Institute of Research, București, Romania*

Aim: In order to find new therapeutic alternatives for difficult-to-treat infections produced by *Pseudomonas aeruginosa* we evaluated the effect of silver nanoparticles (AgNPs) on growth and biofilm production.

Method: We selected 30 clinical strains of multidrug resistant *Pseudomonas aeruginosa* isolated from infected wounds with a prolonged evolution, and control strain *Pseudomonas aeruginosa* ATCC 27853. We synthetized 4 different types of functionalized silver nanoparticles (Ag@PEG, Ag@EG, AG@PEG/PVP, Ag@EG/PVP). For each type of nanoparticle, we grown the strains in 96 well-plates, concentration 0.5 McFarland, and a dilution of 10% in 150microL liquid Mueller Hinton, with 8 binary dilutions of nanoparticles from 0.5mg/mL to 0.0039mg/mL. After 24 hours of incubation at 37°C, the growth was spectrophotometrically evaluated at 620nm. Subsequently, the wells were fixed with cold methanol, stained with crystal violet 1%, observed at the inversed microscope and resuspended with acetic acid 33% to be spectrophotometrically read at 492nm for biofilm production.

Results / Discussion: We determined the median of minimum inhibitory concentration, mode and range for each type of AgNP. All parameters investigated were lowest for nanoparticles functionalised with ethylene glycol and polyvinylpyrrolidone (Ag@EG/PVP), lower than 0.0039 mg/mL.

We noticed a reduction of the biofilm production with 0.01-0.05 for concentration of 0.5 mg/mL, most important effect noticed for Ag@EG/PVP.

Conclusion: We underline the efficiency of AgNPs in reducing growth and biofilm production. These findings show that nanosystems could be promising antimicrobial agents for highly antibiotic-resistant *Pseudomonas aeruginosa*. AgNPs may overcome severe microbial infections, since they are useful agents against resistant pathogens and also biofilms.

EP371 HONEY ANTIMICROBIAL PROPERTIES: IS THERE ONLY ROOM FOR MANUKA HONEY?

Roberta Angioi[1], Linda Holland[2], Aoife Morrin[1], Blánaid White[1]

[1]Dublin City University, School of Chemical Sciences, National Centre for Sensor Research, DCU Water Institute, Dublin 9, Ireland; [2]Dublin City University, School of Biotechnology, DCU Water Institute, Dublin, Ireland

Aim: The alarming emergence of antimicrobial resistance has led to renewed attention to natural products. Among these, honey has a prominent role. Botanical origin determination and instrumental analysis of honey composition are frequently deployed safety measures to protect consumers from exaggerated and false claims, particularly for more profitable rare honey varieties. However, an in-depth characterisation of honey is not only relevant for its commercialisation as a food product but also for its medical applications.

Method: Here we investigated samples of Irish honey, marketed as heather honey, to evaluate if they possess antibacterial properties in vitro. Monitoring metabolites of bacterial growth to assess the antimicrobial properties is currently being investigated, alongside traditional validated assays, to allow for instrumental quantification.

Results / Discussion: The Irish honey analysed here shows a total phenolic content (up to 107 ± 4 mg GAE/100 g) comparable to that of the gold standard of medical-grade honey, manuka honey (95 ± 2 mg GAE/100 g). The broth dilution assay revealed that both manuka and heather honey (50% w/v) exert a significant growth inhibition (94-99%) against S. aureus and E. coli. The Minimum Bactericidal Concentration (MBC) was, against both bacteria, 25% w/v for manuka honey and 50% w/v for Irish heather honey.

Conclusion: This project's central research question is whether Irish honey can reduce infections against common wound pathogens. The Irish honey samples analysed here, marketed as heather honey, show potential as an antibacterial agent to be incorporated into the formulation of honey-loaded wound dressings.

EP372 PRELIMINARY RESULTS ON BLUE LED LIGHT ANTIMICROBIAL EFFECTS IN CONTAMINATED-HUMAN DERMAL SKIN SAMPLES

Giada Magni[1], Vania Delfino[2], Marta Cecilia Tosca[3], Carmela Calonico[2], Antonella Lo Nostro[2], Angela Bechini[2], Francesca Rossi[1]

[1]Istituto di Fisica Applicata "Nello Carrara", Consiglio Nazionale delle Ricerche, Sesto Fiorentino, Italy; [2]Università degli studi di Firenze, Dipartimento di Scienze della Salute, Firenze, Italy; [3]ASST G.O.M. Niguarda, SSD Banca dei Tessuti e Terapia Tissutale, Milano, Italy

Aim: To investigate the antimicrobial feature of blue LED light (410 - 430 nm) in contaminated human dermal samples.

Method: All human skin samples were obtained from donors and excluded from transplantation due to contamination. Blue LED device (emission ranging from 410 to 430 nm, 220 mW power density) was used on human dermal skin samples contaminated by *S. capitis and S. epidemidis*. The irradiation was performed by applying the following parameters: light power 220 mW, treatment time 0, 1, 7, 15, 30 min. Microbiological analyses were performed by culturing each sample in Tryptic Soy Broth media (TSB) for 3 h at 37 °C and then straked on Tryptone Soya Agar (TSA) both media and skin sample for 3 days at 37 °C.

Results / Discussion: Our results show that only the 60 s treatment time (11.7 mW/cm^2, 10.53 J/cm^2) exhibits antimicrobial properties. Indeed, the unit forming colony (UFC) was reduced from $> 10^3$ to $< 10^1$. However, none of the treatments induced visible changes to the irradiated tissue.

Conclusion: The increasing antibiotic resistance developed by many bacterial strains represents a global healthcare emergency, and the research of non-pharmacological and non-invasive treatments has become crucial. Blue light (400-470 nm) has been successfully used as an innovative antimicrobial approach. Here, we demonstrated that the application of blue light (410-430 nm, 220 mW, 60 s) induces a decrease in the total viable count of bacteria present in the human skin sample. At the same time, no difference in shape and measure of the tissue was found. Further experiments are necessary to investigate the tissue mechanical and structural properties, before and after irradiation.

E-POSTER SESSION: ANTIMICROBIALS 1

EP 373 A TRANSFORMATIVE WOUND MANAGEMENT APPROACH WITH BMG TECHNOLOGY – FINAL REPORT OF A NATIONAL 50 PATIENT CASE STUDY SERIES

Joy Tickle[1], Susy Pramod[2], Joy Tickle[2]

[1]St Mary's Hospital, United Kingdom; [2]The Christie NHS Foundation Trust, United Kingdom

Aim: Chronic wounds can heavily impact a person's life. Advancing technologies can facilitate healing by providing prophylaxis against barriers to healing, augmentation of wound healing factors, and optimization of the ultimate results of wound reconstruction.

Bioactive microfiber gelling (BMG) technology utilizes chitosan to maintain a cohesive structure increasing fluid handling, antimicrobial and wound healing properties. Chitin and chitin derivatives have been reported to promote rapid dermal regeneration and accelerate wound healing.

Method: Assess performance of BMG dressing across various wound types, fifty patients were recruited from ten clinical settings. Patients were reviewed weekly for 4 weeks.

Results / Discussion: All Clinicians found the dressing suitable for the wound types treated. There was significant evidence of a reduction in wound area, depth, and devitalised tissue by the final assessment alongside exudate levels reducing. Wound pain reduced and one-piece dressing removal noted.

Increase in the percentage of patients with healthy peri wound skin and consequently an observed reduction in the percentage of patients with inflamed, macerated, and dry, flaky skin surrounding the wound at the final assessment.

The dressing aids autolytic debridement and a direct correlation between reductions in slough/ necrotic tissue and increases in granulation / epithelialization was recorded. Study data supported use of BMG technology across various wound types and clinical settings.

Conclusion: BMG technology demonstrated effectiveness in conjunction with routine clinical practice in improving wound outcomes, reducing wound area and depth and level of exudate. Journal publication and pathway will continue to promote and share best practice.

E-POSTER SESSION: ACUTE WOUNDS 2

EP374 BLUE LIGHT PHOTOBIOMODULATION IN THE TREATMENT OF PERISTOMAL SKIN ALTERATIONS: CLINICAL OBSERVATIONS

Mario Antonini[1], Stefano Gasperini[2]

[1]Health Care Department for Central Tuscany, San Giuseppe Hospital, Empoli, Italy; [2]Medical Advisor, Pisa, Italy

Aim: To verify the effectiveness of 4 weeks Blue Light (BL) treatment in reactivating the healing process of peristomal skin alterations in patients who did not respond to Standard of Care (SoC).

Method: 11 patients was enrolled, with peristomal skin alterations L2, L3, L4, L5, according to the SACS Classification 2.0[1], that hadn't shown an improvement after 4 weeks of SoC. The peristomal alterations were treated with BL twice a week for 4 weeks, keeping unchanged the SoC in use. The treatment was performed for 120 seconds in case of inflammatory injury or 60 seconds in all other conditions, with a medical device that uses LED sources emitting Blue Light. Tissue repair was evaluated through WBS[2] and pain was measured through VAS scale. WBS and VAS scores were collected at first treatment visit and at week four.

Results / Discussion: All patients responded to BL treatment. At first treatment visit WBS ranged between 5 to 8 (average 5,9), and VAS score ranged between 3 and 8 (average 5,5). At week four the average WBS had increased to 14,2 (range 10-16) and average VAS had decreased to 1,9 (range 0-3).

Conclusion: Based on our small experience Blue Light can reactivate and accelerate the healing of peristomal skin alterations in patients who did not respond to Standard of Care.

1. Antonini M et al. WCET Journal Volume 36 Number 3 – July/September 2016, (22-29)
2. Schultz GS et al. Wound Repair Regen. 2003 Mar;11 Suppl 1: S1-28.

EP375 WHAT IS THE ASSOCIATION BETWEEN HOMELESSNESS AND INTRAVENOUS DRUG USE AND ITS IMPLICATIONS FOR COMMUNITY-BASED WOUND CARE SERVICES?

Jessica Moore[1], Zena Moore[1], Denise Blanchfield[1], Aglécia Budri[1], Pinar Avsar[1], Declan Patton[1], Tom O'Connor[1], Linda Nugent[1]

[1]Royal College of Surgeons in Ireland University of Medicine and Health Sciences, School of Nursing and Midwifery, Dublin, Ireland

Aim: To investigate, based on the available evidence, the prevalence rate of skin infection among adult homeless individuals who are intravenous drug users (IVDU).

Method: A systematic review following PRISMA guidelines. CINAHL, Medline and Embase were searched between 5th-9th January 2022. The PEO mnemonic (Population, Exposure, and Outcome) was utilised to form the review question. Quality appraisal of studies included was conducted using the evidence-based librarian (EBL) critical appraisal checklist. Data are presented using a narrative synthesis.

Results / Discussion: Of 1552 potential studies identified, 15 met the criteria. A 51% (n= 7303/14301) prevalence of Skin and Soft Tissue Infection (SSTI) among homeless IVDUs was identified. The most common specific type of wound-related complications was abscess (53.3%), cellulitis (26.7%), abscess and cellulitis (13.3%), and secondary bacteraemia (6.7%). Furthermore, there is an increasing number of SSTI on the hand and upper extremity infections among IVDUs.

Conclusion: Worryingly, 51% of IVDUs present to the emergency department with an SSTI. These results indicate the urgent need for wound-related care services for specific skin infections due to injecting drug use. However, the results are not entirely conclusive. There is also insufficient variety and quality of primary research studies related to this topic. Therefore, this systematic review has been fundamental for determining the need for further research.

EP376 EFFICACY AND SAFETY OF EHO-85, A TOPICAL HYDROGEL TREATMENT CONTAINING OLEA EUROPAEA LEAF EXTRACT VERSUS STANDARD OF CARE (E.G., CICATRIDINUM SUPPOSITORIES OR OINTMENT) IN THE TREATMENT OF ANAL FISSURES IN ADULTS: A PROSPECTIVE, MULTICENTRE, COMPARATIVE CLINICAL STUDY

Felix Berrocal[1], Zlatka Etropolska[2], Mariya Armova[3], Stefan Dimitrov[4], Petar Yanev[5], Diana Petrisor[6]

[1]Noventure, S.L., Medical Department, Barcelona, Spain; [2]Ambulatory Practice for Primary Outpatient Medical Care SANA OOD, Sofia, Bulgaria; [3]Outpatient clinic for individual practice for primary medical care Dr. Elenski EOOD, Plovdiv, Bulgaria; [4]Medical Center Prolet EOOD , Ruse, Bulgaria; [5]Medical Center Prolet EOOD , Ruse, Bulgaria; [6]Medical Center Endodigest, Oradea, Bihor, Romania

Aim: The aim of this multicenter, comparative clinical study was to evaluate the safety and efficacy of EHO-85 in adult patients diagnosed with anal fissures.

Method: The efficacy and safety of a topical treatment containing *Olea europaea* leaf extract versus standard of care (e.g., hyaluronic acid-based products) were assessed in 42 adults in a 1:1 ratio in this multicenter, comparative clinical study. Each subject received the prescribed treatment three times per day for 42 days. The time to complete healing - bleeding disappearance - was used to assess efficacy using an observational method. The effectiveness of EHO-85 was measured in terms of time to pain reduction (VAS) and discomfort diminution (Likert Scale). SF-36 was used to assess the impact of anal fissures on patients' quality of life.

Results / Discussion: Improvement or remission of bleeding symptoms while taking EHO-85 was statistically significant at Days 7 (p=0.032) and 15 (p=0.006). EHO-85 patients reported statistically significant pain symptom relief or reduction at Day 3, Day 4, Day 5, Day 6, Day 7, and Day 15 (p=0.017, p=0.014, p=0.024, p=0.09, p=0.002, p=0.008, and p=0.001). Starting on Day 6, the subjects reported, during EHO-85 administration, discomfort improving or disappearing (p=0.042). In both the EHO-85 arm and the SoC arm, there are statistically significant differences in the subjects' assessments of quality of life from Day 1 to Day 42. **Conclusion:** EHO-85 administered in adult patients showed that the clinical symptoms associated with anal fissures were reduced or solved when compared to day 1. EHO-85 has a good safety profile as there were no adverse events registered during the study, or clinical symptoms progression.

EP377 TREATMENT OF TRAUMATIC WOUNDS USING DERMAL SUBSTITUTE AND SPLIT-THICKNESS SKIN GRAFT (STSG)

Ercan Sagnak[1], Gwendolyn Kimmer[1]

[1]*Agaplesion Diakonieklinikum Hamburg, Trauma&Orthopedics, Hamburg, Germany*

Aim: In trauma surgery, most injuries occur to the upper or lower extremities, exposing muscle, tendons, joints or even bone surface. Covering such defects using bare skin graft often ends up in bad functional results due to wound contraction, scar formation or even skin graft loss. Using a dermal Matrix additionally to STSG can improve wound healing by restoring motion and skin elasticity.

Method: 54 patients with traumatic wounds (exposed tendons, joints or bare bone surface) of the extremities were treated with MatriDerm® and STSG (2018-2022). Follow-up assessments were taken seven days, two weeks and two months after surgery (34 patients lost to follow-up). We used MatriDerm® and STSG for mostly one-step procedure. MatriDerm® is a unique open porus matrix containing native collagen fibers and collagen, which serves as a dermal matrix. After six weeks Matriderm is integrated by the skin and human dermis is rebuilt.

Results / Discussion: MatriDerm® and STSG is suitable covering soft tissue wounds, exposed tendons and even bare bone surface, showing an overall graft uptake of > 80 %. Postoperative contraction occurred in < 10 % preserving range of motion. Patients treated with MatriDerm® and STSG showed high quality of life considering skin elasticity and aesthetic outcome.

Conclusion: The use of MatriDerm® and STSG shows an outstanding outcome especially when treating high-risk wounds exposing tendons, joints or bones. Therefore, MatriDerm® should be used in trauma surgery on a regular basis.

EP378 THE USE OF APLIGRAF® IN SURGICAL AND NONSURGICAL FULL-THICKNESS WOUNDS

Amélie Klein[1], Axelle Serre[2]

[1]*Geneva, Service de Chirurgie Plastique, Esthétique et reconstructive , Geneva, Switzerland*; [2]*Geneva, Service de Chirurgie plastique, esthétique et teconstructive, Geneva, Switzerland*

Aim: Since its approval by the Food and Drug Administration (FDA), Apligraf® is commonly used to treat nonhealing venous ulcers and diabetic foot ulcers. This bilayered tissue-engineered skin is composed of human keratinocytes and fibroblasts that have been harvested from neonatal foreskin.

Method: In this retrospective study, we included all patients with surgical and nonsurgical wounds who underwent at least one application of Apligraf® between July 2021 and October 2022 in our Department of Plastic, Reconstructrice and Aesthetic Surgery. A unique size of Apligraf® of 7.5 cm of diameter is available. In case of small wounds, an Apligraf® can be divided into 2 to 3 to avoid a waste of tissue and to reduce the price of the application. If a reapplication of Apligraf® was needed, a gap of minimal 14 days between 2 applications was respected.

Results / Discussion: In total 14 patients with 20 surgical and nonsurgical wounds were treated with Apligraf® in the last 2 years. Following 1 to 3 applications of Apligraf®, 100% of the wounds were completely healed by a maximal of 56 days (mean31.7 days). Apligraf® was used in case of patients for whom a skin graft procedure couldn't be performed due to a contraindication to general anaesthesia, impossibility to suspend anticoagulative treatment, or refusal of surgery from the patient. No complications, side-effects or adverse reactions to Apligraf® were observed.

Conclusion: Apligraf® can be used as an alternative to skin graft, avoiding morbidity, pain and bleeding of donor site and the need for general or local anaesthesia. This procedure can be performed within 30 minutes in outpatient setting.

EP379 FOURNIER'S GANGRENE, WHAT IS THE RELEVANCE OF THE PROBLEM? RETROSPECTIVE OBSERVATIONAL PILOT STUDY ON A REPRESENTATIVE SAMPLE

Rosa Colella[1], Stefania Alaimo[2]

[1]IRCCS Policlinico San Matteo , scientific direction-Research , Pavia, Italy; [2]Via Volturno, 14, Surgery, Voghera, Italy

Aim: Fournier's Gangrene (GF) is a rare condition that accounts for less than 0.2% of hospital admissions in the United States with an incidence of 1.6 cases per 100,000 people. The average age of affected patients is 55.3 years and the male to female ratio is 10:1. The study aimed to analyse the prevalence of FG in a representative sample in order to obtain data, estimate the relevance of the problem and observe its critical issues.

Method: A retrospective analysis was performed of patients, admitted from January 2014 to December 2019 at the Operating Units of ASST PAVIA with a diagnosis of vascular pathologies of the male genital organs and other infiammatic pathologies of the male genital organs. A literature review was performed using the PubMed and Chinal databases.

Results / Discussion: The incidence of Fournier's Gangrene in the Pavia ASST is 15 cases in 5 years. The sample is entirely male, no deaths were detected. The average age is 58.6 years. Diabetes mellitus is present in 53% of cases and obesity in 86.6% of cases as prevalent risk factors. However, the same data were found in the five selected studies.

Conclusion: The Gold Standard treatment is confirmed to be surgical debridement combined with broad-spectrum antibiotic therapy. Greater knowledge of the pathology is needed in order to recognise early signs and send the patient promptly to the PS, as well as knowledge of Wound Care (Wound management) for adequate local treatment.

EP380 AUTOLOGOUS FAT GRAFTING – A STEP FORWARD IN WOUND MANAGEMENT

Komal Saeed[1], Farid Khan[2], Saad Qudus[2]

[1]Services Institute Of Medical Sciences, Plastic Surgery, Lahore, Pakistan; [2]Services Institute Of Medical Sciences, General Surgery, Lahore, Pakistan

Aim: Autologous fat grafting (AFG) is an emerging therapeutic option for wounds that are not ready for grafting. The regenerative potential of autologous fat lies in the adipose derived stem cells (ADSCs) contained within the stromal vascular fraction (SVF). However to date, there has been no comprehensive evaluation of its efficacy in acute complicated wounds. This study aims to critically evaluate the efficacy and safety of AFG in cutaneous wound healing.

Method: This prospective, quasi experimental study was conducted in the Department Of Plastic Surgery, SIMS, Lahore, between June 2020 and June 2021. Thirty patients with pale granulation, not ready for grafting with no vital structure exposed were included in the study after detailed history, examination and were photographed pre and postoperatively. The procedure was performed under local anaesthesia. 40-80 ml fat was harvested from lower abdomen and after emulsification, placed over the wound wrapped in sufra tulle dressing. The dressing was changed on 3rd postoperative day and outcome was assessed on clinical grounds.

Results / Discussion: Thirty patients (M:F Ratio 1.75:1) with mean age 30 years (Range 13-45 years) were included in this study with post traumatic (n=23) and post infective (n=7). Of 27 patients who completed their follow up, all had healthy granulation tissue which was later on grafted. Mean number of fat dressing sessions were 2 (Range 1- 3).

Conclusion: Autologous fat grafting has shown promising results for cutaneous wounds without any unacceptably high complication rates reported so far. Randomized controlled trials need to be done on a larger scale to prove its efficacy in the management of complicated wounds.

EP381 THE ROLE OF A THREE-DIMENSIONAL POROUS MATRIX OF STABILIZED BOVINE COLLAGEN TYPE IN ACUTE WOUNDS: OUR PRELIMINARY EXPERIENCE

Carlotta Scarpa[1], Franco Bassetto[1], Vincenzo Vindigni[1]

[1]UOC Chirurgia Plastica e Ricostruttiva, Neuroscienze, Padova, Italy

Aim: To evaluate the safety and efficacy of a three-dimensional porous matrix of stabilized bovine Collagen type in acute wounds.

Method: We considered 10 patients affected by different kind of lesions: 1 patient affected by post burn wound on dorsal hand, 7 patients affected by post excisional wounds ad 2 patients affected by skin graft's donor site wounds. All the patients signed an informed consent prior to surgery.

Results / Discussion: All the patients demonstrated a good dermal tissue ready for skin graft after 3 weeks from surgery. No one had adverse events or infection of the dermal substitute.

Conclusion: In our experience the three-dimensional porous matrix of stabilized bovine Collagen type has been a safe and effective matrix. We didn't notice any adverse events and no significative differences have been reported between the etiopathogenesis of the lesions.

EP382 TREATMENT OF SUBCUTANEOUS HEMATOMAS WITH A MULTICOMPONENT COMPRESSION SYSTEM

Nuria Serra[1], Victoria Hernández[1], Maribel Prades Olarte[1], Makla Huici[1], Julia Fernández Morata[2]

[1]Clínica Sagrada Familia, Nurse of Angiogrup, Spain; [2]Urgo Medical, Clinical, Spain

Aim: Subcutaneous hematoma can evolve into a dissecting hematoma causing skin ischemia and large necrotic areas, negatively impacting on patient's life quality. This study aims to evaluate if the use of an early treatment with compression therapy in patients with subcutaneous hematomas avoids infections and major complications.

Method: 10 clinical cases of elderly patients (>80 years old) with hematomas were collected. Patients suffered traumas due to falls because of neurological disorders or sedentary habits. All patients were anticoagulated or had received corticosteroid treatments and suffered from skin alterations. The distal pulses were present in all patients and contraindications to compression therapy (peripheral arterial disease and decompensated heart failure) were excluded.

Results / Discussion: Patients with leg hematomas have been treated from the beginning with multicomponent compressive bandage (long and short stretches), with changes at the beginning at 24-48 hours and then weekly cures. When the tissue was necrotic, the hematomas were debrided. In the presence of a wound, the local treatment included silver dressings in case of infection for 7 to 15 days and afterwards with a metalloproteases' modulators dressing. None of the wounds became infected after the compression treatment. Hematomas treated from the beginning with compression therapy, healed sooner (the median of healing was 3 weeks).

Conclusion: Elderly people with hematomas in lower limbs who were treated immediately with multicomponent compressive therapy achieve a fast absorption of the hematoma and rapid wound healing, avoiding the evolution to a dissecting hematoma and improving patient's quality of life.

EP383 PERINEAL PERFORATOR SWITCH FLAP FOR THREE-DIMENSIONAL VULVOVAGINAL RECONSTRUCTION

Jongweon Shin[1], Haejin Seo[1]

[1]Eunpyeong St. Mary hospital, Department of Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South

Aim: Vulvovaginal reconstruction is challenging. In this study, we evaluated the outcomes of vulvovaginal reconstruction with "perineal perforator switch flap" (PPSF) and compared it with other conventional flaps. In addition, the long-term esthetic results were compared with the perineal perforator propeller flap (PPPF), which we previously used.

Method: We retrospectively reviewed the clinical data of 16 patients (27 flaps) who underwent vulvovaginal reconstruction with PPSF. After tumor resection, perineal perforators close to the genitofemoral sulcus were identified. The flap was designed as an island with the perforator at the center. The flap was elevated while preserving the soft tissue surrounding the pedicle and transferred to the defect via the subcutaneous tunnel without pedicle skeletonization.

Results / Discussion: All flaps survived, and no major surgical complications were observed. The total follow-up period was 16.13±3.38 months. The mean operation time was 79.38±19.65 minutes, and the initiation of walking and the length of hospitalization were 1.69 ± 0.79 and 5.69 ± 0.79 days, respectively. Perineal function was well preserved. Comparison of esthetic results with PPPF showed that PPSF showed better results in symmetrical and labial shape (2.29 ± 0.73 vs. 3.13 ± 0.81; p=0.015, 2.43 ± 1.02 vs. 3.25 ± 0.68; p=0.031, respectively), and in total score. (10.29 ± 2.16 vs. 12.31 ± 1.82; p=0.017).

Conclusion: PPSF was technically simple and significantly reduced the duration of operation and the overall recovery time. PPSF also prevented delay in radiation. Therefore, PPSF is a promising method for vulvovaginal reconstruction.

EP384 THE ANTI-BIOFILM ACTIVITY OF A WOUND DEBRIDEMENT GEL VERSUS A VARIETY OF ANTIMICROBIAL SOAKS AND MECHANICAL DEBRIDEMENT DEVICES USING A STRINGENT IN VITRO BIOFILM MODEL

Dan Metcalf[1], Kate Meredith[2]

[1]Convatec, Infection Prevention R&D, Deeside, United Kingdom; [2]Convatec, Microbiology Services, Deeside, United Kingdom

Introduction: The recognition of biofilm as a barrier to wound healing means that antimicrobial cleansers, soaks and debridement products should effectively remove biofilm as part of wound hygiene.

Aim: To compare the anti-biofilm efficacy of a wound debridement gel (WDG), with commonly used antimicrobial solution soaks and mechanical debridement devices.

Method: Test products (and controls) were assessed within a validated gauze biofilm model against Methicillin-resistant *Staphylococcus aureus* (MRSA) and multi-drug resistant *Pseudomonas aeruginosa* (RPA). Biofilms were cultured on gauze for 48 hours in nutritious broth and foetal bovine serum mixture and then treated with test products: WDG; 4 different antimicrobial solution soaks; and physical removal with 3 different pads/wipes. Enumeration of surviving biofilm bacteria was performed in triplicate for each test product and cell counts compared using 2-tailed independent T-tests.

Results: The anti-biofilm activity of WDG was demonstrated to be rapid with >6 $\log_{10}$ reductions in MRSA and RPA biofilm after 2x2-minute applications. When compared with a range of antimicrobial solution soaks and mechanical debridement devices, WDG demonstrated markedly greater reductions in biofilm cell counts of MRSA and RPA than observed for any other method tested.

Conclusion: WDG demonstrated a markedly greater kill of biofilm than other antimicrobial solution soaks and mechanical debridement devices tested using a stringent *in vitro* biofilm model. It is unclear how these *in vitro* tests translate to clinical use, however, recent clinical data has also shown the effectiveness of this wound debridement gel.

EP385 A 10-YEAR RETROSPECTIVE STUDY OF MANAGING UPPER EXTREMITY WOUND WITH TENDON EXPOSURE BY MEANS OF DEEP TEMPORAL FASCIA GRAFT

Ki Pyo Sung[1], Youngwoong Choi[1], Choong Hyeon Kim[1]

[1]Ilsan Paik Hospital, Inje University, Department of Plastic and Reconstructive Surgery, Goyang-si, Korea, Rep. of South

Aim: Soft-tissue defects of upper extremities can be managed by various options including locoregional flaps, skin grafts and free flaps. However, if tendon exposure is accompanied, skin graft is not an advisable procedure owing to the complications such as graft failure. Instead of skin graft, dual-layer graft using intermediate graft between tendon and skin graft would be a preferable option. In this study, deep temporal fascia was used as an intermediate layer because of the manageability and inexpensiveness.

Method: Retrospectively review of patients from January 2011 to December 2020 who underwent coverage of upper extremity wound with tendon exposure using deep temporal fascial graft. Fascia was taken from temporal area and the split-thickness skin graft (STSG) was harvested from thigh (Fig. 1). After the fascia was placed over the tendon, the skin graft was fixed. Retrospective review was done to analyze the postoperative complications (Table. 1).

Results / Discussion: Grafts were taken well, and no major complications including total graft failure was occurred (Fig. 2). Complications related to the impediment of motor functions owing to adhesion are not seen except for only one patient.

Conclusion: The grafted of deep temporal fascia between the skin graft and the tendon of upper extremity can function as a gliding plane, while the process of harvest is manageable and the procedure is costless compared to the allograft. The durability and thickness of soft-tissue can also be reinforced by deep temporal fascial graft.

Fig.1. Intraoperative photograph of deep temporal fascia.

Fig.2. (A) Preoperative photograph. (B) Photograph just after temporalis fascial graft. (C) Photograph after STSG. (D) Photograph obtained after 1 year.

Table 1. Complication data

Adverse events	(%)
n	32
Complications†	
No	29 (90.6)
Yes	3 (9.4)
Graft failure	2
Total graft failure	0
Partial graft failure	2
Seroma	0
Hematoma	0
Adhesion	1

EP386 TOPICAL TREATMENT OF TECHNOLOGY LIPIDO-COLLOID WITH NANO-OLIGO-SACCHARIDE FACTOR WOUND DRESSING (TLC-NOFS) OF DIABETIC FOOT ULCER

Kinga Spyrka[1], Jakub Brela[1], Marek Kucharzewski[2], Dariusz Bazaliński[3], Paweł Więch[4]

[1]Sosnowiec City Hospital, Sosnowiec, Poland; [2]Faculty of Health Sciences Jan Długosz University of Częstochowa, Częstochowa, Poland; [3]Institute of Health Sciences, College of Medical Sciences of the University of Rzeszów, University of Rzeszów, Rzeszów, Poland; [4]Institute of Nursing and Health Sciences, Faculty of Medicine, College of Medical Sciences, University of Rzeszów, Rzeszów, Poland

Aim: The aim of the following paper strives at assessing the efficiency of the application of the TLC-NOSF (Technology Lipido-Colloid with Nano-Oligo-Saccharide Factor) wound dressings in patients with diabetic foot ulcer.

Method: 40 patients with DFU of grade I and II (Wagner's classification) were selected for the study and randomized into two groups. The first group consisted of 20 patients (ulceration area: 4.5-7.1 cm2) who were treated by TLC-NOSF dressing, UrgoStart®, Poland). The second group comprised 20 patients (ulceration area 4,3-6,7 cm2) treated by silver foam dressing – Biatain Ag Adhesive Foam Coloplast, Poland). All dressings were changed every two days until the wound was thoroughly healed. The changes in the wound area, which occurred every week, were calculated. Additionally, the pace of the healing process was also measured every day – healing per day index (cm2/day).

Results / Discussion: The results reveal that after five weeks of treatment, the ulcers healed in all patients, who belonged to the first group. Whereas, in the case of the second group, the ulcers healed after eight weeks of the treatment.

Conclusion: Basing the analysis on the observations, the authors unanimously state that the application of Technology Lipido-Colloid with Nano-Oligo-Saccharide Factor wound dressing (TLC-NOFS), significantly contributes to the process of treating diabetic foot ulceration.

EP387 APPLICATION OF PLASMA-DERIVED PLASMINOGEN FOR THE TREATMENT OF CHRONIC WOUNDS IN PATIENTS WITH DIABETIC FOOT SYNDROME

Oleg Petrenko[1], Tykhomyrov Artem[2], Serhiy Badzyuh[3]

[1]Bogomolets National Medical University, Kyiv; [2]Palladin biochemistry institute, Kyiv, Ukraine; [3]Bogomolets National Medical University, Kyiv, Ukraine

Syndrome of diabetic foot is considered as one of the most adverse complications of diabetes mellitus, which leads to 84% of foot amputations. Despite a progress in testing and applying novel molecular and cellular treatments of chronic diabetic foot ulcers, the most effective treatment remains undecided. Plasminogen (Pg) is the key protein of fibrinolytic system, which is also known to play an essential role in reparative processes and previously has been referred to as a "*master regulator*" of wound healing. In our study, autologous Pg isolated from the fresh patient's blood plasma by affinity chromatography on lysine-Sepharose was topically applied (1.0 mg Pg in saline per day) on wounded area of diabetic patients from the studied group (n = 20, mean wound size 2.5 - 12 cm^2). Pg application significantly accelerated relative wound closure rate (24 ± 4 days) as compared with average wound recovery time for diabetic patients from the control group (n = 25, mean wound size 2 - 15 cm^2, 120 ± 17 days). Biochemical examinations of wounded skin biopsies revealed that Pg could improve healing processes via decreasing hypoxia level, autophagy flux, and excessive matrix metalloproteinase activity. Thus, we showed here for the first time that topically applied plasma-derived Pg has a pronounced beneficial effect in promoting foot ulcer healing in diabetic patients, while further Pg testing for the development of treatment tools for dermal wounds of other pathogenesis is needed.

EP388 REAL LIFE OBSERVATIONAL STUDY OF THE USAGE OF TWO DRESSINGS INDICATED FOR EXUDING WOUNDS

Christine Juhel[1], Romain Schueller[1], Florence Armstrong[2]

[1]CEN CRO, Dijon , France; [2]Laboratoires Coloplast , Rosny-sous-bois , France

Aim: Describe in real life the characteristics of wounds treated by community nurses in France

Method: After informing patients and before applying BS[#] or BF[¥], community nurses describe patients' and wounds' characteristics (wound type, location, duration, dimensions, exudate, infection, wound bed, edge and periwound skin), primary dressing already in place, reasons for dressing change and associated wound care.

Results / Discussion:

– A total of 220 wounds/patients were included.

Study results show:

– Patients' profile and wounds distribution
– Mean population age is 73.2±18.2 and present at least one factor of delayed wound healing
– 65.0% chronic wounds and 35.0% acute wounds
– Wounds present high risk of complication: 79.1% show exudate pooling, 35.0% have macerated edges.
– Non optimal management:
– Mechanical debridement is only performed in 25.7% of necrotic wounds and 24.5% of fibrinous wounds (>50.0% fibrine).
– Only 30.6% to 60.7% chronic wounds received specific treatments (compression therapy, offloading, support surfaces)

Main reasons for changing to BS or BF is failure of previous treatment:

– Stagnant wounds (58.6%) and bad exudate management (21.0%)
– Dressing use

  BF and BS were used based on indications and wounds conditions (exudate, wound bed, depth).

Conclusion: This study highlighted the need for improving wound management in community setting (cleansing, debridement, treatment of underlying condition).

The two dressings were used according to their indications. The number of wounds included in this study will allow to evaluate performance of these dressings globally and by wound type.

[#]Biatain® Silicone (Coloplast)- (BS) [¥]Biatain® Fiber (Coloplast) – (BF)

EP389 THE ANTI-BIOFILM ACTIVITY OF ANTIMICROBIAL DRESSINGS USING INCREASINGLY STRINGENT IN VITRO MODELS

Dan Metcalf[1], Kate Meredith[2]

[1]Convatec, Deeside, United Kingdom; [1]Convatec, Deeside, United Kingdom

Aim: To evaluate the anti-biofilm activity of 4 antimicrobial dressings using a series of increasingly relevant and complex *in vitro* biofilm tests.

Method: The Centers for Disease Control & Prevention (CDC) biofilm reactor model with single-species standard strains, antibiotic-resistant strains and polymicrobial biofilm (*Staphylococcus aureus, Pseudomonas aeruginosa* and *Candida albicans*) was used to assess anti-biofilm activity of test dressings. Test dressings included: an anti-biofilm ionic silver carboxymethylcellulose (CMC) dressing (ABS-CMC); a calcium alginate/CMC dressing containing ionic silver (CA-Ag); a polyurethane foam dressing with proprietary ionic silver complex (Ag-Foam); a hydrated biocellulose dressing containing polyhexamethylene biguanide (BC-PHMB). Test dressings were applied for 24 hours and surviving biofilm cells were enumerated.

Results: Single-species biofilm testing showed that only ABS-CMC reduced all 3 single-species biofilms (*S. aureus, P. aeruginosa* and *C. albicans*) by at least 4 $\log_{10}$. For resistant strains, ABS-CMC and Ag-Foam reduced counts for both MRSA and resistant *P. aeruginosa* single-species biofilm by >3 $\log_{10}$ and BC-PHMB reduced counts of MRSA by 3 $\log_{10}$. Against polymicrobial biofilm, ABS-CMC completely eradicated all microorganisms (6.5 $\log_{10}$ reduction). In contrast, CA-Ag, Ag-Foam and BC-PHMB reduced total microorganisms by 3.0 $\log_{10,}$ 4.3 $\log_{10}$ and 3.9 $\log_{10}$ respectively.

Conclusion: ABS-CMC dressing resulted in enhanced activity against single-species, antibiotic-resistant and polymicrobial biofilm cultured in the CDC biofilm reactor compared with the other 3 dressings tested. To be effective against polymicrobial biofilm, which is observed clincially and a known barrier to wound healing, it is important that wound dressings contain additional anti-biofilm properties as well as antiseptic agents.

EP390 EVALUATION OF QUALITY AND EDUCATIONAL EFFECT OF MICROSURGERY VIDEOS ON YOUTUBE: A RANDOMIZED CONTROLLED TRIAL

Jongweon Shin[1], Haejin Seo[1]

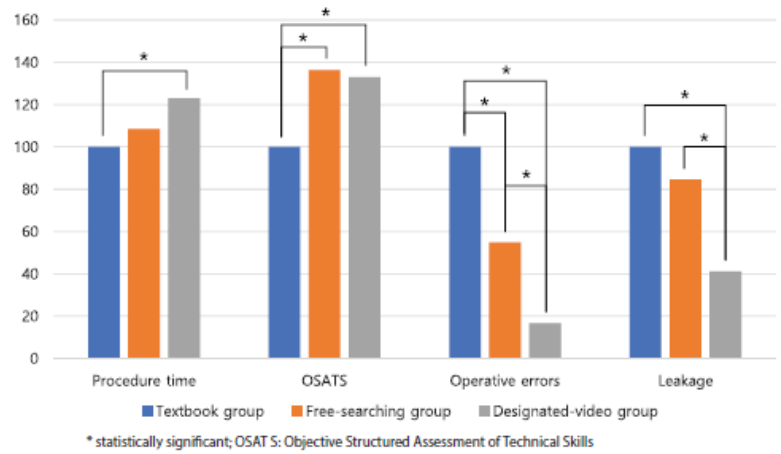
[1]*Eunpyeong St. Mary hospital, Department of Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South*

Aim: Widespread use of smartphones and wireless internet have made YouTube an easily accessible educational modality. Many residents use YouTube to acquire knowledge regarding microsurgical techniques; however, its quality and effect has not been verified.

Method: The authors included 22 residents working in the Department of Plastic and Reconstructive Surgery. Using block randomization, seven were allocated to a textbook group (TG), eight to a free-searching group (FSG), and seven to a designated-video group (DVG). After reviewing textbooks, YouTube videos, or designated videos, respectively, each group performed microsurgical anastomosis using artificial vessels. The total procedure time, Objective Structured Assessment of Technical Skills (OSATS), operative errors, and degree of leakage were assessed by blinded evaluators. Self-confidence rates were also compared.

Results / Discussion: The YouTube groups (FSG and DVG) performed better than the TG. Although procedure time was significantly longer in the DVG (p=.006), the performance of DVG was better than that of TG in all assessments (OSATS: p=.012; operative errors: p=.002; leakage: p=.010). FSG showed more operative errors (p=.004) and leakage (p=.007) compared to DVG but had higher OSATS (p=.008) and fewer operative errors (p=.002) than TG. The post-intervention confidence rates were significantly higher in FSG and DVG compared to TG (p=.002 and p=.001, respectively).

Conclusion: Although there are concerns regarding reliability of YouTube, microsurgery videos had positive effects on microsurgery practice. Therefore, YouTube may help to improve the microsurgical skills of residents. If a quality control system is introduced for YouTube videos, their educational effects may be enhanced.



EP391 THE IMPACT OF PROVIDING A TAILORED WOUND CARE EDUCTIONAL PROGRAMME TO CARE HOME STAFF ACROSS THREE LOCAL HEALTH BOARDS

Jane James[1], Kirsten Mahoney[1]

[1]*Welsh Wound Innovation Centre, Ynysmaerdy, United Kingdom*

Aim: Care home staff provide care to the most vulnerable client group, yet often do not have access to training and education especially around wound care (QNI 2020). The purpose of developing this educational program sought to promote an increase in knowledge and understanding of prevention, management and treatment strategies surrounding aspects of wound care for qualified and non-qualified staff within 14 local care homes.

Method: An assessment of educational needs was established with the care home educational lead and a structured tailored education program was developed along with workbooks and interactive workshops to consolidate knowledge. The topics included skin frailty, pressure damage prevention, wound assessment and dressing selection. Learning was assessed via a knowledge questionnaire that was undertaken by each student before and after the educational event. All sessions were evaluated by staff attending the sessions following delivery.

Results: A total of 40 training events were delivered in a nine-month period in eight different care home locations and was attended by 72 care home staff. Post evaluation of the sessions by staff indicated that 90% of information was useful, 89% stated it was relevant to their role and 92% indicated that information was delivered in a format that was easy to follow. Pre and post educational survey indicated a marked overall improvement in knowledge of 71%.

Conclusion: Learning from delivering this program included:

- The importance of tailoring education specific to the care home setting
- The benefit of face to face learning
- The requirement for ongoing learning opportunities for all care home staff.

EP392 MICROBIOLOGY DIAGNOSIS METHODS' ACCURACY IN CHRONIC WOUNDS. A SYSTEMATIC REVIEW

Nerea Manzanaro[1], Miriam Berenguer Pérez[2], José Verdú Soriano[2]

[1]General University Hospital of Alicante, Alacant, Spain; *[2]University of Alicante, Enfermería Comunitaria, Medicina Preventiva y Salud Pública e Historia de La Ciencia, San Vicente del Raspeig, Spain*

Aim: To describe the current microbiology diagnosis methods' accuracy for the detection of microorganism in chronic wounds. Secondary objective: to identify information about which microorganisms can be detected by these microbiology diagnosis methods.

Method: A systematic review through articles identification in the main databases such as PubMed, CINAHL, Cochrane, LILACS and SCOPUS. A search strategy with keywords like wound biofilm, infection or chronic wound and MeSH terms as clinical laboratory techniques was designed for this aim. This search method was adapted to each database. It was filtered by language (Spanish, English and Portuguese) and all years were included. The quality of articles was evaluated for its final inclusion.

Results / Discussion: 17 articles were included in this study. The results are shown as accuracy, sensitivity, specificity, positive predictive value and negative predictive value for each microbiology diagnosis method. Some of the articles compare different diagnosis methods or their clinical observation in addition to microorganisms that were detected. Whilst others demonstrate the results of diagnosis methods in development. Bacteria more frequently detected by culture and molecular diagnosis are, from highest to lowest extent: Klebsiella pneumoniae, Staphylococcus aureus, Pseudomonas aeruginosa and Escherichia coli. The accuracy of "Infection" diagnosis is higher when microorganisms' study and clinical observation of the wounds are combined.

Conclusion: The summary of diagnosis methods' accuracy is demonstrated. New technologies are allowing to obtain faster results and with greater capacity for recovery and distinction of microorganism species. Future research would need a larger number of samples and more homogeneous procedures.

EP394 THE CLINICAL APPLICATION AND OUTCOMES OF NEGATIVE PRESSURE WOUND THERAPY ON NON-FREE FLAPS: A CASE-CONTROL STUDY

Yuan Kong[1], Alison Quah[2], Jolie Hwee[2], Yijun Wu[3], Hui Wen Ng[4], Chong Han Pek[2]

[1]Khoo Teck Puat Hospital, Plastic, Reconstructive and Aesthetic Surgery, Singapore, Singapore; *[2]Khoo Teck Puat Hospital, Plastic, Reconstructive and Aesthetic Surgery, Singapore*; *[3]Woodlands Health Campus, Plastic, Reconstructive and Aesthetic Surgery, Singapore*; *[4]Tan Tock Seng Hospital, Plastic, Reconstructive and Aesthetic Surgery, Singapore*

Aim: The use of negative pressure wound therapy (NPWT) is ubiquitous in the management of complex wounds. Extending beyond the traditional utility of NPWT, it has been described to be used after reconstructive flap surgery in a few case series. The authors seek to investigate the outcomes of NPWT on flap reconstruction in a case-control fashion.

Method: 138 patients underwent flap reconstruction between November 2017 and January 2020. After exclusion of the 37 free-flap reconstructions, 101 patients were included in this study. They were divided into two groups, the NPWT group and the control group. For the NPWT group, NPWT was utilized directly over flaps immediately post-surgery for 4-7 days, before they were switched to conventional dressings similar to the control group. The control group used conventional dressing materials from immediately post-surgery onwards. Outcome measures such as flap necrosis, surgical site infections (SSIs), wound dehiscence as well as time to full functional recovery and hospitalization stay were looked at.

Results / Discussion: 51 patients utilized NPWT immediate post reconstructive flap surgery, compared to 50 patients in the control group. Both groups had similar patient demographics, patient and wound risk factors for impaired wound healing. Comparing both groups, there was no statistically significant difference between the primary and secondary end-points of the study.

Conclusion: NPWT over flaps is safe and efficacious in the immediate post-operative setting, and it is not inferior to conventional dressings used for reconstructive flap surgery. Further studies would be required to see if it provides any further benefit.

Table 1. Summary of proposed risks/benefits of NPWT on flaps

Proposed benefits of NPWT on flaps	**Proposed detriments of NPWT on flaps (if not applied appropriately)**
Increased reduction of flap oedema	Excessive pressure/tension during NPWT application may compromise flap perfusion
Assisted egress of post-surgical fluid and exudate management without maceration of skin	Opaque portions of the NPWT dressing may impair clinical flap monitoring
Reduction of contamination from external environment	
"Splints" the flap to the surrounding tissue and wound bed, reducing shear and movement	
Reduction in frequency of required dressing changes	

Table 2. Estimated total cost of dressing for the first 7 post-operative days

	Negative Pressure Wound Therapy (NPWT) Dressing	Traditional Dressings
Estimated total cost^	Range: 207 - 415	Simple: (75 + 78 + 32) x 2 = 370 Complex: (150 + 121 + 56) x 3 = 981
Frequency of dressing change	Once (in OT)	2-3 times
Dressing material cost	VAC Granufoam: 207 - 296 Prevena*: 333 - 415	75 – 150 per session
Subsequent manpower cost for dressing change#	nil	Simple: 78 per session Complex: 121 per session
Subsequent procedure fees for dressing change	nil	Simple: 32 per session Complex: 56 per session
Assumptions:	^All numerical figures are quoted an estimate in US Dollars (USD). This amount is before accounting for any form of subsidy by the hospital or government. *Prevena dressing can be used continuously for first 7 days without any dressing change in between; in some cases, the NPWT dressing is removed at Day 5 for earlier inspection of the flap. The range of cost varies due to the corresponding sizes of the VAC/Prevena used; this would correspond to the size/complexity of the flap/wound. #Manpower required for simple dressing procedure: 1 specialist and 1 nurse; Manpower required for complex dressing procedure: 1 specialist, 1 resident and 1 nurse.	

EP395 A PROPOSED NOVEL MODIFICATION TO REVERSE THE FORCE VECTOR OF NEGATIVE PRESSURE WOUND THERAPY

Graham Taschner[1], Hugh Theunissen[2]

[1]Zeerust Hospital, Zeerust, South Africa; [2]Livingstone Hospital, Gqeberha, South Africa

Aim: To compare the safety of the standard negative pressure wound therapy (NPWT) model in clinical practice with the novel intervention.

Method: Wound bed vacuum pressure was mechanically compared in conventional NPWT and the novel intervention at a constant pressure of -120mmHg, on the same ex-vivo porcine wound model, to produce ten readings per group. Statistical analysis was performed using the paired t-test (significance defined as $p < 0.05$).

Results: Mean vacuum pressure applied to the wound bed was found to be comparable in both groups (Figure 1), with no significant pressure differences ($p = 0.0522$).

Discussion: There is concern whether the paradoxical increase in mechanical pressure on the wound tissue in conventional NPWT could be potentially detrimental for wound healing. There is also difficulty in applying NPWT to unfavourable anatomical sites. The novel intervention proposed would change the direction of force vector of the vacuum pressure toward the vacuum generator, rather than towards the wound bed. This is done by providing suction through a perforated lattice which corresponds to the anatomical site of the wound. This would potentially promote angiogenesis toward the vacuum application. With the assistance of three-dimensional printing, this lattice can be applied to wounds in anatomical sites where it would be difficult to perform NPWT (Figure 2). **Conclusion:** No detrimental effects on safety or efficacy were experienced in the wound model of the novel intervention, when compared with standard NPWT. This will allow for further studies to be done on living patients to compare the efficacy and wound tissue perfusion pressure of the novel intervention against standard NPWT.

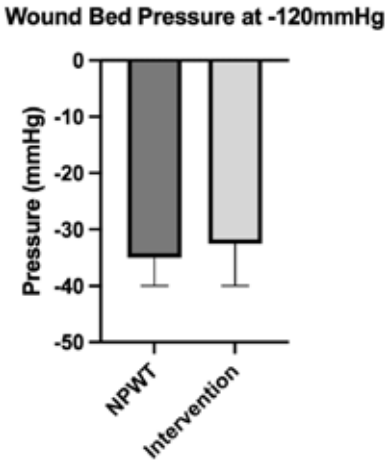


Figure 1: Pressure measurements experienced by conventional NPWT versus the novel intervention in the wound bed in the same wound. Results are presented as a box and whisker plot with the mean and maximum values indicated (n=10). It can be seen that the pressure experienced in the wounds bed shows no substantial difference when comparing conventional NPWT and the novel intervention.

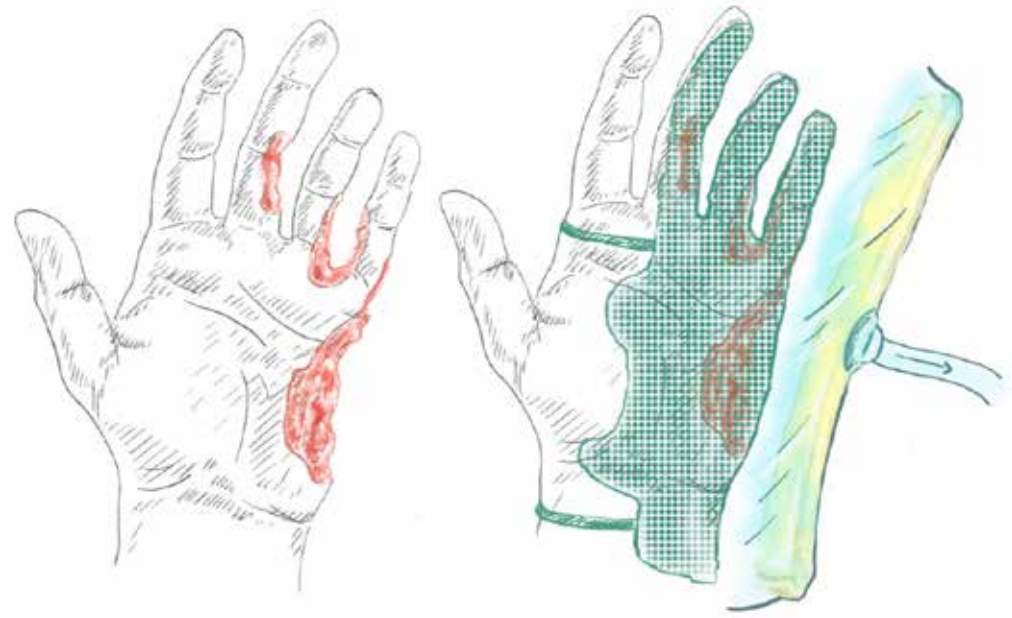


Figure 2: an example of wounds in difficult anatomical sites, hand wounds do not allow for adequate function of conventional NPWT. Three-dimensional printing of the patient's uninjured hand could be used to form a sterile polyurethane plastic sheet, which could be placed over the wounds of the injured hand, sandwiched between layers of foam, which provides a lattice for the NPWT to function optimally.

EP396 INTER-ASSESSOR RELIABILITY STUDY IN THE STAGING OF PRESSURE INJURIES

Ayşe Sılanur Demir[1], Vildan Çakar[1], Ayişe Karadağ[2]

[1]Koç University, Graduate School of Health Sciences, Department of Nursing, İstanbul, Turkey; [2]Koç University, School of Nursing, İstanbul, Turkey

Aim: Accurate staging is crucial for effectively managing pressure injuries (PIs). This study aims to examine the consistency of nurses with different academic and clinical competencies working in the field of chronic wounds in the diagnosis and staging of PIs.

Method: Three nurse assessors were classified as competent, proficient, and expert according to Benner's stages of clinical competence. They independently analyzed 698 PI photographs to identify and stage PIs. Assessors later came together for the wounds where there was disagreement, and a consensus was reached. The inter-rater reliability of agreement between two assessors was analyzed with Kappa Statistics, and it was analyzed with Fleiss Kappa Statistics between competent, proficient, and expert.

Results / Discussion: An excellent statistical agreement on Cohen's Kappa scores was obtained between competent, proficient, and expert in the evaluation of photographs (K=0.871, p<0.001). The stages with the highest agreement were the Unstageable PI (98.7%) and Stage 4 PI (96.3%). The lowest agreement was observed in Stage 2 PI (60.9%). Wounds defined as Stage 1 PI by proficient and expert were evaluated as incontinence-associated dermatitis by competent. At the end of the consensus evaluation, 4.5% of the photographs which competent staged as Stage 1 PI was determined as incontinence-associated dermatitis. Photographs staged as Stage 2 PI (1.2%) by all assessors at the initial assessment was defined as skin tears during the consensus evaluation.

Conclusion: Although a statistically high agreement was obtained, the results of this study on photographs revealed that PI classification has varying degrees of reliability among assessors. However, it is known that accurate PI staging in healthcare settings is challenging.

EP397 AN EFFICIENT METHOD TO PREVENT ADDITIONAL WHOLE ARM SKIN INJURIES IN PATIENTS WITH PHYSICAL RESTRAINTS

HeeJoung Kim[1], Myeong Hee Lee[1], Jung Hwa Lee[1]

[1]Ajou University Hospital, Nursing , Suwon, Korea, Rep. of South

Aim: Device-related pressure injuries may occur at the application site due to the application of physical restraints. It is necessary to take appropriate preventive activities to prevent pressure injuries. But this may lead to additional skin damage. From January to September 2022, the average number of wounds that occurred on the hands, elbows and arms referred to the wound care team was 45.4 cases per month. Of these, 23.7 patients were wearing physical restraints. When they are applied to the wrist, appropriate intervention is required to prevent skin damage to the whole arm.

Method: We used square shaped foams when applying a prophylactic dressing to the arm. It was not easy to apply a prophylactic dressing to the joints that were a lot of the movement and curved. We used heel shaped foam rather than square shaped foam and it could adequately protect the patient's skin.

Results / Discussion: The method we applied to protect the elbow was very effective in protecting the skin of the patients. We found that there is no skin damage after applying the heel shaped foam and it lasted longer than the conventional square shaped foam.

Conclusion: Education is important to enhance knowledge of physical restraints, and nursing performance for the application of physical restraints can be improved through appropriate education programs. It is thought that they will focus more on skin care related to the application of physical restraints. In order to prevent additional skin damage to the arm in patients, applying heel shaped foam rather than square shaped foam was an efficient method to prevent skin damage on arms.

EP398 THE FOOT HEALTH ASSESSMENT INSTRUMENT IN OLDER PEOPLE CARE SETTINGS

Leena Jalonen[1], Minna Ylönen[2], Minna Stolt[3]

[1]Welfare Services, City of Turku, Turku, Finland; *[1]Welfare Services, City of Turku, Turku, Finland*; *[3]University of Eastern Finland, Kuopio , Finland*

Aim: To assess the use of the Foot Health Assessment Instrument (FHAI) in older people care settings.

Method: The nurse-administered FHAI measures the level of foot health with 20 items with four subscales: skin health (11 items), nail health (4 items), foot structure (4 items) and foot pain (1 item). The FHAI was implemented in 2017 to one public older people care organization in Finland. The number of conducted foot health assessments during 2018-2019 were calculated from the patient record system and experiences related to the use of the FHAI were inquired from key stakeholders of the organization (podiatrists, tissue viability nurses and nurse directors).

Results / Discussion: The use of FHAI has been systematic resulting benefits in many areas. During two years a total of 830 foot health assessments have been conducted. Based on experiences, foot health assessment has become a systematic part of patient care. With assessments potential threats for foot health are identified and particularly skin breaks and lower limb ulcers are noticed earlier than before. Changes in foot health are monitored more actively and timely podiatric care is provided. The use of FHAI has improved the foot-related documentation. Also the attention towards the suitability in patients' footwear have increased leading to renewal of patients' footwear.

Conclusion: The use the FHAI is systematic resulting to direct outcomes. Systematic foot health assessment improves the quality of care and increases holistic approach to patients care. With systematic assessments it is possible to identify, monitor and prevent foot health problems.

EP399 HOW CAN WE REDUCE SURGICAL SITE INFECTION?

Beverly Al-Azzawi[1]

[1]*Northampton General Hospital, Surgical Division, Northampton, United Kingdom*

Aim: To introduce a fun and innovative teaching package which empowers staff to 'dress their wounds right." Staff within the Surgical Division lacked the knowledge to know how to appropriately dress their wounds to optimise healing. This, therefore, led to an increase in Surgical Site Infections amongst patients within the Surgical Division, an extended length of healing time and increased length of stay.

Method: The Surgical Practice Development team introduced 2 teaching days with no formal taught content, and which were fully interactive nature, having used the "Mind the Gap" (Jones et al, 2015) research to guide their development making them suitable across generations of nursing.

To measure the effectiveness of the course we undertook a survey amongst staff within the division. We also audited the reflections staff completed on the course to see if their practice had improved. There had also been an audit of our SSI rates since the courses began.

Results: SSI rates reduced from 3% to 0% in joint replacements And reduced to 0.5% in large bowel surgery.
87% of staff felt more confident in accurately assessing a wound.
60% now use TIME for wound assessment.
54% of staff are now confident in managing wounds without referral to Tissue Viability Nurses.

Conclusion: The introduction of a bespoke wound management 2-day training programme has led to improved outcomes for patients as demonstrated by the reduction in SSI rates due to the staffs improved ability to better assess and manage wounds.

EP400 EFFECTIVENESS OF LONG PULSED 1064-NM ND:YAG LASER IN ACUTE SCAR REDNESS MANAGEMENT

Ki Pyo Sung[1], Youngwoong Choi[1], Choong Hyeon Kim[1]

[1]*Ilsan Paik Hospital, Inje University, Department of Plastic and Reconstructive Surgery, Goyang-si, Korea, Rep. of South*

Aim: Acute redness of scar at postoperative suture site is a natural phenomenon which disappears over time, but the longer the redness lasts, the greater the patient's discomfort for cosmetic reasons and the higher possibility of hyperpigmentation. This study introduces the efficacy of 1064-nm Nd:Yag laser as a noninvasive management for redness.

Method: Sixteen patients with Fitzpatrick skin type 2 to 3 who underwent excision of mass on face were studied. Patients were divided into two groups, eight each, and observed for 2 months. Patients of experimental group were followed up at 1 week after stitched out, and three stacked shots with 7.0J, 8Hz, 8mm spot and 0.3ms per target by the long pulsed 1064-nm Nd:Yag laser were executed on the area of redness. The laser treatment was done 3 times every two weeks. By reviewing the photographs, the redness was rated on a scale of 0 to 6 points by summing the degree of redness based on the Japan Scar Workshop scar scale (Fig.1).

Results / Discussion: The initial average score of experimental group was 4.6 and control group scored 4.2. When reevaluated after 2 months, the former decreased to 2.2 and the latter decreased to 3.1 ($p<0.001$) (Fig.2.).

Conclusion: The long pulsed 1064-nm Nd:Yag laser can be used to assist the revascularization and remodeling of wound. In addition, it accelerates the improvement of initial redness of scar by stimulate collagen regrowth.

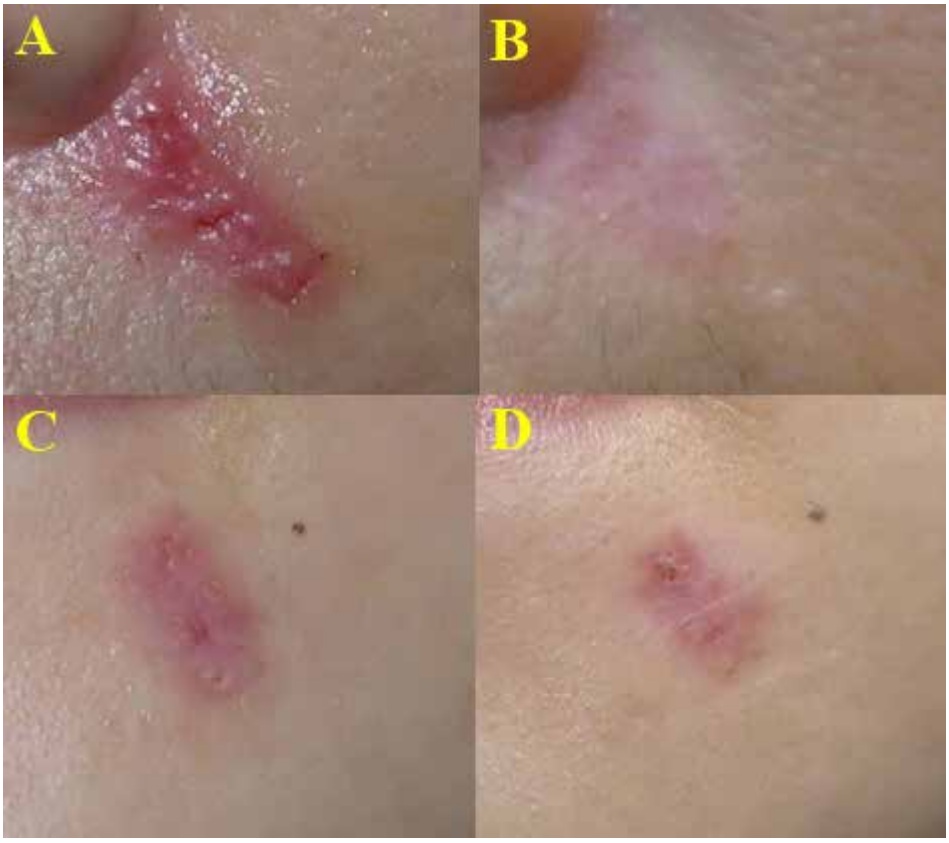


Fig.1. (A) Initial photograph of experimental group. (B) Experimental group after 3 times of laser. (C) Initial photograph of control group. (D) Control group after 2 months.

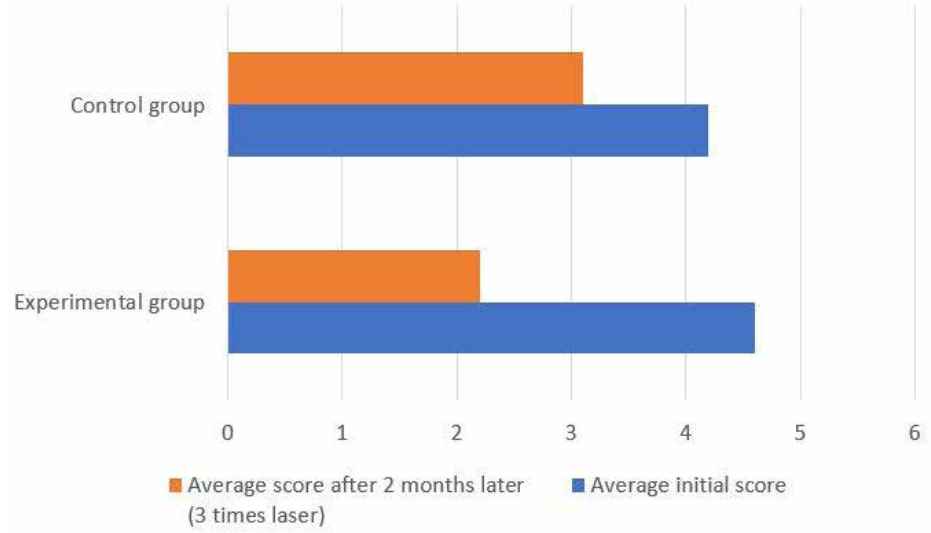


Fig.2. Comparison between experimental group and control group ($p<0.001$).

EP401 POST MARKET CLINICAL FOLLOW-UP (PMCF) STUDY TO EXAMINE CLINICAL PERFORMANCE OF A MECHANICAL DEBRIDEMENT PAD*, CONSISTING OF A COMBINATION OF LOOPED MONOFILAMENT FIBRES AND ABRASIVE FIBRES

Ewa Klara Stürmer[1], Eike Sebastian Debus[1], Leanne Atkin[2]

[1]University Heart Center Hamburg GmbH, Department for Vascular Medicine, Hamburg, Germany; [2]Pinderfields Hospital, United Kingdom

Aim: Wound debridement is essential for healing and infection prophylaxis. This study evaluates the clinical performance and safety parameters of a pad for mechanical debridement of superficial wounds and surrounding skin.

Method: From 04/2021 to 05/2022 a prospective, uncontrolled, multicentre PMCF study was conducted in 3 centers (2 in Germany, 1 in UK) by 4 Health Care Professionals in daily clinical practice. Patients with wounds in need of debridement were scheduled for 2 visits (initial, treatment visit) and underwent one mechanical debridement procedure with the investigational medical device (IMD). Assessment included documentation of wound´s condition before and after debridement and photo documentation.

Results / Discussion: 62 patients (24 female/38 male) with different indications and a median age of 76 were analysed. Wounds were >4 cm^2 in size and >30% covered with debris, necrosis, or slough.

Necrosis, slough and debris were compared before and after debridement with the IMD; the documented data show a reduction of all three parameters. The absorption of slough, necrotic tissue or debris by the IMD was rated mostly good or very good by the investigators.

Although mechanical debridement is mostly associated with higher pain levels, most patients did not experience an increased pain level or discomfort during the debridement.

Conclusion: The IMD reduces necrotic tissue, slough, and debris in the wound and on the peri-wound skin after one treatment. Cream residues and skin flakes are successfully removed during debridement, while skin´s integrity is not impaired by damaging the peri-wound skin. It can be concluded that the IMD is an effective tool for the mechanical debridement of superficial wounds and surrounding skin.

*Cutimed® DebriClean BSN medical GmbH

E-POSTER CASE STUDIES (ENG) ON DISPLAY

EP402 TREATMENT OF A COMPLEX WOUND IN THE ELDERLY WITH A CREAM BASED ON BIOACTIVE PROTEINS FROM HEVEA BRASILIENSIS ASSOCIATED WITH A CELLULOSE MEMBRANE

Magrit Gabriela Wilke[1 2], Adriana de Lima[3]

[1]Residencial Qualy Life, Nurse Dept, sao paulo, Brazil; [2]Residencial Qualy Life, Enfermagem , são paulo Brazil, Brazil; [2]Residencial Qualy Life, Enfermagem , são paulo Brazil, Brazil

Aim: Complex wounds int elderly challenge multidisciplinary teams[1], as they are difficult to resolve when conventional treatments are used; due to the longtime of treatment, they become of high socioeconomic impact.

Objectives: To report the experience of patient assisted under the care of a Long Stay Institution for the elderly using a cream based on bioactive proteins from Havea brasiliensis, associated white cellulose membrane, in the treatment of complex wound in members upper left, in a elderly patient, 97a, male. Patient has ecchymosis, cellulitis, and fracture in the left humerus; extensive lesion in the left arm, with phlogistic sings, points of necrosis and edema present 4+/4+.

Method: Descriptive study of the case report type, conducted in Long Stay Institution for the elderly

Fig 1. 21/06/22 - Day0

Fig 2. 23/06/22 - Day 03

Fig 3. 27/07/22 - Day34

Fig 4. 08/08/22 - Day5

Fig 5. Day 60 - Epithelization

Results / Discussion: Different technologies are used for the treatment of advanced equipment in the elderly, primary dressings, advanced technologies, associated whit expensive therapies, such as negative pressure and dermal matrix. Therapy with cream based on Hevea Serum (LATEX), associated with cellulose membrane, based on the simple premise option for wound closure, pain reduction, with less increase, maintenance of the moist environment, stimulating angiogenesis, preserving aesthetics, functionality. The treatment stimulated angiogenesis, progressing to tissue repair and total wound epithelization within 60 days.

Conclusion: The proposed treatment was effective, promoting a humid environment, stimulating granulation and epithelialization tissues. This form may be a new treatment option for dressing costs, white reduced dressings, and materials.

EP403 COMPRESSION WITH MULTICOMPONENT BANDAGE. NURSING CARE FOR A PATIENT WITH CHRONIC VENOUS INSUFFICIENCY

Rosa Casado[1], Isabel Zafra[1], Maria Montserrat Candel[1], Anabel Palma[1]

[1]*Asociacion Española de Enfermería Vascular y Heridas, Asociacion Española de Enfermería Vascular y Heridas, Barcelona, Spain*

Aim: Demonstrate the importance of nursing care in the resolution of a venous ulcer in the patient wearing compression.

Method: Case study. The patient was diagnosed with venous insufficiency, presenting an ulcer in the lower left limb, in the Outpatient Department of the Angiology and Vascular Surgery Service of a reference hospital in the province of Barcelona. Technique and instruments: For the collection of information, the interview, direct observation of the patient and the clinical history were used. The assessment was carried out using the functional health patterns of Marjory Gordon between the months of October 2020 and April 2021. The following NANDA diagnoses (among others) were identified: Impaired tissue integrity, risk of infection, disposition to improve knowledge and non-compliance with compressive treatment. Subsequently, the nursing interventions were planned and the planned activities were carried out.

Results / Discussion: The nursing care plan placed special emphasis on personalized health education and patient involvement in the process. With these cares, healing was achieved, in less than six months, of an ulcer of evolution of more than a year.

Conclusion: The role of nursing is of vital importance in the resolution of venous ulcers. Chronic venous disease is potentially relapsing and greatly alters the patient's quality of life. For an effective care plan, correct adherence to compressive treatment and daily self-care of the skin is essential.

EP404 INJURY MANAGEMENT IN A DIABETIC PATIENT USING ADVANCED TECHNOLOGIES

Sergio Ilário[1], Magrit Gabriela Wilke[2]

[1]*Prefeitura de* São Paulo, Nurse Dept Polo de Curativo, sao paulo, Brazil; [2], *Nurse Dept, Sao Paulo, Brazil*

Aim: Healing is a complex process that needs a careful look from the nurse. Lower limb injuries are the most recurrent and main cause of amputation due to non-traumatic ethology.

Objective: to describe the process of treating an injury in a diabetic patient with the use of advanced technologies.

Results: Total closure of his lesion, total of 10 months of treatment.

Method: Descriptive study, case report, from November 2021 to August 2022 in the city of São Paulo (SP), in the public service of the Municipality of São Paulo.

Results / Discussion: Male patient, 58 Years, diabetic, hypertensive, denies smoking and. alchol consumption, developed an ulcer a Year ago. in the Middle third of the tibia, measuring 7cm by 3.5cm wide, 1cm dep., wound bed with exposed bone in 90%, Slough in 10%, regular edge with epibole.. On 11/24/2021, a consultation was carried out between orthopedics, stomatherapist nurse and vascular surgery for evaluation, and possible referral for surgical approach for possible osteomyelitis; in 15 days with the proposed treatment, the lesion improved with the use of implanted propaedeutics (restructuring cream, gelling fiber with polyvinyl alcohol (PVA), bacterial cellulose membrane and textile mesh impregnated with healing matrix and silver). The treatment proposed was comprehensive, with significant improvement in several aspects of the patient's health, such as better blood pressure control, improved physical mobility, improved glycemic indicators, reduced body weight, improved physical availability in their daily lives.

Conclusion: The choice of technologies with the interdisciplinary team, avoided the amputation of the left lower limb, providing an improvement in the patient's quality of life.

Keywords: Stomatherapy; Diabetic foot; Nursing.

EP405 USING NEGATIVE PRESSURE WOUND THERAPY (NPWT)* IN A COMPLEX ABDOMINAL WOUND TO HELP FACILITATE TIMELY ADJUNCT THERAPY

Annabelle Mooney[1]

[1]*Bradford, District Care NHS Foundation Trust, Bradford, United Kingdom*

Aim: This case study outlines the treatment for a patient who was diagnosed with cancer and had major gynaecological and abdominal surgery. She had a non-healing wound that was treated with Negative Pressure Wound Therapy.

Method: The patient is a 52-year-old female; who received NPWT and drain with good effect to treat a static circular wound in the pubic region.

Results / Discussion: Within one week of NPWT being applied, the wound depth had reduced by 3cm; therapy then continued for a further three weeks and was stopped when the wound depth was approximately 1cm.

The challenges were the depth of the wound, the wound's anatomical location, and the size of the wound entrance.

The patient was also very anxious and wanted the wound to heal so that chemotherapy could commence, and the team also knew that adjunct therapy could not start until it fully healed.

Conclusion: Complex abdominal wound dressing changes remain a considerable source of anxiety for patients and clinicians.

NPWT supported wound closure, ensuring that the patient could commence her chemotherapy promptly.

The patient reported that the device was light & portable, and the nursing team stated that it was easy to apply.

*PICO 7 Single use Negative Pressure Wound Therapy

* Renasys Touch Negative Pressure Wound therapy

EP406 COMBING A NOVEL DEVICE AND NEGATIVE PRESSURE WOUND THERAPY FOR MANAGING THE WOUND AROUND A COLOSTOMY IN THE OPEN ABDOMEN: A CASE REPORT

Sun Xiaofang[1], Shaohan Wu[2], Jianping Zhang[1], Xie Ting[3]

[1]*The Second Hospital of Jiaxing Affiliated to Jiaxing University, Department of Dermatology, Jiaxing, China*; [2]*The Second Hospital of Jiaxing Affiliated to Jiaxing University, Department of General Surgery, Jiaxing, China*; [3]*Shanghai 9th People's Hospital, Shanghai Jiao Tong University School of Medicine, Wound Healing Department, Shanghai, China*

Aim: An open abdomen complicated with small-bowel fistulae becomes a complex wound for local infection, systemic sepsis and persistent soiling irritation by intestinal content. While controlling the fistulae drainage, protecting surrounding skin, healing the wound maybe a challenge.

Method: A 68-year-old female was admitted to emergency surgery in general surgery department with severe abdomen pain. Resection part of the injured small bowel, drainage of the intra-abdominal abscess, and fashioning of a colostomy were performed. She failed to improve and ultimately there was tenderness and lot of pus under the skin around the fistulae. The wound started as a 3-cm^2 lesion and progressed to a 6*13-cm around the stoma. In our case we present a novel device for managing colostomy wound combination with negative pressure wound therapy. The foam was cut into the shape of the wound. The Brava Strip Paste was used at the bottom around bowel, creating a tight seal between tissue and a 4 cm high tube around the bowel. Another piece of foam was placed onto the foam next to the wound to minimize direct suction on the bowel. The foam was covered with an adhesive drape creating a sealed environment.

Results / Discussion: This tube allows for an effective drainage of small-bowel secretion and a safe build-up of granulation. The wound volume could be seen markedly decrease during NPWT.

Conclusion: In our case we present a novel device for managing colostomy wound combination with NPWT.

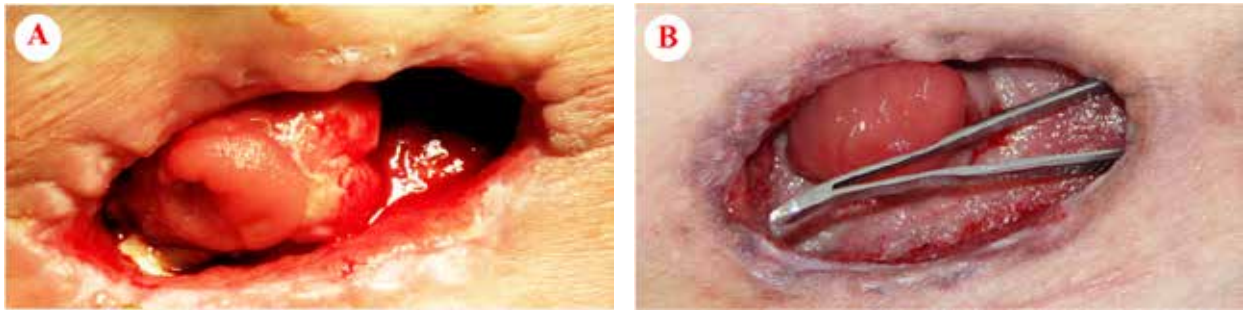


Figure 1.

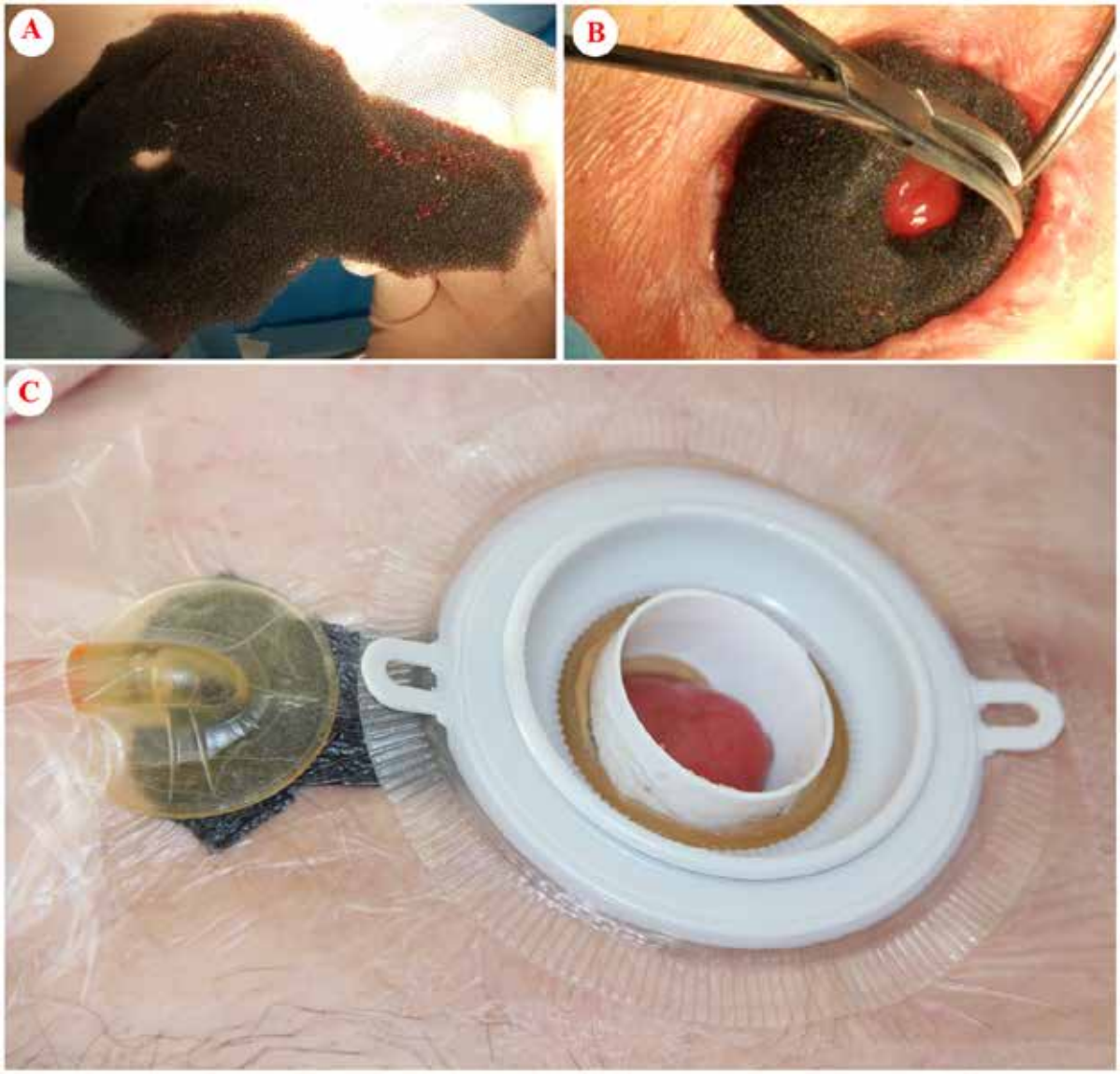


Figure 2.

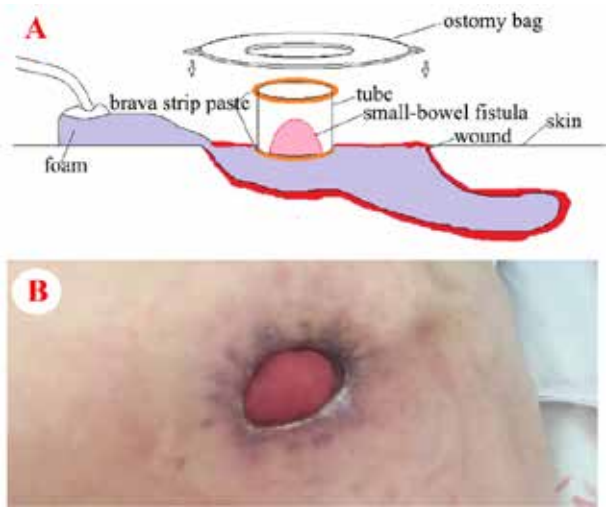


Figure 3.

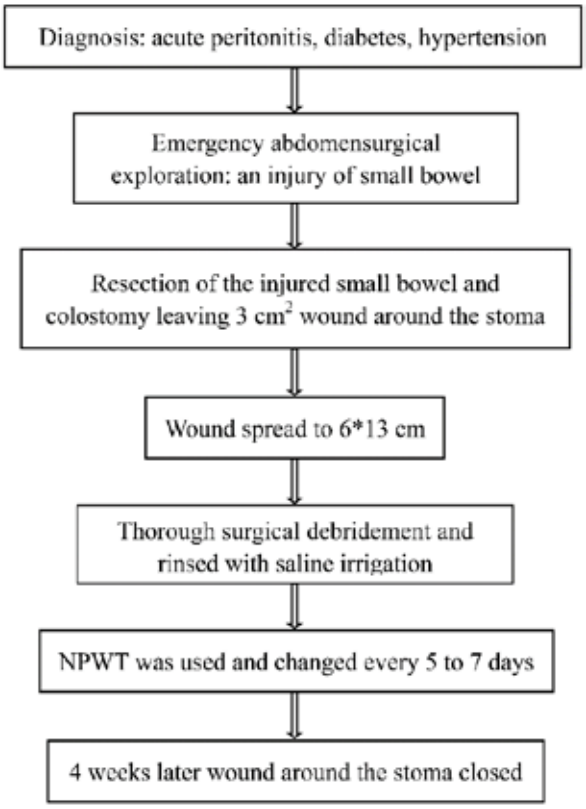


Figure 4.

EP407 ELECTRICAL STIMULATION TREATMENT FOR RESISTANT PLANTAR WARTS

Irem Tezer Ates[1]

[1]*Nurokor Bioelectronics, UK, Underwater and Hyperbaric Department, London, United Kingdom*

Aim: To show a new method in the healing process of plantar warts with a 3 year follow up.

Method: 38-year-old male patient applied to our clinic with painful bilateral multiple numbers of plantar warts. The largest one was 3 cm in diameter. The surgery option was not suitable. In the clinic, shave excisions combined with cryotherapy sessions were applied by the health professional but there was no success after 5 sessions. The patient did get no response from OTC 5FU&salicylic acid combination, monochloroacetic acid, cryosprays and also tried vinegar, garlic duct tape and fish pedicures. The patient kept coming to the clinic to get rid of the thick layer causing him pain. After a year, he was advised to utilise an electrical stimulation device (ESD). A combination of the microcurrent (20 min) and peripheral nerve stimulation (20 min) treatments was applied for 3 weeks, 3 times a week on his plantar area with a specially designed shoe to conduct electricity. Photos of the lesions were taken with thermal cameras during treatments.

Results / Discussion: No side effects during or after the applications of ESD. All lesions disappeared after 2 months.

Treatment options are limited in multiple resistant plantar warts. Warts can repeat themselves in the same areas of the feet. In this case, 2 years later, they reoccurred and disappeared spontaneously in 2 months. The patient was utilising the ESD for his lower extremity pain during this period.

Conclusion: ESD designed for feet and lower extremities can be added to the classical treatment options for resistant plantar warts.



EP408 TREATMENT OF DIABETIC FOOT LESIONS AND ERYSIPELAS WITH A RESTRUCTURING CREAM WITH BIOACTIVES

Magrit Gabriela Wilke[1], Tatiana Correa[2]

[1]*Residencial Qualy Life, Enfermagem, São Paulo, Brazil*; [2]*Vide Bula, Enfermagem, Rio de Janeiro, Brazil*

Aim: Erysipelas is an infectious process of the skin, can reach the fat of the cellular tissue, caused by a bacterium that spreads through the lymphatic vessels. It can occur in people of any age, more common in diabetics, obese, people with impaired circulation in the veins of the lower limbs.

Method: Descriptive study, case report, conducted in home. Male, 62 years old, Diabetes Mellitus, Erysipelas. In 2022, clinical manifestations of the disease in the Lower Right Limb. Use medications and topical dressings in a health unit, without improvement of the lesion. Home care started 08/26/22, dressing changes every 72 hours with a restructuring cream with bioactives.

Results / Discussion: The treatment stimulated lesion cleaning, angiogenesis, progressing to the granulation stage within 30 days. Treatment of patients with erysipelas lesions in diabetic feet requires specialized care. Tissue repair and epithelialization take a long time, bringing high costs to patients. The use of the restructuring cream was based on the ease of use of the product by the patient at home, reducing consultations, dressings with professionals, low cost of the product, in addition to the natural active principles of formula in autolytic debridement, angiogenesis stimulus, maintenance a humid environment, bactericidal action, fungicidal action and without contraindications and cellulose membrane to stimulate cell conduction and reduce pain.

Fig 1. 30/06/21 necrosis; Fig 2. 30/06/21 debridement; Fig 3. 1/07/21 cellulose membrane; Fig 4. 21/08/21; Fig 5. 11/09/21; Fig 6. 28/09/21

Conclusion: The treatment was effective, promoting humid environment, stimulating granulation, epithelialization tissues. In this way, it may be a new treatment option for lesions in patients with erysipelas and diabetes, with a reduction in the costs of dressings and materials.

EP409 CASE STUDY OF POSTOPERATIVE COMPLICATIONS TREATMENT WITH NEGATIVE PRESSURE WOUND THERAPY

Mantas Fomkinas[1], Saulius Knystautas[2], Ernest Zacharevskij[1 2], Loreta Pilipaityte[1 2]

[1]Hospital of Lithuanian University of Health Sciences Kauno Klinikos, Department of Plastic and Reconstructive Surgery, Kaunas, Lithuania; [2]Lithuanian University of Health Sciences, Medical Academy, Faculty of Medicine, Kaunas, Lithuania

Aim: To share our experience and present case study of negative pressure wound therapy adaptability in treatment of patients with postoperative complications.

Method: We report 2 cases of patients with postoperative complications. Every patient underwent wound debridement and followed by installation of Negative Pressure Wound Therapy (NPWT) on the site of wound.

Results: First case was female patient with bladder cancer. Urostomy and ileostomy was formed during surgical treatment of bladder cancer. Afterwards postoperative complication occurred: extravasation from ileostomy. Due to leakage of ileostomy substance infection and tissue necrosis occurred (Fig.1). Wound debridement was performed and NPWT was applied (Fig.2). After three weeks autodermoplasty with split-thickness skin graft was performed and NPWT was reapplied. Positive results of wound closure can be seen four weeks after application of NPWT (Fig.3). Second case was male patient with left gluteal pressure ulcer. Debridement and tissue-based reconstruction was performed for wound closure. Postoperative complication occurred: infection and dehiscence of surgical wound (Fig.4). NPWT was applied for 3 weeks (Fig.5). After one week autodermoplasty with split-thickness skin graft was performed. Positive results of wound closure can be seen two weeks after autodermoplasty was performed (Fig.6). Both of patients was discharged in a good condition.

Fig.1

Fig.2

Fig.3

Fig.4

Fig.5

Fig.6

Conclusion: NPWT gives significantly positive results of improvement in the wound, as shown in our case reports. Application of the NPWT was a useful method in stimulating wound healing after postoperative complications in our cases.

EP410 TREATMENT WITH TRANEXAMIC ACID IN POSTOPERATIVE BLEEDING

Ki Pyo Sung[1], Youngwoong Choi[1], Choong Hyeon Kim[1]

[1]Ilsan Paik Hospital, Inje University, Department of Plastic and Reconstructive Surgery, Goyang-si, Korea, Rep. of South

Aim: Postoperative bleeding can deteriorate the surgical site as well as the patient's general condition. Especially, postoperative bleeding is often ignored because it is sealed with dressing materials. We report a case with postoperative bleeding which responded to tranexamic acid treatment.

Method: A 68-year-old male patient with squamous cell carcinoma on left lower leg underwent wide excision with split-thickness skin graft (STSG) (Fig.1). Hematoma of the recipient site with massive bleeding of the donor site was observed the day after operation (Fig.2). As initial therapy, 500mg of tranexamic acid was injected intravenously. Also, removal of hematoma with irrigation was executed. As maintenance therapy, intravenous injection of 500mg of tranexamic acid was performed three times a day for the next 4 days.

Results / Discussion: On the fourth day after surgery, there was no hematoma and bleeding on both the surgical site and the donor site (Fig.3). After that, intravenous injection was switched to oral therapy for 7days. There were no adverse effects or complications including thromboembolic episodes, allergic reactions, dizziness and hypotension that can occur when tranexamic acid.

Conclusion: Tranexamic acid can help control postoperative bleeding even if the patient has no evidence of fibrinolysis or problems of coagulation profiles. It is expected to have a good result with less adverse effects.

Fig.1. (A) A 68-year-old male underwent wide excision with STSG. (B) The donor site on thigh.

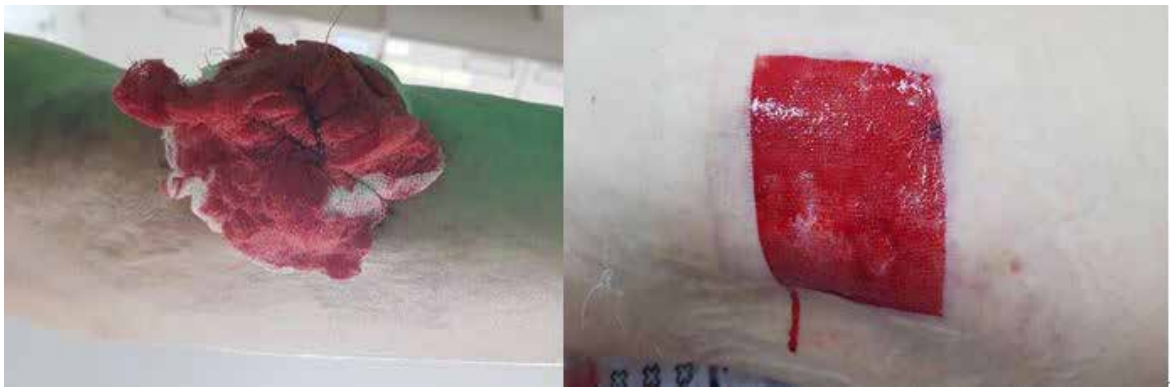


Fig.2. (A) Postoperative bleeding was seen the day after surgery on recipient site. (B) Massive bleeding on donor site.

Fig.3. (A) On the fourth day after surgery, no hematoma or bleeding on operation site. (B) No bleeding was seen on donor site.

EP411 MANAGEMENT OF CONTINUAL IMPLANT EXPOSURE AFTER CRANIOPLASTY WITH TITANIUM MESH

Ki Pyo Sung[1], Youngwoong Choi[1], Choong Hyeon Kim[1]

[1]Ilsan Paik Hospital, Inje University, Department of Plastic and Reconstructive Surgery, Goyang-si, Korea, Rep. of South

Aim: Cranial defects are frequently handled with cranioplasty. The synthetic substances are extensively used in spite of the advantages of biological materials. Of the complications of cranioplasty, soft tissue defect with implant exposure is the most common, and particularly high incidence was reported with the titanium mesh.

Method: A 32-year-old patient underwent cranioplasty using titanium mesh. Two years later, a skin defect on forehead with titanium exposure was identified, onto which a latissimus dorsi (LD) free flap was executed without removing the titanium mesh. After ten months, the patient was visited with another skin defect (Fig. 1). The second LD free flap was done with near-total removal of titanium mesh (Fig. 2). Six months after operation, another cranioplasty using hydroxyapatite bone cement and revision of flap was performed. Finally, revisional operation with total removal of mesh was executed after one year.

Results / Discussion: The result was satisfactory, and the surgical site remained stable (Fig. 3). No major complications were seen during the 4 months of follow-up.

Conclusion: Through this experience of managing repetitive exposure of titanium mesh after cranioplasty, we suggest that soft tissue defect with mesh exposure requires to be managed with complete removal of the metal substance. Also, additional cranioplasty using another material with valid soft tissue coverage should be done.

Fig. 1. (A) Photograph at first defect. (B) After 10 months of LD flap, skin defect was presented again.

Fig. 2. Photograph after 6 months of second LD flap. (A) Frontal view. (B) Right view.

Fig. 3. Photograph 4 months after revisional operation. (A) Frontal view. (B) Right view. The downward repositioning was satisfactorily improved.

EP412 MANAGEMENT OF STOMAL LEAKAGE WITH PERISTOMAL SKIN CONTOUR DEFECT USING SILICON BLOCK

Ki Pyo Sung[1], Youngwoong Choi[1], Choong Hyeon Kim[1]

[1]*Ilsan Paik Hospital, Inje University, Department of Plastic and Reconstructive Surgery, Goyang-si, Korea, Rep. of South*

Aim: Stomal leakage results in significant physical, psychological and social morbidities for ostomy patients. Inadequate fitting of the stomal appliance owing to the skin contour irregularities is one of the causes of stomal leakage. Management of contour defects with subcutaneous insertion of silicon block is one possible option to make adhesion better and reduce the leakage. In our case, we introduce the use of silicon block to prevent urostomal leaks.

Method: A 39-year-old female patient who underwent total cystectomy with making ureteroenterocutaneostomy following the treatment for neurogenic bladder and chronic cystitis visited our department. The patient presented with lasting stoma leaks which has not been handled by abdominoplasty and V-Y advancement flap for the skin contour defects 6 months ago. She had a profound skin depression on the 3 o'clock direction of her stoma (Fig. 1). Under general anesthesia, vertical incision of 3 cm sized was made at the medial direction of the stoma. Dissection was done into the layer of scarpa's fascia. Laterally elliptically sculptured silicon block was insetted and anchored with both scarpa's fascia and subcutaneous fat layer (Fig. 2).

Results / Discussion: The stomal leaks was improved satisfactorily, and no complications were occurred during six months of follow-up (Fig. 3).

Conclusion: This experience of using silicon block insertion suggests a potential alternative for correcting peristomal skin contour defects, and can provide significant benefits for ostomy patients.

Fig. 1. Preoperative photograph.

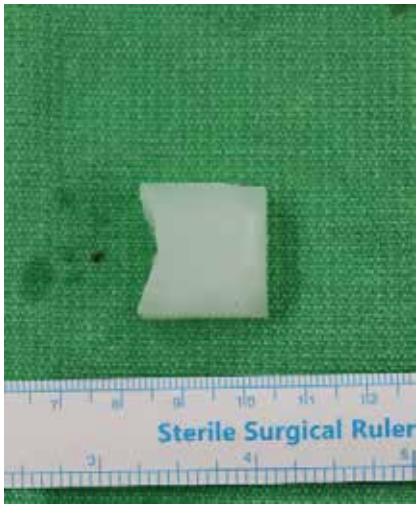


Fig. 2. Intraoperative photograph.

Fig. 3. Photograph at postoperative day 3.

EP413 PERITONEAL AND ABDOMINAL FASCIAL DEFECT RECONSTRUCTION WITH RECTUS ABDOMINIS MUSCLE FLAP USING ACELLULAR DERMIS

Ki Pyo Sung[1], Youngwoong Choi[1], Choong Hyeon Kim[1]

[1]*Ilsan Paik Hospital, Inje University, Department of Plastic and Reconstructive Surgery, Goyang-si, Korea, Rep. of South*

Aim: Abdominal wall reconstruction after tumor resection of abdominal wall is challenging because it requires to protect visceral organs, prevent incisional hernia and regain musculofascial integrity. We introduce a case report in which a huge musculofascial defect reconstructed with acellular dermis and rectus abdominis muscle flap.

Method: A 49-year-old female was presented a huge tumor in right abdomen which had been last for 10 years. Excision of tumor was performed. As a result, 5 x 4 cm sized defect of peritoneum and 12 x 16 cm sized defect of muscles were occurred (Fig. 2a). Peritoneal defect was covered by acellular dermis (Fig. 2b), and musculofascial defect was reconstructed by rectus abdominis muscle flap (Fig. 2c).

Results / Discussion: After histological analysis, the tumor was diagnosed as clear cell carcinoma. The patient received chemotherapy with paclitaxel and carboplatin. During two months of follow-up, no herniation or bulge on the abdominal wall was observed. Postoperative abdominopelvic computed tomography (APCT) showed that there was no defect at the repair site, and the muscle flap and acellular dermis were well-taken (Fig. 1b).

Conclusion: In reconstructing large defects of abdomen, especially in the case of the fascial and peritoneal defects, the use of rectus abdominis muscle flap with the application of acellular dermis can be an acceptable alternative method.

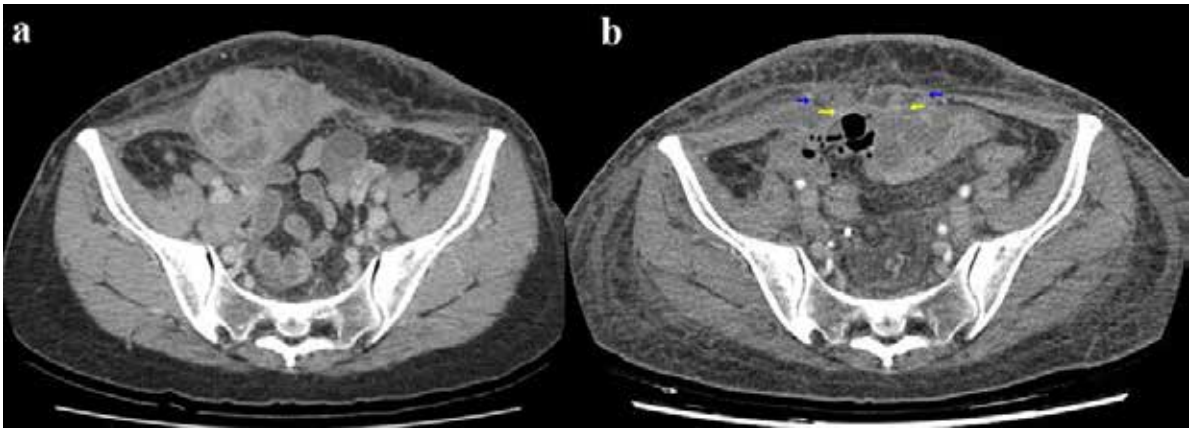


Figure 1. (a) Preoperative APCT identified heterogenously enhancing tumor with peritoneal thickening. (b) Two months after operation, APCT showed that muscle flap (blue arrow) and acellular dermis (yellow arrow) were well-taken.

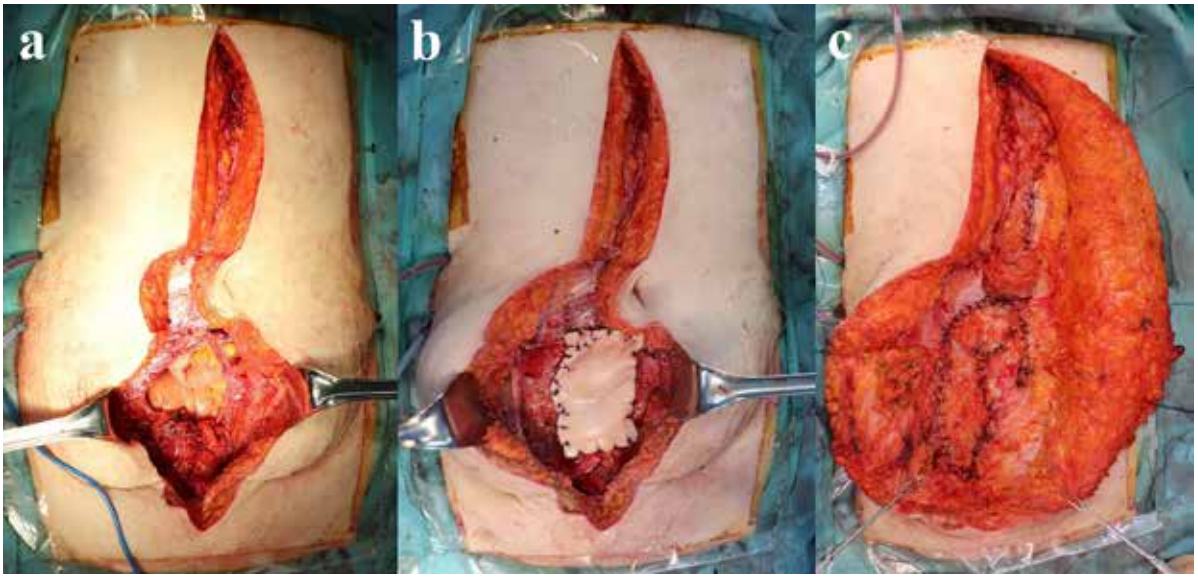


Figure 2. (a) Photograph taken just after the tumor resection (b) Acellular dermis was applied. (c) Rectus abdominis flap coverage was done.

EP414 EFFECTIVENESS OF CO2 FRACTIONAL LASER COMBINED WITH TRIAMCINOLONE INJECTION AND CRYOTHERAPY ON REFRACTORY KELOID SCAR

Chae Eun Yang[1]

[1]*Wonju Severance Christian Hospital, Yonsei University, Wonju, Republic of Korea, Department of Plastic and Reconstructive surgery,, Wonju, Korea, Rep. of South*

Aim: Keloids rarely resolve spontaneously so a couple of methods are considered to resolve them, mainly intralesional excision and steroid injection. We would like to introduce a case in which the combination of laser and cryotherapy was effective for keloids that have continued to recur for 15 years despite various surgical and non-surgical treatments.

Method: A 45-year-old female received Cesarean-resection at 2005, presented keloid on suprapubic area on previous Cesarean-resection site. Intralesional excision was done in 2008. Due to recurrence, a second intralesional excision was performed in 2009. It recurred and intralesional excision and postoperative electron therapy (9MV EB, Fractional 400 cGy, total 1200cCy) was done for prevention of recurrence in 2011. Nevertheless, keloid scar recurred again. Intralesional excision was done in 2013. After that, Triamcinolone and botox injection was done for 4 years. Last intralesional excision was done in 2017. After that, Triamcinolone injection was done for 4 years again. Despite 15 years of treatment, it couldn't be easily resolved.

Results / Discussion: After 5 years from last surgical treatment on 2017, CO_2 fractional laser combined with Triamcinolone injection with subcisions and cryotherapy was performed per 3 week 6 times. Then now the lesion shows improved appearance.

Conclusion: CO_2 fractional laser combined with Triamcinolone injection and cryotherapy can be considered for refractory keloid scar.

EP415 CALCIPHYLAXIS : A RARE CASE STUDY SHOWING HOW LOWER LEG WOUNDS WERE FULLY HEALED USING ONLY HYDRO-RESPONSIVE WOUND DRESSINGSSUSAN REDMAYNE[1]

[1]*Family Medical Practice @ 2325, Nulkaba, Australia*

Aim: To fully heal lower leg wounds caused by Calciphylaxis in an 84-year-old woman with End Stage Chronic Renal Failure using only hydro-responsive wound dressings.

Method: Hydro-responsive wound dressings were used to debride the black necrotic and slough tissue from a very deep, excruciatingly painful, left lower leg wound caused by calciphylaxis from February 2020 (two months after initially appearing). Three different forms of hydro-responsive dressings were used consecutively as the healing process progressed from debridement, to granulation and full epithelialisation over five months. Dressings were changed three times a week with aseptic wound cleaning, wound assessments and measurements, to monitor and reflect on the healing progress, whilst engaging with *any* available research literature.

The author, a Registered Nurse, collaborated with the patient's nephrologist, GP and community nurses and secured better pain management, the ongoing provision of "costly" hydro-responsive dressings and sodium thiosulphate therapy during haemodialysis treatment.

Results / Discussion: By May 2020 the left leg wound was healed but the right lower leg of the patient developed several calciphylaxis wounds which were immediately debrided using the same hydro-responsive dressings and fully healed by February 2021.

Hyperhydration of pre-existing and emerging epithelial cells around the wound perimeter was an important part of the healing process, which other community nurses mistook for harmful cell maceration.

Poor levels of knowledge about the calciphylaxis condition and related wound healing were evident through all levels of the patient's local multidisciplinary team and international literature.

Conclusion: Hydro-responsive wound dressings may have an important place in healing wounds caused by calciphylaxis for other renal patients, with multiple and huge benefits compared with other possible treatments.

EP416 USING SINGLE-USE NEGATIVE PRESSURE THERAPY (SNPWT)* UNDER COMPRESSION THERAPY TO HELP INCREASE HEALING RATE OF A VENOUS LEG ULCER

Sophie Belson[1]

1*Gloucestershire Health and Care NHS Foundation Trust, Brockworth, United Kingdom*

Aim: This case study aimed to demonstrate the combined use of sNPWT and graduated compression therapy in managing a venous leg ulcer.

Method: The patient is a 63-year-old female with a medical history of hypertension, hypothyroidism, and previous deep-vein thrombosis to the right leg.

On initial assessment, the wound measured 16cm x 10cm x 1cm (160cm^3). The exudate levels were high, and the wound was initially managed with a wound contact layer, including secondary dressing and full compression therapy.

On day 17, as exudate levels had decreased to moderate levels, a clinical decision was made to commence sNPWT, alongside first-line graduated compression therapy.

Results / Discussion: 10 days after sNPWT was initiated, the ulcer had progressed well. The wound size had reduced, the slough was minimal, and the exudate remained moderate. The decision was made to continue sNPWT and full compression.

On day 51, the wound continued to show improvement and had reduced in size. The ulcer was documented as being 100% granulating and starting to epithelialise at wound edges.

On day 111, following further improvements in wound status and the wound had reduced in size, the clinical decision was made to step down from sNPWT to conventional dressings.

On day 251, the ulcer was assessed as completely healed.

Conclusion: Applying sNPWT and compression therapy helped healthcare clinicians successfully manage an ulcer in a patient with comorbidities.

*Brand name - PICO™ 7 Single Use Negative Pressure Wound Therapy System

◊Trademark of Smith+Nephew. All Trademarks acknowledged. © November 2022 Smith+Nephew

EP418 A CHANCE FOR BURNS AND LIKE-BURNS

Francesca Pasquali[1], Ilaria Cerino Badone[2], Calogero Volante[3]

[1]S.S. Vulnologia ASLAL, Distretto di Alessandria , Alessandria, Italy; [2]S. S. Vulnologia, Distretto di Casale, Casale; [3]Dirigente Dipsa ASLAL, Distretti, Alessandria

Aim: We present three cases of healing with antimicrobial silver dressing in polyurethane foam for the transfer of exudate produced by the blisters to a secondary dressing.

This dressing adheres gently with a safetac mechanism, inactivates pathogenic bacteria, can be left in situ for up to 14 days, can be cut in areas difficult to dress and can be placed under the bandages.

1) very rare lesion caused by contrast medium outside the vein: phlycten, appearing in a few hours from extravasation of liquid necessary for angiotec, starting from the hand where the vein cannulated. There is evidence of erythema, painful phlyctenae up to 10 cm from the wrist, without an increase in the diameter of the limb and without functional limitation. Healing in 10 days without scarring.

2) young person with burns with an area greater than 47 cm^2 of second and third degree burns after a fall on a motorbike, due to the heat from the muffler and the weight of 100 kg of the motorbike. After debridement and reconstruction of the peripheral part with hemoglobin spray, the reconstruction of the skin is completed with the application of a silver sheath and secondary dressing which leads to healing without keloid.

3) post-covid-like burn injuries: young woman hospitalized in intensive care for COVID with the appearance of phlytene all over her body alternating with large areas of erythema healed after leaving the dressing in place for 14 days with a single change.

Conclusion: This foam is a chance for all the patients acute and chronic.

EP419 COMPLEX ABDOMINAL WOUND RECONSTRUCTION USING TENSION RELIEF SYSTEM AND COMPONENTS SEPARATION TECHNIQUE

Chuan Han Ang[1], Bien Keem Tan[1]

1*SGH Blocks 6 / 7, Singapore, Singapore*

Aim: Reconstruction of the abdominal wall is required in patients with congenital abdominal wall defects, necrotizing fasciitis, tumor resection, trauma, and ventral hernias. The incidence of herniation following midline laparotomy remains high up to 11%. We present a unique combination of a tension relief system (TopClosure®) for tensionless skin closure and Components Separation Technique(CST) for apposition of the rectus abdominis muscle for a large ventral hernia without resorting to free flaps.

Method: A 29-year-old Chinese gentleman was admitted for necrotizing pancreatitis complicated by persistent intra-abdominal collections requiring multiple laparotomies. He underwent application of split-thickness skin graft (STSG) and vacuum-assisted-closure (VAC) for his abdominal wound during his initial stay. Two years later, he presented with a ventral hernia with overlying STSG measuring 14x19cm. Pre-operatively, TopClosure® was stapled over his abdominal wound and tightened over 1-month to stretch the skin tissues along with VAC over his ventral hernia.

Results: The patient underwent mobilization of the anterior abdominal wall and CST of rectus sheath for closure. The rectus sheath was reinforced with polypropylene mesh using the underlay technique. On 5 years follow-up, there were no wound complications and hernia recurrence.

Conclusion: TopClosure® can be used as a non-invasive external tissue expander to reduce the need for skin grafts, flaps or tissue expansion, allowing for simple primary closure. When combined with CST, large abdominal wall defects can be reconstructed in a single setting. This avoids the use of free flaps which tend to lead to abdominal protuberance due to obligatory denervation. We have illustrated a unique of combining TopClosure® and CST in a ventral hernia with synergistic results, as demonstrated by the excellent functional and aesthetic outcomes.

EP420 USE OF ULTRATHIN SPLIT THICKNESS SKIN GRAFT IN SECOND DEGREE DORSAL HAND BURN

Virginie Van Boeckel[1 1], Camille d'Olne[1], Claudia Miszewska[1], Daan De Cock[1], Jean-Luc Nizet[1], François Martin[1]

1*Chu De Liège, Department of Plastic and Maxillofacial Surgery, Liège, Belgium*

Aim: We share our experience with a case of ultrathin split thickness skin graft (u-STSG) in deep second-degree dorsal hand burn.

Method: We review the case of a deep second-degree burn of the left hand in a 37-year-old patient. We used an u-STSG (0.008 inches, non-meshed) to cover the dorsal aspect of the hand. The patient had a splint for 5 days and the stitches were removed at day 5. We started early rehabilitative treatment with compressive garments and a night orthesis. At 6-month post-operatively, the patient had full and painless range of motion and went back to work with also good cosmetic result.

Results / Discussion: The aim of burns treatment in the hand is to ensure healing while avoiding the incidence of contractures, ensuring normal hand function and ideally achieving a good cosmesis. Generally held beliefs regarding skin grafts include the notion that thicker split-thickness skin graft (STSG) and full thickness skin graft (FTSG) have better functional results and cosmetic outcomes and decreases the need of secondary reconstructive procedure, some support the use of u-STSG for its superior graft take and donor site quick re-epithelialization, which may be important in large burns and limited donor sites.

Conclusion: The reported case adds to the literature on u-STSG. U-STSG is an alternative for early reconstruction in hand burn surgery. It can deliver good functional outcomes, with consideration of several influential factors especially splinting and early rehabilitation.

EP421 MECHANICAL NEGATIVE PRESSURE WOUND THERAPY DEVICE FOR EXTENSOR TENDON EXPOSED WOUND IN HAND CRUSHING INJURY

RennChia Lin[1]

1*Chung-Shan Medical University Hospital, Department of Orthopedics, Taichung, Taiwan*

Aim: Standard NPWT device is noisy and mobile-unfriendly. We presented a case of hand extensor tendon exposure after crushing injury which was treated successfully with a portable, non-powered mechanical NPWT device.

Method: A 22-year-old lady's right hand got stuck inside grinder in the butcher shop 3 days ago and suture repaired at other hospital. Physical examination revealed hand swollen with skin necrosis and subcutaneous purulent discharge accumulated resulted in fingers pale and cold. After debridement, the wound in dorsal hand was 9.5 cm in length, 5 cm in width and a 0.4 cm oval defect. The 2nd and 3rd extensor tendon were exposed. A portable, non-powered mechanical NPWT device with multi-layer polymer dressing was applied. The wound healed in 3 weeks.

Results / Discussion: Tendon exposed to air will cause dryness and followed by necrosis and infection. The treatment goal is promoting granulation tissue formation and reepithelization as fast as possible. Reconstruction surgery such as skin or free flap introduces the donor site morbidity. Foam-based NPWT devices are reported with excellent results, but direct contact of the foam dressing on tendon can induce tendon injury. The device we used for this patient is non-powered and weight about 80 g, which consisted of a three-layers absorbent polymer dressing that can absorb wound fluid without collection canister, it also can allow pressure distribution of negative pressure of 125 mmHg, which can enhance granulation tissue formation. The inner layer is silicone adhesive that minimize skin discomfortable and prevent tendon injury.

Conclusion: This portable NPWT device can achieve tissue coverage over exposed tendon and allow treatment to continue in the outpatient setting.

EP422 USE OF AN ULTRAVIOLET LIGHT DEVICE FOR THE MANAGEMENT OF A "COMPASSIONATE" DRESSING

Antonio Capo[1]

1*Azienda Ospedaliera Santa Croce e Carle - ospedale Santa Croce, Emergenza Area Critica - S.C. Cardiochirurgia, Cuneo, Italy*

Aim: To evaluate the use of a point-of- care fluorescence imaging device to manage a dehiscent non-surgically repairable wound.

Method: An extremely fragile and compromised patient presented with a new sternal wound dehiscence after mediastinitis surgical treatment. The swabs were negative, but the fluorescence imaging device showed the presence and location of bacterial colonies. Since it was impossible to perform a new sternotomy, it was decided to treat the wound with a negative pressure dressing and instill antiseptics, monitoring the disappearance of bacterial colonies with fluorescence imaging (using violet light).

Results / Discussion: During fifteen days of therapy, there was an almost total disappearance of the bacterial colonies and a superficial resynthesis of the sternal wound was then performed. After closure, the wound presented no further problems.

Conclusion: Using a point-of-care fluorescence imaging device allowed us to detect septic foci not reachable with swabs. It proved an essential tool to monitor the effectiveness of an advanced dressing over time and to rationalise the use of the negative pressure dressing.

EP423 BLUE LIGHT THERAPY TO IMPROVE HEALING OF CHRONIC ULCERS

Gabrielle McMullin[1]

1*South Sydney Vascular Centre, Miranda, Australia*

Aim: Intervention to heal a chronic leg ulcer that was resistant to compression therapy.

Method: Fit 60 yr old man sustained 2 small lacerations to his leg in March 2021. No response to antibiotics and dressings. Biopsies showed no evidence of malignancy but created larger wounds. Skin grafting failed. Arterial supply was normal. Deep vein incompetence present due to an injury 20 years previously. Compression bandaging instituted and initially caused some reduction in size but the wound became static by October and healing was very slow.

Blue light therapy (400-450nm) was commenced in January 2022.

Wounds were 1) 5cm x 6cm2) 2cm x 2cm

Blue light used for 1 minute 3 times weekly at dressing changes. No other change in wound management in terms of dressings or compression therapy.

Results / Discussion: Wounds healed completely in 6 weeks and have remained healed.

Assessment of new therapies for wound healing is complicated by the fact that enrolment of patients into a trial often involves introduction of optimal therapy that skews the results. In this case there was no other change in treatment apart from the use of blue light therapy which changed the wound dramatically and rapidly produced healing.

Conclusion: The introduction of blue light therapy resulted in a rapid change in a chronic wound that facilitated healing. It holds great promise in the treatment of chronic leg wounds and changes the inflammatory process dramatically.

EP424 CASE REPORT: THE CONTACT DERMATITIS WHICH ARE MISDIAGNOSED AS ELECTRICAL BURN BY DEFIBRILLATOR ELECTRODES

Eun Suk Heo[1], Young Cheon Na[1], Hye Mi Lee[1], Se Oul Lee[2]

[1]Wonkwang University Hospital, Plastic & Reconstructive Surgery, Iksan-si, Korea, Rep. of South; *[2]Wonkwang University Hospital, Pharmacology, Iksan-si, Korea, Rep. of South*

Aim: Defibrillation is a treatment for life-threatening cardiac dysrhythmias. The connection between the defibrillator and the patient consists of a pair of electrodes, each provided with electrically conductive gel to ensure a good connection and to minimize electrical resistance. However, it would burn the patient and many cases reported. We introduce the case about the contact dermatitis is misdiagnosed as electrical burn by defibrillator electrodes.

Method: A 71-year-old woman was admitted to the cardiology for the uncontrolled arrythmia and AED was used in CPR. The patient consulted to our department because of the bums on the anterior chest where the defibrillator electrodes are attached. A uniform erythema was observed on the anterior chest, and the patient complained of sever pruritus. Similar lesions were observed in the area attached electrodes for EKG monitoring. (Fig. 1A.B.C) The authors were able to diagnosis contact dermatitis rather than electrical bums. We used anti-histamine medication and topical steroid therapy.

Results / Discussion: The patient rapidly relieved the symptoms and recovered without complications.

Conclusion: Electrically conductive gel attached to the electrodes is classified a wet-gel and a solid-gel. Solid-gel is more convenient, because there is no need to clean the used gel. However, it has higher risk of bums during defibrillation, since wet-gel electrodes more evenly conduct electricity into the body. We identified several other cases in which the above symptoms occurred, even when the electrodes were attached without defibrillation. Therefore, we should distinguish between electrical burns and contact dermatitis according to the symptoms and signs and treat them accordingly.

Fig. 1A

Fig. B

Fig. 1C

EP425 REDUCING THE NEED FOR ORAL ANTIBIOTICS IN HEAD AND NECK CANCER SURGICAL WOUNDS

Inger Jensen[1]

1*Helsingborgs Lasarett, ENT, Helsingborg, Sweden*

Aim: To assess the effectiveness of Manuka Honey in the treatment and healing of infected wounds.

Method: Small case series study (n=3) was conducted to assess whether Manuka Honey dressing was a viable alternative to oral antibiotics in treating wound infections.

72 year old female who underwent free flap fibula graft reconstruction for floor of mouth cancer in spring 2017. Radiation 66 Gy/33 F. 5 days post operatively graft became necrotic and the patient underwent several more surgeries. Presented to author in August 2017 (fig 1) for treatment of necrotic wound.

68.year old male. Right sided tonsil cancer with lymph node metastasis. Surgery and full dose radiation 68 Gy/34fx. Later declared healthy. Big necrosis on neck 6,5x4 cm (fig 2), appeared 6 years after his operation and radiation.

74-year-old male. Hypertonia. Type 2 diabetes treated with both oral medication and insulin. Pollen allergy. Squamous cell carcinoma at the top of the skull. Surgery June 5 -2019. Secondary healing. Hints of infection at first dressing. (fig 3)

Manuka honey was used directly at first dressing.

Results / Discussion: Quick healing, despite initial large defects. 17 – 23 dressings under a period of 1 – 10 months. No oral antibiotics or further surgery was needed.

Conclusion: This small case series indicates that Manuka Honey is a viable option in wound care, providing an effective alternative for oral antibiotics in treating wound infection and in promoting healing.

Fig 1

Fig 2

Fig 3

EP426 USE OF INTACT FISH SKIN GRAFTS TO HEAL CHRONIC, NON-RESPONSIVE WOUNDS OF VARYING ETIOLOGIES

Andrea Galanti[1]

1*Lucerne Cantonal Hospital, Centre for Complex Wounds, Lucerne, Switzerland*

Aim: Case 1: 88-year-old female with chronic venous insufficiency on both sides (CEAP C3 right, C6 left) with arterial hypertension and hypercholesterolemia presented with a non-healing venous leg ulcer 18 months of age.

Case 2: 76-year-old patient with well-controlled Type 2 diabetes mellitus, well controlled arterial hypertension, and chronic heart disease presented with a chronic wound of 11 months which was identified as pyoderma gangrenosum.

Case 3: A 53-year-old male patient with a history of systemic scleroderma presented with a chronic wound on the right hand MCP joint with exposed tendon dorsally. The wound was 12 weeks old on presentation.

Method: Infections were treated as appropriate then wounds were debrided using a sharp debridement technique. Intact fish skin graft (Kerecis Omega3 Wound, Kerecis, Iceland) was used as recommended by the manufacturer.

Results / Discussion: Notably, all patients reported a drop in pain when the fish skin was applied. Almost immediately in all cases, the wounds began to improve, and healthy granulation tissue was observed. All 3 wounds successfully healed, in as little as one treatment of fish skin in one patient, and wounds were aesthetically and functionally pleasing upon follow up.

Conclusion: Intact fish skin graft is an effective solution for chronic, non-responding wounds of varying etiologies and should be used when standard procedure fails to initiate wound healing.

EP427 SQUAMOUS CELL CARCINOMA DEVELOPING IN A CHRONIC LEG ULCER

Tanja Batinac[1 2 3], Marin Marinović[4], Mario Franolić[2], Boris Reinić[2], Gordan Lakoš[3], Katarina Dujmović-Hasanbegović[3], Sandra Peternel[3 5]

[1]Faculty of Medical Sciences, University of Rijeka, Department of Clinical Medical Sciences I, Rijeka, Croatia; *[2]Clinical Hospital Center Rijeka, Department of undersea and hyperbaric medicine, Rijeka, Croatia*; *[3]Clinical Hospital Center Rijeka, Department of dermatovenerology, Rijeka, Croatia*; *[4]Clinical Hospital Center Rijeka, Department of Surgery, Rijeka, Croatia*; *[5]Medical Faculty, University of Rijeka, Department of Dermatovenerology, Rijeka, Croatia*

Aim: Chronic wounds are important health-care problem linked to multiple complications. Rarely, malignant transformation occurs. We present a case of 69-year-old male patient with malignant transformation occurring in a chronic leg ulcer due to venous insufficiency.

Results / Discussion: Prior referral to Department of undersea and hyperbaric medicine, for adjunctive hyperbaric oxygen therapy, the patient has been treated for three years due to recurrent chronic wound on lateral malleolus of the right foot. The first occurrence of venous ulcers affecting both legs was 10 years previously. Ulcer size decreased during previous treatment but tissue infiltration, initially considered to be a hypergranulation tissue, affecting distal part of the ulcer slowly progressed during the last 6-month period.

Initial examination revealed hypostatic changes and oedema on both legs with dermatosclerosis and cicatrices due to previous ulcers and ulcer affecting lateral malleolar region of the right leg, 6 cmx5 cm in diameter with sparse granulation and some fibro-necrotic tissue feeling the ulcer bed and verrucose infiltration with increased border affecting distal part of the wound in 3 cmx4 cm in diameter. Biopsy and pathohistological analysis confirmed well differentiated squamous cell carcinoma. The patient has been treated with fractionated radiation therapy in cumulative dose of 5200cGy leading to tumor regression and some increase in ulcer size. Following radiation therapy, the patient was treated with hyperbaric oxygen treatment in order to speed up ulcer healing process. During the 6-month follow-up period there was no sign of tumor reoccurrence.

Conclusion: The physicians treating chronic wound patients should be aware of malignant alteration as a possible complication occurring in chronic leg ulcer.

EP428 CASE REPORT : GIANT SUBCUTANEOUS ABSCESS IN DIABETIC MELLITUS PATIENT

Freda Halim[1], Ignatius Prasetya[2], Ricarhdov Hanafi[3]

[1]Faculty of Medicine, Pelita Harapan University, Surgery Department, Tangerang, Indonesia; [2]Faculty of Medicine, Pelita Harapan University, Internal Medicine, Tangerang, Indonesia; [3]Faculty of Medicine, Pelita Harapan University, Tangerang, Indonesia

Aim: To portray unique case of giant subcutaneous abscess in diabetic mellitus patient in which we demonstrate comprehensive management could achieve satisfying result.

Method/Case: A 46-year-old Asian man came to the ER with a chief complaint of a painful lump on his back since one week ago and increasing size, accompanied with pain scale 10. The patient has uncontrolled type-2 diabetes mellitus with non-routinely medical therapy. The patient came with obvious sign of sepsis, and in the thoracal posterior region we found an abscess with active pus production sized ±30x25 cm. Early emergency surgical debridement was done within 6 hours, followed by re-debridement in the 5th day admission. The patient was admitted to ICU during first 7 day of admission, where he was given fluid support, subcutaneous insulin injection and broad spectrum antibiotics. He was moved to surgical ward afterwards. For the wound we applied large moist gauze as tampon at post-operative day 1. We use large amount of foam dressing for the next 10 days which we changed daily due to excessive exudate. We then applied negative pressure wound therapy for three days, resulting in clean wound and beneficial granulation tissue.

Results / Discussion: Patient was discharged after 14 days hospital admission with stable condition. The patient then undergo a skin graft in his homeland, South Korea to cover wound defect.

Conclusion: With early surgical intervention, controlling the aggravating factors, and proper wound management could achieve satisfying result.

EP429 EFFECTIVE TREATMENT USING NEGATIVE PRESSUREWOUND THERAPY FOR NECROTIZING FASCIITIS OF SCALP ORIGINATING FROM ODONTOGENIC INFECTION

Woonhyeok Jeong[1]

1*Keimyung University Dongsan Medical Center, Plastic and Reconstructive Surgery, Daegu, Korea, Rep. of South*

Aim: We report the successful treatment of two elderly women with necrotizing fasciitis of the scalp, which was secondary to an odontogenic infection, with negative pressure wound therapy (NPWT).

Method: Both patients had diabetes mellitus and were admitted to the emergency department. Facial computed tomography revealed multifocal fluid collection, soft tissue swelling, and thickening from the perioral region to the scalp.

Results / Discussion: Extensive incision, drainage, and debridement were performed. Taking into account the pain the patients were suffering and their general condition, NPWT was then applied instead of a povidone iodine-soaked dressing. With appropriate antibiotics, serial surgical debridement, and NPWT, the infection was controlled within a month from the first session of NPWT. For wound closure, one patient underwent primary closure and split thickness skin grafting with bone decortication, and the other patient underwent only primary closure. Although necrotizing fasciitis is associated with high morbidity and mortality, both patients' general conditions improved, and their surgical wounds healed successfully.

Conclusion: NPWT can be a safe, effective treatment for necrotizing fasciitis of the head and neck, and it can reduce both patients' pain and physicians' effort.

Funding: This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korean government (MSIT) (No. 2021R1G1A1004556), and the Korea Medical Device Development Fund grant, funded by the Korean government (the Ministry of Science and ICT, the Ministry of Trade, Industry and Energy, the Ministry of Health & Welfare, the Ministry of Food and Drug Safety) (Project Number: RS-2022-00140622).

EP430 LARVAL THERAPY USED IN THE TREATMENT OF ARTERIAL ULCER NECROSIS AFTER REVASCULARISATION OF LOWER LIMB

Thierry Coppin[1]

1*CH Douai, Vascular Sergery, Douai, France*

Wound healing treated by larval therapy was widely used for centuries, but this practice leads to the decline since the advent of antibiotic era. The classic treatment of necrotic and infected ulcer is surgical debridement and to use different types of dressing for the healing. Nevertheless, larval therapy has been recently rediscovered as a viable treatment of necrotic infected wounds because more and more bacteria are resistant to the traditional therapeutic such as topical antimicrobial or silver-containing impregnated dressing.

The mechanism of larval is the secretion of proteolytic enzymes which liquefies the necrotic lesions and the tissue is digested by the larvae. Maggots can quickly and efficiently debride necrotic lesions while leaving the viable tissue alone and promote the formation of healthy granulation tissue. Treatment involves laying the dressing containing the maggots on the necrotic wound for 5 or 6 days. After the dressing is removed and replaced by another one. Three or four applications were clinically beneficial for the patients. Larval therapy also decreases odour and pain and avoids surgical debridement.

We present ours experience with larval therapy which was used on several patients. After several weeks of use, the larval therapy has improved the infected wound's healing without any surgical debridment. Moreover, it reduces the pain and edema. The first patient was a 89 years-old-man with a necrosis of the big toe. We realized a transmetatarsian amputation of the toe with a revascularization of the leg. After 5 days, we used larval therapy on the amputation level with good result.

The second was a 59 years-old-man who was admitted for necrotic infected and chronic ulcer of the right food. The patient presented a right commun iliac artery's occlusion with occlusion of the superficial femoral and popliteal arteries. He has undergone an iliac stentgraft associated to femoro-popliteal reconstruction. At the fifteenth days postoperative, we decided to use larval therapy because of the non- evolution of the necrotic lesion. Several applications have been necessary to have healthy granulation tissue.

The third patient was a 73years-old-women with a necrotic infected lesion of the right calf. She has gone an iliac and femoral stentgraft. Larval therapy was used on the necrotic and infected lesions. After four applications, we obtained clean ulcer and the lesion was treated by an antibacterial dressing.

In conclusion we found larval theray to be effective for ulcers' debridement, easy to use and well accepted by patients.

EP431 HIRSUTISM DELAYING HEALING AFTER PILONIDAL SINUS SURGERY AND APPLICATION OF FISH SKIN GRAFT: A CASE REPORT

Anna Sverrisdóttir[1]

1*Læknastöðin, Department of Surgery, Reykjavík, Iceland*

Aim: 36 y.o. male presented with a history of multiple previous operations for pilonidal sinus, which had all failed, leaving him with two midline wounds, full of hair and infected discharge. The area around the natal cleft was very hairy and he was advised to have laser hair removal of the area prior to surgery. This would give at least 6 weeks of clean skin to aid wound healing.

Method: At surgery, the patient admitted that he had not had laser therapy. After shaving the area, excision surgery was carried out leaving a 12 cm long wound that reached to within 2 cm of the anus. Fish skin micrograft was applied, and dressings placed on top. The patient attended follow-up twice weekly for wound inspection and reapplication of fish-skin graft.

Figure 1: At operation

Figure 2: placement of fish skin micrograft

Figure 3: 20 days post-op

Figure 4: 60 days post-op

Figure 5: 6 months post-op

Results / Discussion: At 60 days post-op the wound was 90% healed but rapid regrowth of hair blocked full healing. The wound remained clean but required regular shaving in the natal cleft. Eventually, after 6 months, the patient went for laser hair removal and four weeks later the wound was completely healed.

In spite of an unsuccessful previous surgical history, this patient's pilonidal sinus wound healed very quickly in the first 8 weeks. Eventually, excessive hirsutism especially in the natal cleft blocked healing of a complex wound.

Conclusion: This was a learning experience and now very hairy patients are obliged to undergo laser hair removal prior to surgery for pilonidal sinus at our clinic.

EP432 DETECTION AND MANAGEMENT OF DIABETIC NEUROPATHY AT HOME

Irem Tezer Ates[1]

1*Nurokor Bioelectronics, UK, Underwater and Hyperbaric Department, London, United Kingdom*

Aim: To show neuropathy management plans of a diabetic patient in home conditions.

Method: 78-year-old retired doctor who was on gabapentin, B12 and cardiac medications for over 10 years. He was also experiencing diabetic retinopathy, nephropathy and claudication. The case utilised self-treatment strategies with the help of telemedicine during Covid-19 pandemic.

To detect neuropathy; a cobaltII coloride solution pad, Michigan Neuropathy Screening Instrument (MNSI) scoring, Semmes-Weinstein monofilament test was utilised and photos were taken by a thermal camera.

The management plan was peripheral nerve stimulation, improvement of circulation and a strict diet. A handy electrical stimulation device is utilised in peripheral nerve stimulation mode daily for 20 min for 6 months of period 2-3 times a week.

Results / Discussion: The reaction pad stayed blue, which meant the skin was too dry and there was lack of elasticity and mechanically insufficient resilient. The patient was advised to use low fat/sugar diet and walk daily with suitable shoes and check every day his feet.

He utilised the reusable electrical stimulation device on his lower extremities without a need of a assistance. The thermal camera showed positive correlation with his previous lower extremity imaging test results.

Conclusion: The patient was adhered to the treatment plan as he walked or utilised the electrical stimulation device daily. He was on a vegan diet for 6 months. His HbA1c level was decreased and the claudication distance was improved.

EP433 WOUND HEALING AFTER NECROTIZING SOFT TISSUE INFECTION AND MULTIPLE BOWEL PERFORATIONS FOLLOWING LIPOSUCTION

Chausha Weitman Cernica[1], Miklosh Bala[1]

1*Hadassah University Hospital, Jerusalem, Israel*

Aim: Presentation of challenging wound treatment following necrotizing soft tissue infection and multiple bowel perforations after liposuction procedure. We present a complex case which resulted in a 5-month long hospitalization, multidisciplinary wound healing and numerous surgeries – 4 laparotomies, and 13 free skin grafts.

Method: A 43-year-old female patient presented to the ER with severe skin necrosis, covering her entire abdomen and most of her anterior thighs, 5 days after an abdominal wall and both thighs liposuction. She presented with septic shock that required vasopressor support and mechanical ventilation, accompanied by acute renal failure which required admission to the intensive care unit. A CT scan revealed free air in the abdomen, air and fat stranding in the soft tissue of the abdominal wall and thighs. Extensive skin and abdominal wall necrosis, with pockets of pus and enteric content was found throughout. The entire necrotic fascia and skin were resected, leaving no abdominal wall and massive tissue loss on both thighs.

Results / Discussion: The management of extensive ulcers was determined by a nurse specialist with multidisciplinary team support. Alginogel enzyme and Silver Stream solution were the main intervention therapy devices that allowed wound bed preparation for skin graft. Following long hospital stay and slow recovery the patient was discharged home after 5 month – 3 month of which in the ICU.

Conclusion: We believe that this complication is under-reported in the literature. A systemic literature review published by Skorochod et al, found 49 cases of abdominal visceral perforation. Alongside internal complications this condition can lead to additional morbidity like extensive skin damage.

EP434 FISH SKIN DEVICE AND EXPERT INTERVENTION - A SUCCESSFUL TANDEM IN WOUNDCARE

Michaela Kaiser[1]

1*Spital Limmattal, Surgery, Schlieren, Switzerland*

Aim: Fish skin, Omega3 fatty acids in combination with acellular matrix, initiate the wound healing process with an anti-inflammatory matrix to create new tissue granulation and wound closure. The fish skin develops a framework for angiogenesis, collagen production, cell migration and proliferation. Regardless to say, the intervention during this therapy needs an expert to conduct the wound to a stable closure.

Method: We treated a patient with a 5 x 7 x 1 cm traumatic wound of the upper leg, Figure 1. After conditioning the wound with a wet therapy and negative pressure wound therapy for 24 days, we applied with fish skin (Kerecis Omega3*) matrix, Figure 2, and coordinated the necessarily intervention of rehydration with interval of bandage change within 7-10 days, not disrupting the healing process, Figure 3. The patient was educated to rehydrate the covering dressing foam with 1 or 2 drops of sterile water. We reapplied fish skin, when resorption was fully done and followed with a consequent application of the Omega3 fish skin several times.

Results / Discussion: The fish skin started to reduce the enzymatic level into a remodelling milieu promptly. After five applications, the wound was fully healed after 8 weeks with little scarring.

Conclusion: We postulate that wounds which show a granulation can be accelerated and effectively treated by Omega3 matrix combined with intervention of rehydration and observing the modulation process. When working with fish skin, the knowhow of an expert is essential. Realising the healing process and discovering the epithelisation is a cornerstone of basic science of modern wound healing. *Kerecis Omega3®

Fig 1

Fig 2

Fig 3

Fig 4

EP435 A CASE OF SKIN AND SOFT TISSUE INFECTIONS CAUSED BY VIBRIO VULNIFICUS COMPLICATED WITH BACTERIAL BIOFILM

Tianyi Yu[1], Zongqi Yin[1 1]

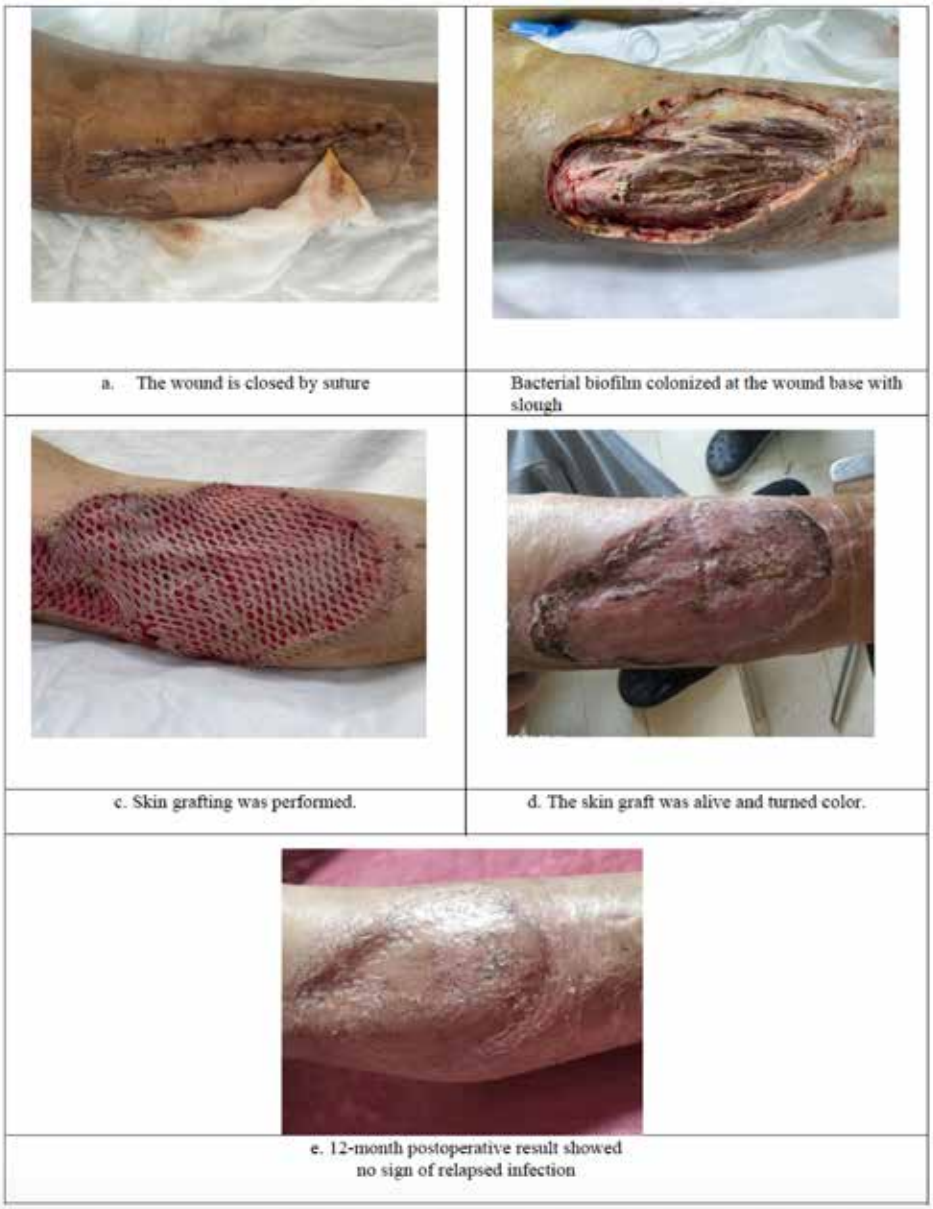
1*Ruijin Hospital affiliated to Shanghai Jiaotong University, School of Medicine, Burn and Plastic Surgery, Shanghai, China*

Aim: Soft skin infection with Vibrio vulnificus could result in sepsis and necrotizing fasciitis if incision and tension reduction are not performed promptly. Biofilms are major contributors to multiple chronic inflammatory diseases. It greatly delay wound healing. In this case, we successfully rescuing an imperilled skin grafting of Vibrio vulnificus infected wound of survivor.

Method: The 41-year male patient, who presented lower extremity edema and skin rupture, then developed septic shock. Survivor not only treated with hemodialysis and aggressive management of septic state, but also 5 times surgical wound management which including debridement, negative pressure wound therapy. However, we found exudate after the wound is closed by suture. During the next operation, the suture was removed and it was found that bacterial biofilm colonized at the wound base, manifested as shiny and slippery surface, with exudate and slough. PHMB [1] was used to rinse the wound before negative pressure wound therapy. The skin grafting was performed afterwards. When dressing change, it was found that the skin graft did not adhere or turn color and it was easily removed from the wound. PHMB gel was continued to use in every dressing change.

Results / Discussion: The skin graft expanded quickly after it attached to the wound. 12-month postoperative result showed no sign of relapsed infection.

Conclusion: Because the difficulties of visualizing biofilm, we should always consider its presence when failure in wounds. The principles of managing biofilm is to reduce the burden and prevent reconstruction of biofilm by barrier dressing and sequential topical antimicrobials. Changing to a different antimicrobial if there is lack of progress is an emerging choice.



a. The wound is closed by suture

Bacterial biofilm colonized at the wound base with slough

c. Skin grafting was performed.

d. The skin graft was alive and turned color.

e. 12-month postoperative result showed no sign of relapsed infection

1. López-Rojas R, Fernández-Cuenca F, Serrano-Rocha L, Pascual Á. In vitro activity of a polyhexanide-betaine solution against high-risk clones of multidrug-resistant nosocomial pathogens. Enfermedades infecciosas y microbiologia clinica. 2017;35(1):12-9.

EP436 A RARE CASE OF EXTENSIVE ACTINOMYCOSIS FROM BREAST FILLER MIGRATION TO THE THIGHS

Mei Ling Loh[1], Kok chai Tan[1], Chee Liam Foo[1], Janna-Vale Joethy[2 3]

[1]Singapore General Hospital , Department of Plastic, Reconstructive and Aesthetic Surgery , Singapore; *[1]Singapore General Hospital, Department of Plastic, Reconstructive and Aesthetic Surgery, Singapore*; *[3]Nassim Plastic Surgery , Singapore*

Aim: Migration and infection are known complications of breast filler injections. We present a rare case of extensive Actinomyces infection of breast fillers that had migrated throughout the trunk to the thigh. This case highlights the potential spread of infection owing to remote filler migration from the breast.

Method: A 51-year-old female who received breast filler injections of unknown material over 15 years ago presented with right flank pain and erythema. CT imaging revealed subcutaneous nodularity throughout her trunk, perineum, ischiorectal fossa and right thigh. She was initially treated with percutaneous drainage and discharged after completing 2 weeks of antibiotics. Wound cultures were negative. However, she was readmitted 1 month later with sepsis and pus discharging from her thigh. CT imaging showed worsening of collections in her trunk and thigh. Multiple debridement procedures via limited incisions were required. Wound cultures grew Actinomyces neuii and she was treated with 6 weeks of antibiotics. The wounds were subsequently managed with negative pressure wound therapy.

Results / Discussion: Remote migration of breast fillers to the groin has been previously reported due to the contiguity of fascia in the trunk and perineum. In this case, the fillers even migrated beyond the groin crease and into the lower limbs. With bacterial seeding, the filler material acts as a nidus for potentially life-threatening spread of infection.

Conclusion: Regulatory approval of breast filler injections has been withdrawn in many nations due to high complication rates. This case illustrates a serious complication associated with breast filler injections and emphasizes the need for thorough examination of the trunk and lower limbs in such patients presenting with soft tissue infections.

EP437 HEMATOMA PREVENTION BY TACHOSIL (FIBRIN SEALANT) PATCH IN A HIGH RISK OF POCKET HEMATOMA FORMATION PATIENT WHO IS TAKING WARFARIN ON PACEMAKER INSERTION

Young Cheon Na[1], Eun Suk Heo[1], Hye Mi Lee[1], Se Oul Lee[2]

[1]Wonkwang University Hospital, Plastic & Reconstructive Surgery, Iksan, Korea, Rep. of South; *[2]Wonkwang University Hospital, Pharmacology, Iksan, Korea, Rep. of South*

Aim: Patients requiring CIED (PM, ICD, CRT) implantation are taking the oral anticoagulant warfarin for different indications such as valve replacement, atrial fibrillation or high risk of embolic stroke. Anticoagulation therapy expose a patient to pocket hematoma formation, which is associated with infection. In this study, we applied tachosil patch in the pacemaker implantation pocket, without interrupting warfarin medication, to investigate prevention of pocket hematoma.

Method: 0 Years old, male patient arrived in ER, by syncope. He was high risk of pocket hematoma formation patient with A. fib, Heart failure, Aortic valve and Mitral Valve replacement surgery, high INR and warfarin medication history. During pacemaker insertion by cardiologist, half piece of tachosil patch was inserted to pocket. After that, Generator was inserted on the tachosil patch. And Half piece of tachosil patch was inserted on the generator again. The wound was closed in layers, and a sterile pressure dressing was applied. (Figure 1-4)

Results / Discussion: He was discharge postoperative day 5, without any complication. Stitch-out was done at postoperative day 10 and the wound was clean, without interrupting warfarin medication.

Conclusion: Tachosil was used as a topical hemostat in surgical filed. But it has not been used on CIED procedure. We used it first, to prevent pocket hematoma formation on pacemaker insertion. Tachosil could be a one way to reduce pocket hematoma formation, in patient at the high risk of thromboembolism, who can't interrupt oral anticoagulant warfarin therapy.

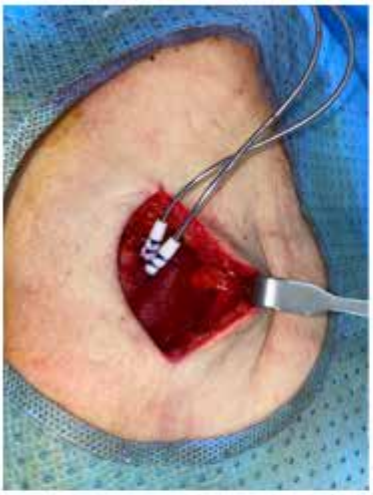


Figure 1. CIED pocket formation

Figure 2. Half piece of tachosil patch inserted in the pocket, prior to connecting and inserting the pulse generator.

Figure 3. Generator inserted on the tachosil patch.

Figure 4. Half piece of tachosil patch inserted again on the generator.

EP438 USE OF HAEMOGLOBIN SPRAY AS ADJUNCTIVE THERAPY IN THE TREATMENT OF A STERNAL WOUND DEHISCENCE

Antonio Capo[1]

1*Azienda Ospedaliera S. Croce e Carle Cuneo, Emergenza Area Critica - S.C. Cardiochirurgia, Cuneo, Italy*

Aim: Use of haemoglobin spray to restart a stalled sternal wound dehiscence.

Method: A patient underwent myocardial revascularization in emergency for AMI complicated by acute pulmonary oedema.

He suffered a small partial dehiscence of the sternotomy wound fifteen days later. The wound swabs were positive for Enterobacter Cloacae.

A course of antibiotic therapy with levofloxacin was started, while the wound was medicated with silver hydro-fiber with changes every 48 hours.

After ten days, the wound was clean but still open; the patient refused surgical closure.

After four weeks of treatment, with no substantial modification of the wound size, we decided to change the type of dressing.

A porcine haemoglobin spray was applied twice a week, and, considering the anatomy of the lesion, a fragment of equine collagen matrix was used as a support to keep the spray in place.

Results / Discussion: After fifteen days, the wound was so small that we decided to continue only with the haemoglobin spray; after a total of four weeks, the wound was completely closed, and we stopped all dressings.

The wound was still perfectly closed at the follow-up visit after one month.

Conclusion: Using haemoglobin spray combined with a collagen matrix scaffold very effectively closed the dehiscence of a stalled surgical wound.

Haemoglobin spray: Granulox Mölnlycke®

EP439 EFFECTIVE PREVENTION OF PRESSURE INJURIES IN THE SACRUM AND COCCYX AREA BY APPLYING A HEEL-SHAPED FOAM(SITTING POSITION)

HeeJoung Kim[1]

1*Ajou University Hospital, Nursing , Suwon, Korea, Rep. of South*

Aim: We apply a prophylactic dressing to prevent pressure injuries in the sacrum and coccyx area, where the incidence of pressure injuries is high. However, prophylactic dressings are difficult to maintain due to shear forces and fecal contamination. In particular, in the case of a patient who takes a sitting position for therapeutic purposes, prophylactic dressing is not maintained by shear force. Therefore, we applied a heel-shaped foam instead of a sacrum-shaped foam, which is generally used to prevent pressure injuries in the sacrum and coccyx area.

Method: We applied a heel-shaped foam instead of a sacrum-shaped foam for patients who frequently sit down for therapeutic purposes or at the patient's request.

Results / Discussion: When a heel-shaped foam instead of a sacrum-shaped foam was applied as a prophylactic dressing to a patient who frequently sit down for therapeutic purposes or at the patient's request, and the dressing was removed by shear force, the dressing replacement cycle was reduced and the patient's comfort improved as well.

Conclusion: We make various efforts to prevent pressure injuries on the coccyx of patients. In particular, recently, prophylactic dressings are actively applied to prevent pressure injuries. However, rather than unconditionally applying prophylactic dressing to the patient, it is important to select an appropriate prophylactic dressing by carefully assessing the patient's posture and hip shape and size.

EP440 DOES LYMPHANGIOGENESIS OCCUR THROUGH INCISIONAL SCARS?

Joseph Park[1], Junggyo Seo[1], Jong-Ho Kim[1], Jae Hoon Jeong[1], Baek-Kyu Kim[1], Chan Yeong Heo[1 2]

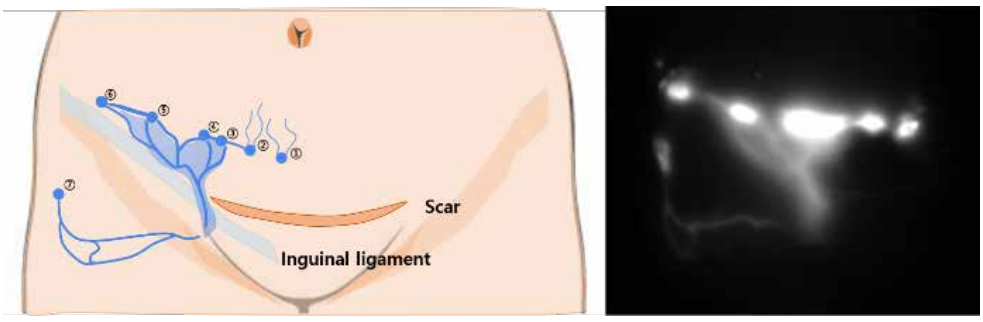
[1]Seoul National University Bundang Hospital, Plastic and Reconstructive Surgery, Seongnam-si, Korea, Rep. of South; *[2]Seoul National University College of Medicine, Korea, Rep. of South*

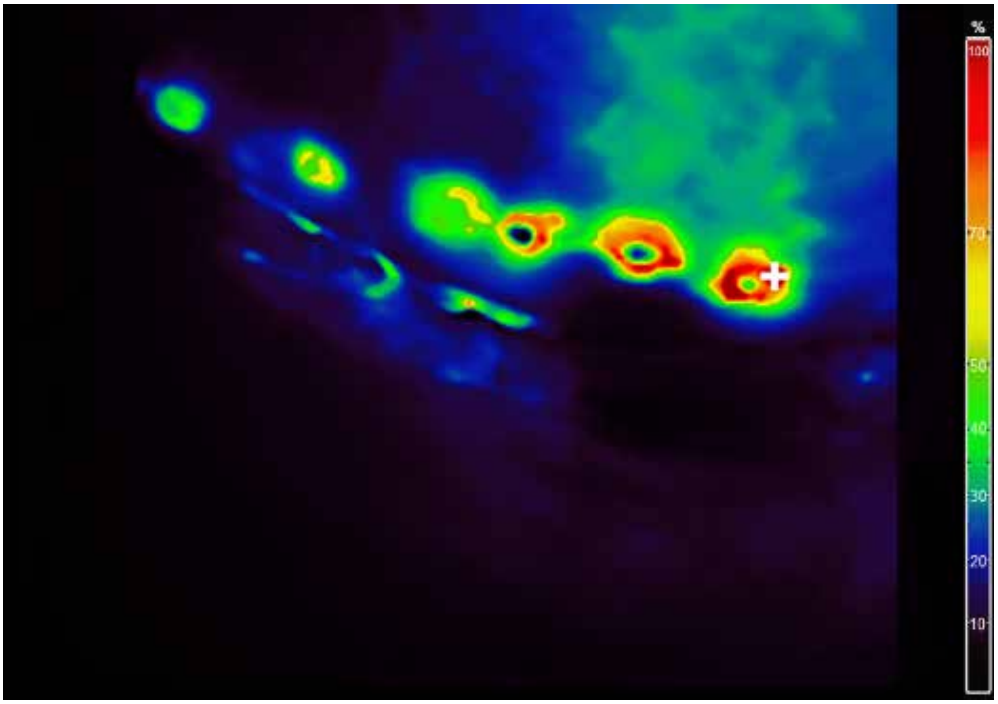
Aim: Lymphangiogenesis is crucial in the homeostasis of interstitial fluids, immunity, and metabolism. Also, its importance in wound healing has been reported in animal models and clinical studies. However, the current understanding of lymphangiogenesis through incisional scars is still limited. We present indocyanine green (ICG) lymphography images near a sixteen-year-old Pfannenstiel scar of a female patient.

Method: The patient underwent a total mastectomy and immediate breast reconstruction using a free transverse rectus abdominis myocutaneous flap. ICG was injected intradermally at seven points: three points superior to, three points superolateral to, and one below the inguinal ligament. Drainage of the ICG was captured before and elevation of the flap using Fluobeam near-infrared fluorescence imaging camera.

Results / Discussion: Lymphatic drainage from injection point 1 traveled in the cephalic direction, while injection points 2 and 3 (above the scar) formed collaterals with injection point 3 (which is not above the scar). Other injection points showed the inguinal area's previously known lymphatic drainage (Figure 1). One hour delayed ICG lymphography after flap elevation showed multiple lymphatic vessels near the superficial fascia. Interestingly, no lymphatic vessel was visible near the Pfannenstiel scar (Figure 2, above the line). ICG quantification showed pooling of the ICG in points 1 and 2, as well as collateral drainage in the cephalic direction (Figure 3).

Conclusion: In animal models, lymphangiogenesis has been evident near the wound edge 3~5 days after incision with a temporary increase of new sprouts from existing lymphatic vessels. On the contrary, our images show that human lymphangiogenesis does not occur through incisional scars.





EP442 COMPLEX WOUNDS IN THE NEWBORN: TREATMENT OF TWO COMPLICATED WOUNDS, WITH SIGNS OF LOCAL INFECTION, POST-SURGICAL OUTCOMES OF INTERVENTION FOR ESOPHAGUS ATRESIA.

Biagio Nicolosi[1]

1 *University Hospital Meyer, Anestesia e Rianimazione, Firenze, Italy*

Aim: Illustrate two cases of treatment of surgical wound infection, in order to prepare the wound bed for the treatment of dehiscence.

Method: Case 1. Patient suffering from tetralogy of Fallot and esophageal atresia, operated with extrapleural approach to the posterior mediastinum by subperiosteal right axillary thoracotomy. On the 11th postoperative day (POD), evidence of dehiscence of the surgical wound, with important topical infection and inflammatory component.

Case 2. Patient suffering from esophageal atresia operated with the same surgical approach. In the 15th POD evidence of dehiscence of the surgical wound with minimal inflammatory component.

The two wounds were assessed according to the STONEES criteria and managed according to the TIMERS.

Results: Case 1. The management of the infection and the inflammatory component required approximately 1 week of specific treatment, using advanced dressings, specifically bacterial and hydrogel uptake dressing. Subsequently, application of platelet gel (details in the figure). Complete healing of the surgical wound in 2 weeks. Resignation to 46th POD.

Case 2. The inflammatory component required 2 days of specific treatment, with the same treatment. Subsequently treatment with Neem and Hypericum oil (details in the figure). Complete healing of the surgical wound in 3 weeks.

Conclusion: In patients with complicated surgical wounds, the management of the infection with specific dressing for the management of the microbial load, has allowed an optimal preparation of the wound bed, with the consequent possibility of promptly undertaking treatment aimed at complete healing.

Fig. 1.
Case 1.

20.06.2022

19.07.2022

Healing

Case 2.

18.06.2022

20.06.2022

08.07.2022

Healing

EP443 SUCCESSFUL DIABETIC LIMB SALVAGE UTILIZING A NOVEL FISH-SKIN GRAFT – A CASE REPORT

Mark Suski[1]

[1]*227 W Janss Rd, Thousand Oaks, United States*

Aim: Total knee arthroplasty is associated with wound complications including dehiscence and surgical site infections (SSI). Metabolic disease and trauma augment post operative complications. To avoid amputations in high-risk patients' health care providers have turned to advanced biologics. The purpose of this case study was to determine the effectiveness of novel fish skin graft (FSG) for the treatment of surgical dehiscence.

Method: The patient is a 65-year-old female with history of uncontrolled diabetes, obesity, and s/p right total knee arthroplasty. The patient sustained a mechanical fall resulting in ORIF of a right distal tib/fib fracture which resulted in surgical dehiscence. After 6 weeks of local wound care the patient presented with fever, chills, and purulent drainage from the site of her dehisced wound. Wound exploration confirmed devitalized periosteum and areas of exposed bone confirming clinical diagnosis of osteomyelitis. The patient's orthopedic surgeon recommended above the knee amputation which was declined.

Results / Discussion: Once the soft tissue infection resolved, the intact fish skin graft was placed on the wound at bedside for 3 applications at 2-week intervals, resulting in complete granulation tissue coverage over all exposed bone and periosteum. After the external fixator was removed, reconstruction was completed with a staged split thickness skin graft.

Conclusion Readmission rates for lower extremity arthroplasty can be as high as 15% burdening surgeons and hospital resources while decreasing patient's quality of life. The FSG was a cost-effective and clinically relevant adjunctive treatment option for this patient. The suggested mechanisms of action include rapid cell ingrowth and neovascularization, low immunogenicity, and bacteriostatic properties of the FSG, all of which have previously been reported.

EP444 MANUKA HONEY – BASAL CELL CARCINOMA NOSTRIL – THE SMALL WOUNDS IS ALSO IMPORTANT

Inger Jensen[1]

[1]*Helsingborgs Lasarett, ENT, Helsingborg, Sweden*

Aim: Female 49 years old. We wanted to preserve a better shape of the nose by not to suture. (fig1) secondary healing.

Method: Manuka honey was used from the beginning, with a very small piece abs dressing.

Results / Discussion: With only 7 changes of dressings, this little, but deep, secondary healing was nicely healed. (fig2)

Conclusion: It was a small but deep wound, we tried to suture it, but the nose changed its appearance, so we left it open for a secondary healing. The Manuka honey helped to fill up the wound nicely in a short time. So that a small wound heals quickly with no or minimal scar in the face means much for a patient. Manuka honey works very nicely for secondary healing.

Fig 1

Fig 2

EP445 MACROPHAGE-REGULATING OINTMENT ON WOUND HEALING IN PATIENTS WITH DIABETIC FOOT ULCERS

RENNCHIA LIN[1]

1*Chung-Shan Medical University Hospital, Department of Orthopedics, Taichung, Taiwan*

Aim: As the result of diabetic nephropathy and peripheral artery disease, diabetic foot ulcers (DFUs) are the major morbidity and cost in diabetic patients. Topical administration of ON101 has therapeutic potential in promoting wound healing through regulation of the balance between M1 and M2 macrophages *in vivo*[1] and phase III clinical trial[2]. We shared our results of treating DFUs with ON101.

Method: Three patients presented with partial foot gangrene. They all suffered from diabetic nephropathy and received regular hemodialysis. Debridement was arranged after percutaneous atherothrombectomy to re-vascularized the affected limb. Negative pressure wound therapy was applied after surgery for 7 days followed by ON101 topically application twice-daily still wound healed.

Results / Discussion:

	BMI	HbA1c(%)	Wound size	Days to heal	Wagner grade
51-year-old male	42.2	5.9	2x4cm	17	1
64-year-old male	33.8	7.7	12x2.5cm	89	2
65-year-old female	29.0	6.8	8x6cm	99	2

Hyperglycemia can impede DFUs healing and prolong inflammation phase, which featuring sustained levels of M1 macrophages and a shortage of M2 macrophages. ON101 not only accelerate diabetic wound healing by downregulating M1 and promoting M2 macrophages *in vivo*, but promote wound healing in patients with DFUs.

Conclusion: Our findings showed that ON101 can be another therapeutic option for treating patients with DFUs.

References:

1. Lin CW, Chen CC, Huang WY, et al. Restoring Prohealing/Remodeling-Associated M2a/c Macrophages Using ON101 Accelerates Diabetic Wound Healing. *JID Innov*. 2022;2(5):100138.
2. Huang YY, Lin CW, Cheng NC, et al. Effect of a Novel Macrophage-Regulating Drug on Wound Healing in Patients With Diabetic Foot Ulcers: A Randomized Clinical Trial. *JAMA Netw Open*. 2021;4(9):e2122607.

EP446 AUTOLOGOUS PLATELET-RICH PLASMA THERAPY FOR UPPER EXTREMITY MINOR TRAUMATIC WOUNDS IN ELDERS

Maria Rovira Dalmau[1 2], Clara Masó Albareda[1 2], Cèlia Rovira Riera[2], Marta Otero Viñas[1 3], Marta Ferrer Solà[1 2 4], Joan Espaulella Panicot[2 4 5], Maria Carme Salomón Elcacho[2]

[1]Institute for Research and Innovation in Life and Health Sciences in Central Catalonia (IrisCC), Tissue Repair and Regeneration Laboratory (TR2Lab), Vic, Spain; [2]Hospital Universitari de la Santa Creu de Vic, Clinical Wound Unit, Vic, Spain; [3]University of Vic, Faculty of Science, Technology and Engineering, Vic, Spain; [4]Hospital Universitari de Vic (Consorci Hospitalari de Vic), Vic, Spain; [5]Institute for Research and Innovation in Life and Health Sciences in Central Catalonia (IrisCC), Central Catalonia Chronicity Research Group (C3RG), Vic, Spain

Introduction: Elderly people undergo many changes on a multidimensional level and have a higher degree of fragility that increases their vulnerability. Moreover, aging produces a reduction of skin collagen and cell activity, changes in skin functionality, increased susceptibility to skin injury, and hampered wound healing. Consequently, minor trauma can unleash a complicated situation in the elder population.

Case description: We present two clinical cases of upper extremity acute injuries caused by minor traumatic accidents. First case, a 93-year-old woman with initial fragility and a skin tear wound on the arm evoked by a door hit. Second case, a 77-year-old woman with initial fragility and skin tear on the hand caused by the pressure applied by a caregiver during mobilization. The patients reported severe pain affecting their quality of life. Both wounds were large (12,45 cm^2 and 17 cm^2) and deep, showing tendons and adjacent tissue. Taking into advantage that both wounds were clean, autologous platelet-rich plasma (PRP) therapy was applied resulting in pain reduction and in wound healing in one and two months each.

Discussion: In elderly frail people, skin is susceptible to losing its continuity when a force is applied. In both clinical cases, wounds were painful and wound healing failed by using conventional treatment requiring an advanced therapy.

Conclusion: Autologous PRP therapy is useful for soothing pain and accelerate wound healing in elder patients reducing the probability of infection, even when there is a full thickness loss of tissue.

EP447 COMBINED LOW-FREQUENCY ULTRASONIC DEBRIDEMENT WITH ABRAISON IN WOUND BED PREPARATION – A CASE SERIES

Irenca Jovisic[1], Ljubisa Paden[2], Anđelka Gajić[1], Slađana Đokić[1], Igor Frangež[1]

[1]University Medical Centre Ljubljana, Department of surgical infections, Ljubljana, Slovenia

Aim: The aim of this study was to evaluate the clinical effects of combined low-frequency ultrasonic debridement with abrasion[1] in wound bed preparation.

Method: An exploratory case series study was carried out involving 10 patients with a chronic wound of different aetiology such as diabetes, venous, arterial or mixed ulcers and open surgical wounds. Patient received sequential combined low-frequency ultrasonic debridement with abrasion in a period of two weeks. Intervention was administered once per week for 5-10 seconds per square centimetre of a wound along with saline irrigation. Wounds were afterwards managed by standard treatment using wound dressings. Primary outcome was reduction of devitalised tissue (%). Secondary outcome was patient reported pain level (0-10) during procedure.

Results / Discussion: The results of this study have shown that in 7 cases, the wound bed was in more than 80% of surface filled with a healthy, red granulations, while in three cases we also observed that the extent of the surface area and depth of the wound decreased. The intensity of patient reported pain during the procedure was in between 0 and 3.

Conclusion: In this case series use of combined low-frequency ultrasonic debridement with abrasion resulted in a notable decrease of devitalised tissue in the wound bed. Furthermore, it allowed a simple, effective and gentle debridement. This study speaks in favour of using ultrasonic debridement in wound bed preparation, however further rigorous research is needed to evaluate the effectiveness of this intervention.

References:

1. Combined low-frequency ultrasonic debridement with macro and micro abrasion was carried out with a medical device Curason (Curasonix GmbH, Germany)

EP448 WAKE UP THAT HARD-TO-HEAL WOUND! THE TRANSFORMATIVE EFFECTS OF USING A WEARABLE 12-DAY ELECTRICAL STIMULATION (EST)* DEVICE ON PAIN REDUCTION AND WOUND HEALING - AN OBSERVATIONAL STUDY

Nicola Wallace[1], Karen LayFlurrie[1], Elizabeth Ovens[2]

[1]HertsOne GP Federation, Leg Ulcer Services, Hemel Hempstead, United Kingdom; [2]Indépendant Tissue Viability Specialist Nurse, Abbots Langley, Herts, United Kingdom

Aim: An observational study was undertaken to demonstrate the effectiveness of applying a wearable, single use, 12-day automated EST* device on pain reduction and wound healing, for patients with hard-to- heal lower limb wounds attending a community leg clinic.

Method: Following consent, the EST* was applied continuously to the wound edges for the 12-day treatment period, alongside standard care. Data was collected for 11 patients prior to, during the 12-day EST* and for up to 6 weeks following therapy. Exclusion criteria included active cancer and pregnancy. Wound size, pain score and exudate levels were recorded periodically throughout the evaluation, together with clinician feedback on using the device for their patients.

Results / Discussion:

- Mean longevity of wounds was 25.27 months (range 3-168 months).
- 100% patients improved in wound size reduction, with a decrease of 80% by the end of the evaluation.
- 100% patients experienced pain reduction. Pain score was reduced by 59% within 6 weeks, with a 67% reduction in the number patients taking analgesia.
- 94% clinical objectives met.
- 100% clinicians expressed very good for simplicity to apply electrodes, changing the device, connection with device, easy adjunct with standard care and simplicity of the EST*

Conclusion: Following wounding, bioelectric signals flow into the wound, establishing a "current of injury", to stimulate normal healing, but dissipates in hard-to-heal wounds[1], and becomes "dormant". Application of a unique, compact, easy to use EST*, replaces this dysfunctional signal and as further demonstrated in the study can "wake up" the wound healing process and reduce pain, when used alongside standard care.

* Accel-Heal Electrical Stimulation Therapy

EP449 A MULTIDISCIPLINARY DIABETIC FOOT TEAM REDUCES MORTALITY AND IN-HOSPITAL COMPLICATIONS OF PATIENTS WITH DIABETIC FOOT ULCER

Ermanno Bellizzi[1], Valeria Ruotolo[1], Laura Giurato[2], Alfonso Bellia[1], Davide Lauro[1], Luigi Uccioli[2], Marco Meloni[1]

[1]University Hospital Tor Vergata Roma, Systems of Medicine, Roma, Italy; [2]Centro Traumatologico Andrea Alesini Hospital, Roma, Italy

Aim: The study aimed is to evaluate the effectiveness of a dedicated multidisciplinary diabetic foot team (MDFT) in the management of hospital patients affected by an acute diabetic foot ulcer (DFU).

Method: The study group was composed of patients who referred to a tertiary diabetic foot service due to a new diabetic foot problem requiring hospitalization. All patients have been managed by a MDFT through a pre-set limb salvage protocol and diabetes, diabetic complications and concomitant co-morbidities were closely managed. The outcomes measures were hospital mortality, major amputation in-hospital complications (IHC).

Results / Discussion: Three-hundred twenty-two patients were included. The mean age was 68.6±12 years, 75.8% were male, 93.1% had T2 diabetes with a mean diabetes duration of 20.3±9.8 years, and a mean HbA1c of 8.1±0.2% (65±1 mmol/mol); 64.5% had ischaemic DFUs, and 84.1% infected DFUs. Overall, in-hospital mortality was 1.5 %, major amputation 4.3%, and IHC 7.4% (among them,45.5% of cases were anaemia requiring blood transfusion, 20.8% pneumonia, 8.3% acute heart failure, and 4.1% acute myocardial ischaemia, uncontrolled hypertension, acute kidney failure, bowel ischaemia). IHC were recovered in 83.3% of cases. Ischaemic heart disease [OR 3.6 95% CI (1.6-14.2)p=0.04] was an independent predictor of IHC, while IHC [OR 3.1 95% CI (1.2-7.6)p=0.03] was an independent predictors of in-hospital mortality.

Conclusion: The management of patients with DFUs through a dedicated MDFT achieved a low risk of IHC and in-hospital mortality. Ischaemic heart disease increases the risk of IHC, while IHC increases the risk of in-hospital mortality.

EP450 SQUAMOUS CELL CARCINOMA ARISING FROM LONG-STANDING EPIDERMAL CYST

Sally Min[1], Ji-Young Kim[1], Sang Wha Kim[1]

[1]*Seoul National University, Department of Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South*

Aim: Although malignant transformations of epidermal cyst have been reported, its mechanism and clinical information are not yet well described due to its low incidence. We report 10 cases of squamous cell carcinoma (SqCC) arising from epidermal cyst and suggest risk factors for malignant transformation.

Method: A retrospective review of 10 patients who underwent surgical excision of epidermal cyst between January of 2000 and November of 2022 was conducted. All the cases were pathologically proven as SqCC arising from epidermal cyst. Clinical information was collected and analyzed.

Results / Discussion: The mean latency period was 17.15 years (SD = 13.88). Before diagnosis of SqCC, all patients experienced recurrence of epidermal cyst or at least 1 year of latency period. Most of patients reported furuncle-like mass accompanied by tenderness and redness (n=6). The main symptom leading to surgical excision was an increase in size (n=7). Except one patient, total marginal excision was done without any adjuvant treatment. Spontaneous occurrence (n=7) was the most common etiology of initially developed epidermal cyst. 50% of patients (n=5) had relative immune deficiency caused by steroid (kidney transplantation, adrenal insufficiency, and autoimmune disease) or immune dysregulation (chronic kidney disease).

Conclusion: Epidermal cyst is one of the most common benign tumor. However, as a chronic wound, it acts as a risk factor for SqCC, and may cause malignant transformation when synergic with other risk factors. We recommend total excision of the epidermal cyst as early as possible.

EP451 EFFICACY OF COMBINED METHODS IN TREATING SOFT TISSUE INJURY IN DIABETIC PATIENT

Oyunbileg Solongo[1]

[1]*Venera VIP Clinic Hospital, Treatment Department, Mongolia*

Aim: To evaluate the efficacy of combined methods in treating soft tissue injury in diabetic patient. Minor wounds in diabetic patients could often lead to chronic, nonhealing ulcers that are predisposed to infection. It is not uncommon for the infection to lead to gangrene, and ultimately the need for amputation. Indeed, diabetic patients have the highest amputation rate of any type of chronic wounds. One estimate suggested that admissions for foot infections constituted 20% of hospitalizations for patients with diabetes, and led to 50% of all nontraumatic lower limb amputations. In their lifetime, 25% of patients with diabetes mellitus are expected to have severe foot problems.

Method: Patient is a 54-year diabetic patient whose right ankle's soft tissue was injured while walking. In other hospital, patient was put on plaster for 3 days, but the ankle remained swollen and painful. After being admitted to our hospital, abscess was cut open and bacterial culture showed MRSA infection, Vancomycin and Rifamycin were given. After blood glucose was controlled, on day 7, necrosectomy and lavage with bacteriophage were performed. On Day 20 and 30, second and third necrosectomy and lavage with bacteriophage were performed. On day 45, skin grafting was done, then MEBT was used to accelerate wound healing.

Results / Discussion: Wound completely healed after 73 days, and foot function was well preserved. No complications and no recurrence occurred in 6 months.

Conclusion: Combined method used in this patient significantly promoted wound healing.

MEBT: Moist Exposed Burn Therapy. It's a series of medical procedure involving standard use of Moist Exposed Burn Ointment, which provides a moist environment for wound healing.



EP452 MARGINAL EXCISION OF DYSTROPHIC CALCIFICATION OF THE LOWER LEG BURN SCAR: A CASE REPORT

Joseph Park[1], JINIL CHOI[2], Yujin Myung[1], Jae Hoon Jeong[1], Rong-Min Baek[1]

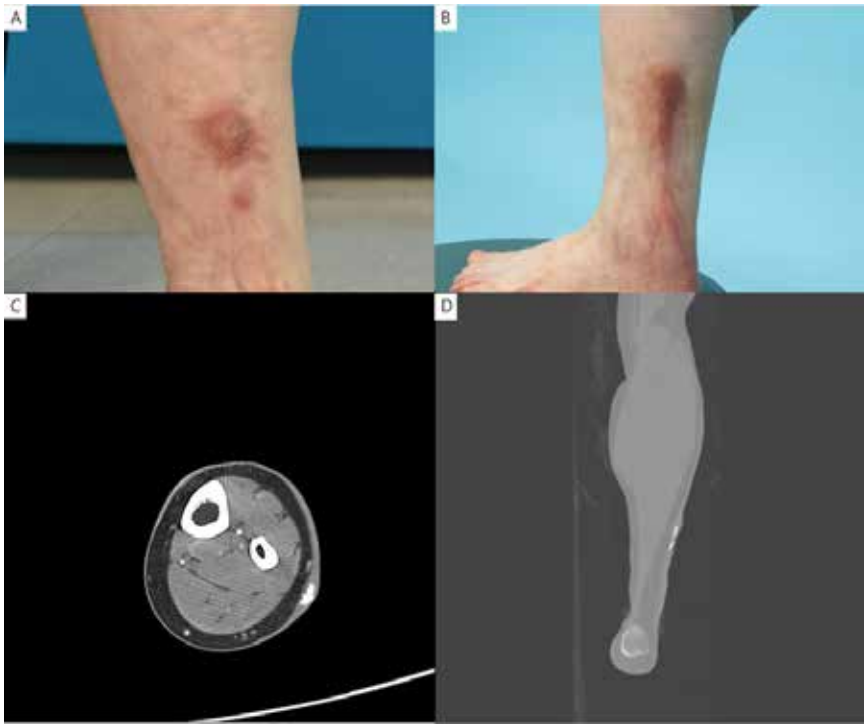
[1]Seoul National University Bundang Hospital, Seoul National University College of Medicine, Korea, Department of Plastic and Reconstructive Surgery, Seongnam-si, Korea, Rep. of South; *[2]Seoul National University Hospital, Seoul National University College of Medicine, Korea, Department of Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South*

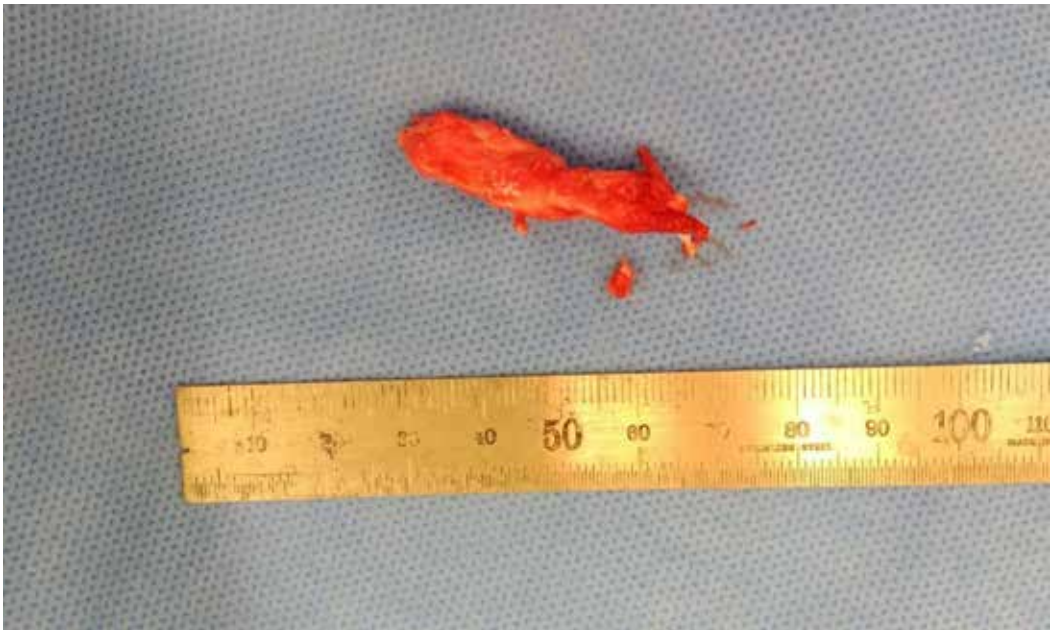
Aim: Dystrophic calcification (DC) is the abnormal deposition of calcium salts in nonskeletal tissue often caused by local tissue damage. DC after a burn injury is rarely reported, and it generally show high recurrence rate and wide excision with skin graft is recommended. However, a less invasive procedure should be considered when the patient refuses wide excision. We present a rare case of DC of the lower leg burn scar treated with marginal excision without recurrence for two years.

Method: A 45-year-old female presented a hypertrophic scar and an abscess-like lesion of her left lower leg burn injury, which was treated with secondary intention 40 years ago. Computerized tomography (CT) revealed diffuse dermal thickening with 6.3x0.8 cm sized calcification in the subcutaneous tissue. A diagnosis of dystrophic calcification was made based on clinical findings and radiographic findings.

Results / Discussion: The patient refused wide excision and skin grafting for socioeconomic reasons; marginal excision was performed after informed consent of frequent follow-ups and the possibility of recurrence. Histopathological examination revealed fibrous tissue with dystrophic calcification. No recurrence was observed during two years of follow-up with routine x-ray examinations every three to six months. The patient was satisfied with the quick recovery and the postoperative scar.

Conclusion: In patients with good compliance, marginal excision of DC with close follow-ups may provide a less invasive treatment option for DC patients. However, long term studies are needed to establish treatment standards for DC.






A
B
C

EP453 CLINICAL EFFICACY OF MOIST EXPOSED BURN THERAPY IN TREATING MICRONEEDLING INJURY FOR VITILIGO TREATMENT

Mariia Shasheva[1]

[1]*I.K. Akhunbaev Kyrgyz State Medical Academy, Department of General Surgery and Combustiology, Kyrgyzstan*

Aim: To evaluate clinical efficacy and safety of Moist Exposed Burn Therapy (MEBT) in treating minor wounds caused by microneedling for vitiligo.

Method: Patient was a 45-year-old woman diagnosed with vitiligo 6 years ago. Before microneedling procedure, her skin was examined by Wood's lamp, and size of affected areas was measured. Body hair at affected areas was shaved. Microneedling was performed every 7-10 days, followed with MEBT to accelerate the healing of minor wounds caused by microneedling.

Results / Discussion: The results demonstrated that after microneedling procedure, this patient's skin recovered well with MEBT. After MEBT, size of discolored patches was significantly reduced. At the same time, melanin was increased in the affected area, and the repigmentation was promoted. Furthermore, the patient had no adverse reactions during treatment.

Conclusion: Using MEBT was effective and safe in treating skin injuries caused by microneedling, and it could promote repigmentation in treated area.

1. Sharafutdinova L.A., Lomonosov K.M. Modern aspects of topical treatment of vitiligo [J]. *Russian Journal of Dermatology and Venereology*, 2014, 5:40-45.
2. Tolstov D. A., Bogdan V. G. Combination of platelet-fibrin complex and platelet-rich plasma in combination therapy of venous trophic ulcer [J]. *Surgery Eastern Europe*, 2014, 3:45-56 (Russian).
3. Knezevic N.N., Candido K.D., Desai R., Kaye A.D. Is platelet-rich plasma a future therapy for pain management [J]. *Medical Clinics of North America*, 2016, 100(1):199-217.
4. Marques L. F., Stessuk T., Camargo I. C., et al. Platelet Rich Plasma (PRP): Methodological Aspects and Clinical Applications [J]. *Platelets*, 2015, 26(2): 101-113.
5. Moist Exposed Burn Therapy: A medical procedure involving standard use of Moist Exposed Burn Ointment, which promotes wound healing.





EP454 THE USE OF TRANSPARENT POROUS CELLULOSE MEMBRANE IN A SURGICAL SITE INFECTION IN POSTOPERATIVE BICAVAL ORTHOTOPIC HEART TRANSPLANT PATIENT IN MEXICO: CASE REPORT

Dalila Diana Bautista Uribe[1], Ricardo García Mora[1], Felisa Olguín Núñez[2]

[1]Centro Médico Siglo XXI , Cardiology, Mexico, Mexico; *[2]Vuelo Pharma, Wounds, Guadalajara, Mexico*

Aim: The aim of this case report is to describe the management and care of the site of surgical infection by gram-negative bacillus following a heart transplant that includes the transparent cellulose membrane.

Method: This case report describes the use of the Komagataeibacter xylinus strain cellulose membrane only, accompanied by the use of broad-spectrum antiseptic and germicidal treatment with hypochlorous acid content in an infected wound in a postoperative heart patient, leaving it to act for one minute on the wound, before performing an acute debridement with a scalpel, resulting in a 4 cm wound with 100% slough tissue. Again wound and wound edge cleaning was performed with the same antiseptic before a transparent, porous, cellulose membrane was placed 1cm outside the wound bed for better adhesion. A thin hydrocolloid dressing to keep hydrated, was also placed over the wound.

Results / Discussion: The closure of the wound obtained epithelialized tissue 100% over a period of 30 days without complications and without having to use adjuvant therapies or reoperation. Patients who undergo heart transplants are at a high risk of surgical site infection, so reducing risk factors will help reduce future complications and extended hospital stays.

Conclusion: Surgical site infections in post-transplant patients account for the majority of infections in the immediate post-transplant period. This is in part due to the complexity of these operations, immunosuppression and patient comorbidities, which should be diagnosed clinically and treated early with the help of cultures, antibiotics, antiseptics and dressings or membranes according to the wound.

EP455 IMPROVING HEALING OF COMPLICATED PEDIATRIC NEUROSURGICAL WOUNDS WITH SURGICAL DEBRIDEMENT AND HYPERICUM AND NEEM OIL SPRAY.

Alice Noris[1], Biagio Nicolosi[2], Simone Peraio[1], Andrea Di Rita[1], Flavio Giordano[1]

[1]University Hospital Meyer, Neurosurgery, Firenze, Italy; *[2]University Hospital Meyer, Intensive Care Unit , Firenze, Italy*

Aim: Surgical wounds in major neurosurgery operations are at high risk of breakdown. Firstly, surgical incision is wide and implies section of vascular peduncle/s, impairing skin flap blood supply. Secondly, subcutaneous tissue is thin, particularly in infants. Finally, wound margins coagulation and removal of pericranium represent other risk factors.

An oil spray mainly composed by hypericum and neem oil exerts an anti-inflammatory, immunomodulatory and antimicrobic action which promotes wound healing process.

We present a case in which the use of oil spray and physical debridement allowed excellent healing of a compromised wound.

Method: We present the case of a 7-year-old girl affected from Chiari malformation. She underwent posterior fossa decompression with duroplasty performed using pericranium harvested from occipital region. Since postoperative day 1, wound margins started to show a necrotic area. The wound was disinfected with a non-alcoholic product and sterile saline solution. Necrotic tissues were physically removed. Subsequently, the oil spray was applied.

Results: The whole healing process took almost 2 months (Figure 1). There was no hospital discharge delay. Once a week the child was brought to the outpatient clinic to check the wound healing. Stiches were removed on postoperative day 14 and no cerebrospinal fluid leak was observed.

Conclusion: The wound healing process derives from the mutually enhancing effect of surgical debridement and of oil spray, which promotes reactivation of microcirculation at wound margins and maintenance of a clean wound floor, helping controlling local inflammation. This was encountered in other pediatric cases in our hospital and reduces hospital costs.

We conclude that complicated surgical wounds can be effectively treated with debridement and regular application of oil spray.

Figure 1.

EP456 UTILIZAREA UNUI MEDICAMENT DIN FIBRE GELIFICATIVE ÎNALTE ÎN MANAGEMENTUL EXUDATULUI

Stiubei Nela[1]

[1]*Wound Care Clinic, Wound Care, Alba Iulia, Romania*

Aim: The management of the exudate represents an important moment in wound bed preparation, there must be a moist environment to favour the healing, preserving in the meantime the perilesional skin from maceration.

Method: Two patients were recruited, both over 70 years of age, of both sexes, with not riepitelized wounds with exudates.

One patient (Patient 1) had outcomes of cerebral vascular disease, venous insufficiency, diabetes mellitus with an extensive wound at the right lower limb.

The second patient (Patient 2) had high comorbidities, among which diabetes mellitus, with a sacral lesion and the exposure of the coccyx bone.

It was kept in place for 72-96h, with a good management of the exudate even under bandage without maceration or trauma of the wound bed and the perilesional skin.

Results / Discussion:

• Removal of the medication in one piece

• Avoids spills of exudates

• Reduces the risks of maceration

• Captures fluids

• Saves time for operators and has a high comfort for the patient.

Conclusion: It is confirmed that the product taken in exam responds to directions for which it has been proposed and it opens an interesting perspective in the chapter, always in evolution, of exudate management in wounds.

EP457 A STUDY CASE: PERIANAL ULCER CAUSED BY A HEMORRHOIDAL OINTMENT

Clara Masó Albareda[1 2], Maria Rovira Dalmau[2 3], Marta Casals Zorita[2 3], Eva Bonjoch Jaques[1], Lorena Bajo Peñas[1], Marta Otero Viñas[2 4], Joan Espaulella Panicot[1 5 6], Marta Ferrer Solà[1 2 5], Maria Carme Salomón Elcacho[1]

[1]Hospital Universitari de la Santa Creu de Vic, Clinical Wound Unit, Vic, Spain; [2]Institute for Research and Innovation in Life and Health Sciences in Central Catalonia (IrisCC), Tissue Repair and Regeneration Laboratory (TR2Lab), Vic, Spain; [1]Hospital Universitari de la Santa Creu de Vic, Clinical Wound Unit, Vic, Spain; [4]University of Vic, Faculty of Science, Technology and Engineering, Vic, Spain; [5]Hospital Universitari de Vic (Consorci Hospitalari de Vic), Vic, Spain; [6]Institute for Research and Innovation in Life and Sciences in Central Catalonia (IrisCC), Central Catalonia Chronicity Research Group (C3RG), Vic, Spain

Introduction: The manifestation of a perianal ulcer caused by a hemorrhoidal ointment has not been commonly described to date. However, an increasing number of cases has been reported during the COVID-19 pandemic and the resulting confinement in Spain. The case we are presenting is not isolated, as other cases have been documented after they used the same ointment containing the active ingredients triamcinolone acetonide, lidocaine, and pentosan polysulfate sodium.

Case description: We present a case of an autonomous 82-year-old male affected by a 35,80cm^2 perianal ulcer with no condition or concomitant disease that could justify the ulcer's cause. The application of in-depth exclusion criteria, including a biopsy to refuse pyoderma gangrenosum, allowed the identification of a hemorrhoidal rectal ointment as the cause of the ulcer. We led a multidisciplinary therapeutic approach to treat this complex wound. The ulcer healed completely after three months when the application of the ointment was stopped and the autologous growth factors advanced therapy was applied.

Discussion: The vasoconstrictor effect of corticosteroids and its risk of causing skin atrophy after continued use are well known. Before prescribing some hemorrhoidal ointment to elder patients, clinicians should consider the great potential harm of triamcinolone acetonide an ingredient of some hemorrhoidal ointments.

Conclusions: This is an interesting case describing a condition barely reported in the literature although this hemorrhoidal ointment has been marketed for more than 40 years. It is relevant to show the damage that can be caused without a proper medical follow-up.

EP458 CLINICAL CASE SERIES: USE OF RECOMBINANT HUMAN COLLAGEN MATRIX FOR THE MANAGEMENT OF CHRONIC WOUNDS OF THE FOOT

Medeine Markeviciute[1], Ernest Zacharevskij[1]

[1]Hospital of Lithuanian University of Health Sciences Kaunas Clinics, Department of Plastic and Reconstructive Surgery, Kaunas, Lithuania

Aim: To present two clinical cases of patients with chronic neuropathic wounds of the foot, which were treated using a single application of human recombinant type I collagen produced in plants**.**

Method: Two patients were treated in the outpatient department of Hospital of Lithuanian University of Health Sciences Kaunas Clinics. First case: 20 year old female with 2x1.5cm chronic wound of the left foot present for 2 months, second case: 17 year old male with a chronic wound of the right foot 0.3x0.4cm, present for 10 months. Both patients had neuropathic chronic wounds of the sole of the foot due to lack of sensation in the limbs caused by myelomeningocele. Both wounds did not respond to debridement and treatment with hydrocolloid and foam dressings. Wounds were photographed and preliminary surgical debridement was performed followed by single application of recombinant human collagen matrix and secondary hydrocolloid dressing. Patients were followed up weekly for 4 weeks.

Results / Discussion: Significant wound closure was noticed in both cases. In first case, full wound epithelization was seen after 2 weeks, with full wound closure after 1 month. In second case, significant wound reduction in depth and diameter (>80%) was seen within 2 weeks. No adverse effects were seen.

Conclusion: Single use of recombinant human collagen matrix filler for chronic foot wounds may promote wound closure with minimal adverse events.

Vergenix™ Flow Gel

EP459 AUTOLOGOUS WHOLE BLOOD CLOT, AN INNOVATIVE TREATMENT FOR COMPLEX WOUNDS WITH EXPOSED STRUCTURE– A CASE SERIES

Maxim Gurevich[1], Naz Wahab[2], Chinenye Wachuku[3], Karim Ead[4], Robert Snyder[5]

[1]Hillel Yaffe Hospital, Diabetic Foot Clinic, Israel; [2]Wound Care Experts, Las Vegas, United States; [3]Hoboken University Medical Center, Hoboken, United States; [4]westside Regional Medical Center, Plantation, United States; [5]Barry University School of Podiatric Medicine, Miami, United States

Aim: Limb amputation continues to be of high prevalence as a result of extensive breakdown of soft tissue and exposure of vital structures of non-healing wounds resulting often the patient's admission to the hospital. The loss of critical components within the wound bed such as the extracellular matrix (ECM) can significantly impact treatment pathways and prolong healing time.

An autologous whole blood clot (AWBC), acts as a protective scaffold and a source of plethora of cytokines and growth factors initiating the wound healing cascade. The scaffold, by mimicking the ECM properties, promotes cell granulation, reduce inflammation, and promotes the wound toward healing.

Method: Complex wounds with exposed structures were treated with weekly applications of AWBC as part of a Registry study (NCT04699305). All patients signed an informed consent prior to their participation. AWBC was created by using the patient's own peripheral blood at a point of care.

Results / Discussion: Patients with comorbidities, which failed previous advanced wound therapies, were treated with AWBC applications. AWBC treatment increased wound granulation resulting in coverage of vital structures and reduction in wound area. The number of applications varies from 1 application and 11 applications and an overall treatment duration of 8 weeks and 23 weeks respectively.

Conclusion: AWBC is a point of care treatment for safe and rapid preparation, using the patient's blood to create a whole blood matrix. AWBC treatment in complex wounds with exposed bone and tendon showed to promote cell granulation and progress the wound toward healing.

EP460 DENTAL ABSCESS CERVICAL REGION FISTULATED WITH SKIN NECROSIS TREATMENT

Sidineia Sakabe[1], Magrit Gabriela Wilke[2]

[1]Hospital Geral Doutor Jose Pangella, Enfermagem, São Paulo, Brazil; [2]Residencial Qualy Life, Enfermagem, São Paulo Brazil, Brazil

Aim: Dental Abscess Cervical Region fistulated with skin necrosis treatment.

Method: Descriptive study, case report, from July 2022 to September 2022 in the city of São Paulo (SP), in the public service of the State Hospital of São Paulo.

Fig 1. Evaluation of stomatherapy; Fig 2. 02/07/2022- 12,5 cm x 6,5cm x 1,5 cm detachment; Fig 3. 13/07/22; Fig 4. Lip retraction; Fig 5. Closure 01/09/22.

Results / Discussion: Total closure of your lesion, total of 90 days of treatment. M.G., 62 years old, male, Diabetes Mellitus, Systemic arterial hypertension, longtime smoker. Cervical abscess, being surgically cleaned by the Head and Neck. On the 2nd PO, he started treatment with stomatherapy, being followed from June 30 to September 1, 2022. He used barrier cream, Exufiber AG every 48h, Mepilex Ag every 48h and later changed it every 72h, finishing the treatment with gauze and AGE.

Conclusion: The use of advanced dressing stimulated tissue growth and complete repair until epithelialization.

EP462 WOUND BED PREPARATION AND ACTIVATION OF AUTOLYTIC DEBRIDEMENT THROUGH CONCURRENT OPTICAL AND MAGNETIC STIMULATION, TWO CASE REPORTS WITH THERAPY-REFRACTORY PRESSURE ULCERS

Jacques Neyens[1], Wilma van Heusden[2], Jos M.G.A. Schols[3]

[1]ECW, Belgium; [2]ECW, Netherlands; [3]Maastricht University, Netherlands

Aim: Devitalized tissue and debris are critical factors that can hinder wound healing. Despite the observed efficacy of surgical debridement, there is a lack of effective debridement tools for community nurses in home care. Induction of autolytic debridement through COMS could provide a new painless method for softening and separation of crusted necrotic tissue, especially in patients that cannot tolerate more aggressive forms of debridement.

Method: The authors report 2 challenging cases with therapy-refractory pressure ulcers. Patients received COMS therapy 2-times a week as an adjunctive treatment during the regular wound care regime at the patient's home. The TIME classification was used to describe the COMS effects on crusted necrotic tissue. Feasibility and confidence of COMS application was assessed using a standardized questionnaire.

Results: The ratings of the feasibility and confidence of COMS application were high with an average of 9 on a scale from 1 to 10.

The autolytic debridement effect of the COMS treatment on necrotic tissue was remarkable. Both cases showed a successful demarcation of crusted necrotic tissue with 80% and 50% in 3 and 2 weeks respectively.

Observations regarding activation of tissue drainage and exudate secretion after the treatment confirmed the positive COMS effect on wound bed preparation.

Conclusion: In summary, COMS was able to clear most of the crusted necrotic tissue within 3 weeks after start of the therapy. The application was user friendly and performed with minimal training efforts at patients' home.

The effect of COMS on autolytic debridement is a promising mechanism to reduce the time of wound bed preparation and can lead to greater involvement of nursing personnel in home care.

EP463 TOPICAL HEMOGLOBIN SPRAY AND MOBILIZATION IN DIABETIC FOOT ULCERATION

Antonella Di Iulio[1], Lorella Capriotti[2], Marco Marrone[2], Lorenzo Antico[3]

[1]Santo Spirito Hospital, Vascular Surgery, Pescara, Italy; [1]Santo Spirito Hospital, Vascular Surgery , Pescara, Italy; [3]Bari University, Vascular Surgery, Bari, Italy

Aim: The aim of this clinical case is to explore in a complicated chronic diabetic foot ulcer, the application of topical oxygen therapy comprising hemoglobin combining with foot mobilizations.

Method: Clinical case: 55 year-old male outpatient diagnosed with type-2 diabetes mellitus (DM2). The patient presented chronic ulcers in left foot, in the metatarsophalangeal area (Texas University scale grade III stage D). Due to recurrent infections, we proposed a combination of debridement and mobilization. Outpatient received debridement and medication twice a week for 8 weeks and home-based exercise program. Outcome measures included push tool pressure ulcer scale for healing (Wound Bed Score) and finally health-related quality of life (EQ-5D-5L). They were evaluated at the start of medication (T0) and after 8 week (T1).

Results / Discussion: There was an improvement of the values in the Wound Bed Score (T0 score 0; T1 score 4) and EQ-5D-5L (T0 index 0, 3 – T1 index 1).

Conclusion: Triangle wound assessment and management could be an important part of taking care for those patients who have developed chronic diabetic foot ulceration. This evaluation, although only in one person, is worthy of consideration in management of chronic diabetic foot ulcerations that are deemed chronic despite of standard interventions. Further comprehensive evidence gathering is required in moving forward to ensure information as to the benefits across all wound groups of this innovative combination between advanced medications and mobilization.

EP464 ATYPICAL INFECTIONS OF MALIGNANT HEAD AND NECK WOUNDS PRESENTING AS BLACK ESCHAR

Igor Melnychuk[1 2]

[1]Charles George VA Medical Center, Wound Care, Asheville, United States; [2]Charles George VA Medical Center, Wound Care, Asheville, Ukraine

Aim: Enhance recognition of atypical infections in malignant wounds presenting as black eschar.

Method: Observation.

Results / Discussion: Patients with malignant wounds are often immunocompromised and are susceptible to atypical wound infections. Atypical wound infections often present without any systemic signs of infection due to the host's inability to mount an inflammatory response. A wound care provider needs to be able to recognize atypical wound infections whose only clinical presentation is the appearance of a black eschar. We will present two cases of an atypical necrotic VZV infection (Zoster Sine Herpete) and a secondary wound infection with mold (Aspergillus fumigatus) and discuss their clinical characteristics and diagnostics.

Conclusion: A wound care practitioner needs to be aware that the formation of black eschar in malignant wounds may be a sign of atypical infections due to VZV and mold and require dedicated treatment.

EP465 WOUND RESCUE WITH COPPER DRESSING AFTER EVERYTHING ELSE FAILED

Chausha Weitman Cernica[1]

[1]Hadassah University Hospital, Jerusalem, Israel

Aim: Presentation of a dramatic case in which an initially minor superficial wound with an area of approximately 4 cm^2, increased in size to 300 cm^2 and more than 1 cm deep, during 8 months of hospitalization. This deterioration occurred despite a wide range of standard of care procedures. such as OR debridement of necrotic tissue, systemic and local antibiotics administration, application of a variety of antimicrobial wound dressing, wound washes, NPWT, pressure chamber treatment and two skin grafts after escharotomy. Resolution of the wound progression, subsequent granulation tissue, epithelialization, wound healing and almost complete wound closure

Method: A case report of 58 years old woman with medical history of SLE since 2004, hypertension and hypothyroidism, suffered from a painful 1 cm^2 ulcer above the malleolus medially right leg, apparently from an insect bite, the patient came few times to the ER after no treatment helped solving the problem and the ulcer kept growing, she was admitted to the dermatology section and later in other sections, her wound kept growing ,after 8 months of treatments with no improvement a dressing containing oxygenated copper (Cu2o) was used and the improvement was fast, the dressing with oxygenated copper was applied twice a week with compression bandaging. Follow up treatment was in outpatient clinics follow photographs every change of dressing.

Results / Discussion: A fast improvement with multilayer dressing containing oxygenated copper. There was a reduction and part closure of the wound, further improvement of edema no pain.

Conclusion: In this case oxygenated copper was effective in chronic ulcer. The dressing is cost effective, easy to apply and provides biofilm control.

EP466 AUTOLOGOUS BLOOD CLOT MATRIX - A PROMISING DRESSING FOR CHRONIC WOUNDS

Michaela Kaiser[1], Lukas Naef[1]

[1]*Spital Limmattal, Schlieren, Switzerland*

Aim: In some cases, neither wound debridement nor biological matrix can provide pleasing results in the treatment of chronic wounds. As an alternative approach, the wound of an immunosuppressed patient was treated with application of an autologous blood clot transplant.

Method: After a traumatic accident to the forefoot an immunosuppressed man with HIV and hepatitis C suffered from 5 months persisting chronic wound. Despite wound debridement, negative pressure therapy and targeted antibiotics wound revision was indicated due to extended wound infection. With the Actigraft® kit an autologous blood clot matrix was produced and placed on the clean wound bed. No bandage change was done for 5-7 days and reapplication was performed when the transplanted blood matrix was fully remodeled. Size reduction of the wound was examined over time.

Results / Discussion: While wound healing stagnated under other treatments, by using autologous whole blood clot matrix we achieved a significant size reduction from 14 cm^2 to 2 cm^2 within 2.5 weeks despite immunosuppression. Furthermore, the wound bed showed epithelized tissue and perfect conditions for final closure.

Conclusion: We suggest that autologous blood clot transplant provides optimal circumstances for wound healing and can therefore be an attractive alternative approach in the treatment of persistent chronic wounds. Longer trials also in severe oncological patients under chemotherapy should be performed to gain further validation.

Day	Size	Surface	Figure
1	3.5 x 4.0 cm	14 cm^2	
5	2.5 x 1.8 cm	4.5 cm^2	
10	2.0 x 2.1 cm	4.2 cm^2	
17	1.3 x 1.2 cm	2.02 cm^2	

EP468 SURGICAL TREATMENT EXPERIENCE IN PURPURA FULMINANS INDUCE MULTIPLE SKIN NECROSIS

Io Hang Lio[1], Liang Qiao[2], Tianyi Yu[2]

[1]*Hospital Centre S. Januario, Macao;* [2]*上海交通大学医学院附属瑞金医院, China*

Aim: Purpura fulminans is an uncommon, rapid progression, life-threatening syndrome is accompanied by intravascular thrombosis and necrosis of the skin and subcutaneous tissues affected multiple limbs are exposed to a high risk of limb amputation. Also has multi-organ dysfunction and may lead to death. Surgical management is important and race against time.

Method: We report a case of 79-year-old, previously healthy female patient, who presented petechiae over buttock, bilateral upper and lower extremities after taken traditional medicine, then developed diffuse necrotic ecchymosis with thrombocytopenia and increased plasma fibrin-degradation products which diagnosis of purpura fulminans.

Survivor is not only treated with fresh frozen plasma and aggressive management of the septic state, but also 3 times surgical wound management which including debridement, negative pressure wound therapy with irrigation and split thickness skin graft. During second operation, we found necrotic fat tissue hidden under the healthy epiderma that may be due to supported by dermal plexus circulation. Need to debride all necrotic fat tissue meticulously to avoid infection spreads.

Results / Discussion: The patient is survival and discharge with right upper limb amputation.

Conclusion: Purpura fulminans is an acute thrombotic disorder which rapidly leads to skin necrosis and disseminated intravascular coagulation. This report is emphasizing the importance of early aggressive surgical procedure with excisional debridement, negative pressure wound therapy with irrigation, skin grafts, early amputation of ischemic limbs and infection control can also reduce the mortality of purpura fulminans cases.

Diffuse skin necrosis on trunk, bilateral upper and lower limbs

Necrotic fat tissue hidden under the epiderma and after debridement

Treated negative pressure wound therapy with irrigation after excisional debridement and split thickness skin graft

EP469 AN EXPERIENCE WITH PAEDIATRIC DISTAL LOWER EXTREMITY TRAUMATIC WOUND TREATED WITH COMBINED APPLICATION OF MOIST EXPOSED BURN OINTMENT AND SOFT CONFORMABLE SILICONE NON-ADHESIVE FOAM DRESSING

Dr Mohd Zurairie Bin Mohd Zubir[1]

[1]Hospital Raja Perempuan Zainab II, Kota Bharu, Malaysia

Aim: To observe the efficacy of combined application of moist exposed burn ointment, a topical frame ointment with sesame oil and beeswax and soft, conformable foam dressing with safetac technology in a painful, predominantly high or moderate exudate levels paediatric traumatic wound.

Method: A 7-year-old Malay female with right foot traumatic wound who has had primary skin grafting that failed was referred for wound care approximately two months post injury. The treatment applied by the wound care specialist consisted of every three days cleansing of the wound with saline solution and application of moist exposed burn ointment and soft, conformable foam dressing with safetac technology on the whole wound surface. There was no debridement performed during the dressing. The wound bed tissue, wound size, periwound skin, exudate level and pain score were observed.

Results: The combined application resulted in rapid induction of healthy granulation tissue and re-epithelialisation. Note decrease in wound size from initial presentation. Exudate levels had shifted from predominantly high or moderate to low or moderate levels. Periwound skin health was also improved. The necessity for daily bandage changes was reduced to only every three days. The patient had a strong relief of pain, from an initial value of 8-10 out of 10 to 0-2 out of 10 during dressing change procedure within the first two week of treatment.

Conclusion: The combined application of the dressings has the following significant therapeutic effects such as promoting granulation growth, reducing wound size and wound exudate, and relieving patient's pain. The combined application deserved to be popularised for paediatric patients with the problem of pain and distress during wound care procedures.

EP470 THE PRACTICE OF BLOODLESS DEBRIDEMENT AND THE IMPORTANCE OF USING APPROPRIATE DRESSINGS IN THE HEALING OF DIABETIC WOUNDS

Marios Vasileiou[1]

[1]European University of Cyprus, Frenaros, Famagusta, Cyprus

Introduction: Ulcers that develop can easily become infected. The infected ulcer is difficult to heal and causes many clinical problems for the patient. The evaluation of the ulcer is initially based on the clinical examination by the multidisciplinary team, as well as through medicine. Knowledge of modern pressure wound treatment methods is imperative for health professionals providing services at this level.

Aim: The aim is to present the role and action of the specialist nurse as a member of the multidisciplinary team in pressure wound treatment, with the correct use of active dressings and the application of the practice of bloodless cleaning.

Method: A case study of a patient with a diabetic ulcer where it was decided by the medical team to amputate. But with the intervention of the specialized community nurse as a member of the multidisciplinary team, the ulcer heals.

Results / Discussion: A 59-year-old diabetic patient developed an ulcer on the right big toe. Initially the decision was amputation due to deep tissue necrosis. With the correct evaluation and treatment of the wound, it heals in a relatively short time, following the guidelines protocols from international organizations regarding the care and management of wounds.

Conclusion: A good understanding of the healing mechanisms of pressure wounds is a prerequisite for the correct application of topical treatments. The correct cooperation and evaluation of pressure wounds together with the provision of appropriate nursing treatment, combined with the correct use of therapeutic patches, the nurse is able to provide quality health services, improving the quality of life of his fellow human beings.

EP471 THE USE OF HYPERBARIC OXYGEN THERAPY IN COMBINATION WITH STANDARD WOUND TREATMENT METHODS IN THE TREATMENT OF AN EXTENSIVE CHEST WOUND AFTER RADIOTHERAPY - A CASE REPORT

Agnieszka Kruk[1], Sylwia Terech-Skóra[1], Renata Piotrkowska[1], Katarzyna Kamrowska[2], Natalia Kasza[3]

[1]Medical University of Gdańsk, Division of Surgical Nursing, Gdańsk, Poland; [2]University Clinical Centre , Klinika Onkologii i Radioterapii, Gdańsk, Poland; [3]University Clinical Centre, Department of Thoracic Surgery, Gdańsk, Poland

Aim: Case based evaluation of hyperbaric oxygen therapy in combination with negative pressure therapy and standard methods of wound treatment, to improve the healing of an extensive wound after radiotherapy.

Method: A 51-year-old Caucasian woman after whole breast radiotherapy due to right breast cancer. Within a year of oncological treatment, patient developed the full-thickness, radiation induced skin necrosis in the irradiated area. Due to the non-healing chronic wound, the patient was repeatedly consulted by general practitioners, however the recommended local treatment did not bring any improvement. Finally, patient with an extensive chronic wound, was admitted to the hospital for the long-lasting individualised treatment. The patient underwent a multi-modal and multi-step treatment including hyperbaric therapy (37 – sessions), surgical methods, negative pressure therapy (40-60 mmHg), sonotherapy (20 – sessions) and personalized nutritional and analgesic treatment.

Results / Discussion: In presented case, after 8 months of hospitalization, the process of wound treatment was completed with surgical transposition of skin-muscle flaps to reconstruct chest wall defects. The patient was discharged home and after another 3 months of observation, complete healing of the extensive chest radiation wound was achieved.

Conclusion: A non-healing, deteriorating wound after radiotherapy requires treatment in highly specialized centres with highly qualified personnel and various, modern methods of wound management. The treatment of an extensive radiation damage to the skin requires long-term local therapy. Therefore, it is worth to remember that the use of hyperbaric oxygen therapy with negative pressure therapy as well as nutritional support and effective analgesic treatment in similar cases may bring positive effects in the management of the radiation-induced skin necrosis.

EP472 CASE SERIES EXAMINING THE EFFICACY OF CONTINUOUS TOPICAL OXYGEN THERAPY IN THE TREATMENT OF DIABETIC FOOT ULCERS

Harikrishna Nair[1]

[1]Kuala Lumpur Hospital, Dept Internal Medicine, Kuala Lumpur, Malaysia

Aim: To determine the efficacy of continuous oxygen therapy in the treatment of previously non-healing diabetic foot ulcers where the majority of patients had a history of infections and prior amputations indicative of the severity and difficulty in healing.

Method: This observational study, examines the effect of a portable continuous topical oxygen wound therapy device on the healing rates of patients presenting with a Texas grade 2/3 diabetic foot ulcer that had failed to respond to standard of care. They were treated with a continuous topical oxygen therapy in addition to standard of care for 12 weeks. During this time, wound healing parameters were measured weekly, which included percentage reduction in wound size, the incidence of infections and pain assessments.

Results / Discussion: This study follows 6 patients, all of which met the required inclusion and exclusion criteria. In all these cases, the wound progressed, as demonstrated by significant wound area reduction, indicating that these wounds were now on a healing trajectory. Moreover, three of the cases healed within the 12-week study period and in the subsequent 4 weeks, 2 further patients healed with the sixth patient, who had an extremely large wound, achieving a 95% reduction in wound area.

Conclusion: This study supports previous findings which have demonstrated the beneficial effects of a continuous topical oxygen therapy in the treatment of especially hard to heal DFUs. This therapy was found to improve clinical outcomes and stimulate wound healing in wounds which were previously shown to be stagnating with standard of care.

Continuous topical oxygen wound therapy device tested was NATROX® Oxygen Wound Therapy.

EP473 A STUDY CASE: MULTIDISCIPLINARY APPROACH AND ADVANCED THERAPIES FOR TREATING A DIABETIC FOOT ULCER

Maria Rovira Dalmau[1 2], Clara Masó Albareda[1 2], Eva Bonjoch Jaques[2], Noe Benabarre Castany[3], Marta Otero Viñas[1 4], Marta Casals Zorita[1 2], Mònica Plans Díaz-Meco[2], Marta Ferrer Solà[1 2 3], Joan Espaulella Panicot[2 3 5]

[1]Institute for Research and Innovation in Life and Health Sciences in Central Catalonia (IrisCC), Tissue Repair and Regeneration Laboratory (TR2Lab), Vic, Spain; [2]Hospital Universitari de la Santa Creu de Vic, Clinical Wound Unit, Vic, Spain; [3]Hospital Universitari de Vic (Consorci Hospitalari de Vic), Vic, Spain; [4]University of Vic, Faculty of Science, Technology and Engineering, Vic, Spain; [5]Institute for Research and Innovation in Life and Health Sciences in Central Catalonia (IrisCC), Central Catalonia Chronicity Research Group (C3RG), Vic,

Introduction: The complexity of diabetic foot ulcers demands rapid and personalized interventions to prevent major amputation and maintain patient autonomy.

Case description: We present a case of a diabetic 85-year-old man with an infected plantar ulcer. During clinical admission in the complex wound care unit, the patient received an accurate assessment to detect the resources and specialists needed for the case, and a multidisciplinary approach was established. The vascular surgeon's evaluation prescribed to endure surgery for minor amputations of the 1st, 2nd, and 3rd toes and a stent insertion in the peroneal artery due to popliteal stenosis. These surgical interventions allowed recovering the vascular circulation around the ulcer. However, the wound bed kept showing abundant slough due to a slow debridement preventing the proper cicatrisation. The application of an hydrosurgical technique, by a nurse, achieved a successful debridement in one session. After hydrosurgery, autologous platelet-rich plasma (PRP) therapy was applied to promote complete wound closure. Finally, in order to prevent future lesions, the orthopaedist provided him with special shoes and insoles that allowed him to keep his autonomy to walk.

Discussion: Diabetic foot ulcers are complex to treat, especially in patients with vascular pathology. Our results showed that rapid intervention, easy interdisciplinary coordination and communication, and the use of advanced interventions allow the achievement of the best results for the patient.

Conclusion: Interdisciplinary teamwork and advanced therapies are crucial for treating diabetic foot ulcers to avoid major amputation, promoting cicatrisation, and maintaining patient autonomy.

EP474 HONEYCOMB EXPANDEND POLYURETHANE SPONGE MANAGEMENT IN IN HARD-TO-HEAL WOUND TREATMENT- CASE REPORT

Barbara De Angelis[1 2], Chiara Di Segni[2], Fabrizio Orlandi[2], Carlo Cossi[2], Valerio Cervelli[1 2]

[1]Surgical Science Department, Plastic and Reconstructive Surgery, University of Rome 'Tor Vergata', Rome, Italy; [2]University of Rome Tor Vergata, Plastic and Reconstructive Surgery, Rome, Italy

Aim: Honeycomb expandend polyurethane sponge can be an effective device in hard-to-heal wound management. HEPS reduces on-wound pressure, promoting granulation and reducing counterpressure on recently formed granulation tissue. Mechanical contact with tissue promotes granulation tissue formation as well as performing tissue debridement. It also manages excess exudate production maintaining a moist wound enviroment.

Method: In our case report a chronic infected ulcer in a diabetic-vascular patient has been treated. Medication has been performed following our therapeutic protocol by cleansing, disinfection, silver sulfadiazine and sterile lesion-shaped HEPS. Leg bandaging. Medication renewal once a week.

Results / Discussion: The result we achieved was brilliant, lesions being completely healed within 50 days. Pain control has been excellent. Scarring result has been very satisfying.

Conclusion: HEPS management improves cost-benefit ratio, diminishing hospitalization time and accelerating healing process and improving patient quality of life. Our protocol has proven to be safe, effective and cheap. In addition, scarring aesthetic result was excellent.

EP475 ONCOLOGY PATIENT WITH EXTENSIVE PRESSURE INJURIES – TREATED WITH A NEGATIVE PRESSURE METHOD - CASE STUDIES

Andreja Klinc[1], Ana Martinc[2], Jelena Stanić[3]

[1]Institute of Oncology Ljubljana, Nursing consultation, Ljubljana, Slovenia; [2]Institute of Oncology Ljubljana, Department for Internists Oncology, Ljubljana, Slovenia; [3]Institute of Oncology Ljubljana, Department of Surgical Oncology, Ljubljana, Slovenia

Aim: Healing of extensive pressure injuries. 64-year-old paraplegic, oncology patient after treatment for rectal carcinoma. On October 2021, he started neo-adjuvant treatment with radiotherapy and then proceeded with chemotherapy. After the 4th cycle, appeared extensive necroses sacral, left and right gluteal, above both trochantroma. The patient also had extensive bedsores on both lower extremities, which resulted in both below-the-knee amputations.

Method: In May 2022 a necroctomy of bedsores was performed and transverzostoma due to the better quality of wound care. The treatment of wounds with negative pressure method and the use of it's own tissue to cover bedsores was started.

Results / Discussion: Healing process of the wounds took a long time, but by using the negative pressure method, with the transplantation of the skin substitutes and modern dressings and adequate nutrition support, the wounds were greatly reduced or almost healed.

Conclusion: Patient lived alone at the beginning of the treatment. Due to paraplegia, he could not feel the lower part of his body, the skin had poor circulation due to the treatment and the bedsores were getting bigger and deeper. Due to very good medical care, the pressure injuries are almost healed.

EP476 CHALLENGES IN THE SURGICAL MANAGEMENT OF THE TOTALLY AVULSED SCALP: A CASE REPORT

Karolina Baltrušaitytė[1], Andrėjus Subočius[2], Ernest Zacharevskij[2]

[1]Lithuanian University of Health Sciences, Lithuania; [2]Hospital of Lithuanian University of Health Sciences Kauno Klinikos, Plastic and Reconstructive Surgery, Lithuania

Aim: To present a clinical case of a scalp avulsion injury in a female due to an entanglement of hair in a motorized machine resulting in defects and tissue loss of the hair-bearing skin, partial occipital periosteum, and partial left auricle.

Method: A 35-year-old woman was referred to our department after total scalp avulsion caused by motorized machine. The amputated part was in one piece, therefore the first-line treatment was replantation of the scalp, which seemed to be unsuccessful due to flap damage and infection. For this reason, a necrectomy was performed and then the next step was the use of a full and partial thickness skin graft for wounds of the head and face. After 9 days, we observed partial necrosis of these grafts in open bone areas, consequently multiple osteoperforations were planned. While gaining positive results in wound healing using different treatments, skin grafting was performed as the last step. By means of the severity of the trauma and the psychological impact, we provided psychological support for the patient.

Results / Discussion: In the case of a particularly complex scalp avulsion, replantation is the first method of choice, but not always successful. Osteoperforations should be considered as an effective method to grow granulation tissue in areas without periosteum layer. Modern wound treatment techniques help to accelerate the treatment.

Conclusion: A combination of osteoperforations and subsequent skin grafting is viable for salvaging an avulsed scalp area without periosteum. Combination of proper wounds treatment, psychological support and rehabilitation allows the patient to return to everyday life faster.

EP477 HEALING OF THE POSTOPERATIVE ISCHEMIC WOUND IN A PATIENT AFTER BREAST CANCER SURGERY - CASE STUDIES

Andreja Klinc[1], Ana Martinc[2], Jelena Stanić[3]

[1]Institute of Oncology Ljubljana, Nursing consultation, Ljubljana, Slovenia; [2]Institute of Oncology Ljubljana, department for internists oncology, Ljubljana, Slovenia; [3]Institute of Oncology Ljubljana, Department of Surgical Oncology, Ljubljana, Slovenia

Aim: Postoperative ischemic wound healing in a patient after breast cancer surgery. A 63-year old female patient was operated on for carcinoma of the right breast with an axillary lymph node tumor. At the end of November 2021, the patient underwent ablation of the right breast, biopsy of the protective lymph node and immediate reconstruction of the right breast with the insertion of an expander.

Method: After the operation, marginal ischemia of the skin occurred next to the surgical scar. The patient was referred to a wound care specialist - an enterostomal therapist. A wound care plan was created, namely stimulation of tissue microcirculation with an oxygen-enriched oil base and application of a modern dressing. She was also referred to the clinic for outpatient clinical nutrition, where clinical nutrition experts advised her to increase her protein intake. The patient was a passionate smoker.

Results / Discussion: The patient regularly came to the outpatient clinic for wound dressing. She stopped smoking and ate a balanced diet with a protein supplement. The wound was healing fast. With the patient's consent, we took a photo of the wound to monitor her healing. After 6 weeks, the wound had completely healed.

Conclusion: Smoking is a key risk factor for poorer blood circulation to tissues and consequently poorer wound healing, with a higher risk of infection and scarring. The patient is advised to stop smoking.

EP478 COMBINED TREATMENT OF MIXED ARTERIAL VENOUS LEG ULCERS – A CASE SERIES

Jadranka Kovačević[1], Tamara Sinožić[1 2], Slaven Suknaić[3], Karlo Novačić[3 4]

[1]Private practice of General Medicine Tamara Sinozic, GP, Mošćenička Draga, Croatia; [2]Department of Family Medicine, Faculty of Medicine, Rijeka University, Rijeka, Croatia; [3]Venes Clinic, Zagreb, Croatia; [4]University Hospital Centre Zagreb, Zagreb, Croatia

Aim: to present a combined treatment of five patients with mixed arterial venous leg ulcers (MAVLU) and influence on wound healing. Treatment of MAVLU is complicated and long due to impossibility of performing compression therapy in full dosage for the correction of venous reflux, which could endanger perfusion. Therefore, endovenous methods are the methods of choice to accelerate wound healing and reducing recurrence.

Method: a case series of five patients' treatment from 2019-2022., three women and two man, aged between 59 and 81 years with mixed arterial venous leg ulcer of a duration between 2 to 19 month, in size between 6 and 80 cm^2 is presented.

Results / Discussion: One of the patients already had revascularization prior to first visit, one had saphenectomy due to cardiac bypass and one had revascularization and vein surgery. ABI and venous duplex ultrasound were performed on all patients. All were treated with wound dressings and compression therapy of mild dosage. Four out five patients had endovenous intervention, laser and cyanoacrylate ablation without side effects. Wounds in four patients healed completely, in 8-30 weeks and without recurrence. Wound surface in patient without venous intervention reduced 75% in 12 month. The patient is planned for venous treatment in 2 months to accelerate wound healing and to prevent recurrence.

Conclusion: An individual approach to treatment and assessment of the arterial and venous component in wounds of mixed etiology is required. Local treatment, appropriate compression therapy and vascular interventions ensure accelerated wound healing and lower recurrence rate.

EP479 THE ROLE OF THE EARLY HYPERBARIC OXYGEN THERAPY IN THE TREATMENT OF FOOT DEGLOVING INJURIES

Ante Bandalović[1], Marin Marinovic[2], Davor Primc[3], Stanislava Laginja[4], Tanja Batinac[5], Ana Marija Marinović[6]

[1]University Hospital of Split, Ortopaedics and Traumatology Division, Split, Croatia; [2]Clinical Hospital Center Rijeka, Department of Traumatology, Rijeka, Croatia; [3]Josip Juraj Strossmayer, University of Osijek, Osijek, Croatia; [4]Special Hospital Thalassotherapia Crikvenica, Dermatology, Crikvenica, Croatia; [5]Faculty of Medical Sciences, University of Rijeka, Rijeka, Croatia; [6]University of Split, University Department of Forensic Sciences, Split, Croatia

Aim: Foot injuries manifested by a lesion in the integrity of the skin and subcutaneous tissue from underlying bony structures are fortunately quite rare. Depending on the extent of the injuries, as a result of the disintegrity of the overlying tissue over the bones of the foot and the compromise of blood circulation, necrosis occurs which requires plastic reconstructive procedures, and often even amputation.

Method: Early administration of HBOT after primary surgical treatment results in a reduction of the anaerobic condition in the traumatized tissue and a sufficient supply of oxygen, both transported in hemoglobin and free molecularly dissolved in plasma.

Patient was received in ER immediately after a traffic accident. He was a motorcycle driver in a collision with a car. As a result, he had an injury of the right ankle joint area and foot with a fracture of the calcaneus with two tangential fragments from the area of the calcaneus tuber.

Results / Discussion: Necrectomy and osteosynthesis were performed. The soft tissue cover is adapted and fixed with wide sutures. Immediately after the operation, the patient immediately started with HBOT series of 27 treatments 2.2/60. Satisfactory healing occurred locally, with a smaller area of approx. 3 x 2 cm of epidermolysis. After additional debridement and the use of hydrocolloid dressings with autolytic gel, secondary healing occurred with epithelization of the defect. The patient is now in the phase of physical therapy with satisfactory results, with adequate neurovascular status of the foot.

Conclusion: The early application of HBOT after degloving limb injuries can certainly lead to faster and better healing and reduce the percentage of limb amputations.

EP480 DEHYDRATED HUMAN AMNION CHORION MEMBRANE ALLOGRAFT FOR THE MANAGEMENT HARD TO HEAL COMPLEX WOUNDS

Abdulaziz Binkanan[1], William Tettelbach[2 3 4 5]

[1]King Fahad Medical City, الرياض, Saudi Arabia; [2]Duke University School of Medicine, Department of Anesthesiology, Salt Lake City, United States; [3]Western University of Health Sciences, College of Podiatric Medicine, Pomona, United States; [4]MountainStar Healthcare, Salt Lake City, United States; [5]MiMedx Group, Inc., Marietta, United States

Aim: The goal of this case series is to highlight the use of Dehydrated Human Amnion Chorion Membrane allografts (DHACM) in the treatment of three patients in Saudi Arabia with various hard-to-heal ulcers.

Method:

Case 1: 46 y/o male post road traffic accident resulting in a spinal cord injury. Admitted to the ICU for 16 days. Hospital course complicated with a stage 4 occipital pressure injury ulcer (PIU) (Figure 1).

Figure 1. Hospital-acquired stage 4 occipital pressure injury ulcer

Case 2: 63 y/o bedbound male with the following comorbidities: DM, HTN, ischemic stroke. During his medical course he developed a Stage 3 sacral PIU (Figure 2).

Figure 2. Wheelchair bound patient with a stage 3 sacral pressure injury ulcer

Case 3: 43 y/o diabetic male with a diabetic foot ulcer (DFU) complicated with osteomyelitis (figure 3). A below knee amputation was initially recommended by another provider. Fortunately, the patient was referred to a wound care specialist who appropriately proceeded with a 5th ray amputation and continued antibiotics (Figure 4).

Figure 3. Infected right 5th toe DFU

Figure 4. S/P 5th ray amputation

Results/Discussion:

Case 1: The stage 4 occipital PIU stalled with standard of care (SOC). After treating a mild wound infection, DHACM was applied only once and kept in place for at least 7 days. Afterwards, SOC was resumed. Closure was achieved 20 days after applying DHACM (Figure 5).

Figure 5. Closure of a stalled stage 4 occipital pressure ulcer after a single application of DHACM

Case 2: The stage 3 sacral PUI had devitalized tissue that required surgical debridement over a 10-day period. Due to delayed closure DHACM was applied (Figure 6).

Figure 6. Sacral PIU on trajectory to closure 25 days after DHACM applied.

Case 3: The DFU failed SOC prompting the application of DHACM with a second application 15 days later (figure 7).

Figure 7. Resolution of stalled DFU after two applications of DHACM allografts

Conclusion: Application of a DHACM allograft barrier was effective in promoting wound closure in the treatment of two patients with hard-to-heal PIUs and a third DFU patient.

EP482 USE OF CONTINUOUS ELECTRICAL STIMULATION IN A CHRONIC LEG ULCER: A LOCAL EXPERIENCE

Sivagame Maniya[1]

[1]*Sengkang General Hospital, Advanced Practice Nurse, Singapore*

Aim: Electrical stimulation (ES) is one of the most evidence-based technologies in wound management and is proven to be effective in accelerating healing in multiple wound types and reducing wound pain. It is safe to use and has minimal side effects. The aim of this evaluation was to assess the frequency of a positive response for pain and healing, on a non-healing chronic venous ulcer.

Methods: This case report discusses the use of a portable automatic, continuously active, disposable low-voltage pulsed microcurrent ES device in a patient with a 19-month chronic venous ulcer stalled in healing despite months of multilayer compression bandaging and venous surgery. The ES device was applied under compression bandaging. Patient was taught to change the portable ES device every 4 hrs. Compression was changed weekly as per normal.

Results: After 12-day electrical stimulation under compression bandaging, within two weeks, there was reduction of fibrinous slough and pain and nil eczematous plaques flare over periwound. Ulcer size reduced 50% within 3 weeks with compression bandaging post electrical stimulation.

Conclusion: The quick turnaround in clinical signs towards healing suggest ES was responsible for changing the physiology of the wound and that reparative processes were in motion. Furthermore, with the ability to allow patients to receive electrical stimulation therapy at home, in combination with any type of dressing, this device will be able to greatly expand the access of patients to this ES therapy.

EP483 SURGICAL APPLICATIONS OF EXTERNAL FIXATOR, NEGATIVE PRESSURE WOUND THERAPY (NPWT) AND APPLICATION OF SKIN SUBSTITUTES FOR COMPLEX LOWER EXTREMITY WOUNDS

Rimvydas Statkus[1], Patrick McEneaney[1], Peter Lovato[1]

[1]*Northern Illinois Foot & Ankle Specialists, Crystal Lake, United States*

Aim: A collection of multiple case reports was compiled on various patients with significant co-morbidities and complex wounds who were high risk for amputation of the affected limbs. Patients are often faced with complications including long hospital stays, wound infection, osteomyelitis and limb loss due to challenges associated with healing full-thickness wounds. In this multiple case report, various advanced wound closure methods in multiple cases are assessed.

Method: Multiple case reports including male patient with chronic ulceration and deformity requiring application of external fixator and Jacob's ladder suture technique; female patient with severe sepsis, critical limb ischemia requiring emergent partial amputation then application of skin graft and NPWT; male patient with dislocated hallux and failed skin autograft requiring application of fish skin graft and NPWT; male patient with multiple fasciotomies of the leg, resulting in a total of five wounds requiring meshed fish skin grafts with bridging between wound sites and NPWT, male patient with diabetes and osteomyelitis underwent partial amputation requiring application of skin substitute and NPWT.

Results / Discussion: Complete or near complete wound closure was achieved for all cases. Advanced adjunct therapies in combination with conventional wound therapy including weekly wound debridement and application of NPWT achieved favourable outcomes for all patients.

Conclusion: A combination of skin grafts, NPWT, external fixators and other advanced modalities are often required for patients with complex medical conditions for limb salvage. The wounds showed an earlier development of granulation tissue. The results had good cosmetic and functional outcomes for the patients.

EP485 PYODERMA GANGRENOSUM ON THE DORSUM OF THE FOOT AND ON THE THUMB

Katarina Šmuc Berger[1]

[1]*General Hospital Izola, Outpatient Clinic of Dermatovenerology, Izola, Slovenia*

Aim: To present a case of pyoderma gangrenosum with lesions on thumb and dorsum of the foot.

Method: Case report.

Results / Discussion: We present a 72 -year-old woman with a past medical history of Crohn disease. The patient initially presented to rheumathologist due to joint pain in her right thumb and dorsum of left foot. The diagnosis of enteropathic artritis was made and metilprednisolone 16 mg was prescribed. She was evaluated 10 days later in Emergency clinic due to swelling and pain of the foot. Incizion was performed, microbiology swab was taken. She returned to Emergency clinic 6 days later due to wound that developed on the dorsum of the foot after the incizion and worsening of the situation on the thumb. Rheumatologist and dermatologist evaluated her and suspicion of pyoderma gangrenosum was made. The patient had violaceous-to-red bordered ulceration on the dorsum of left foot (fig.1) and pustulovesivular nodes on right thumb (fig.2) . Biopsy of the lesion on the foot was performed. Hematoxylin-eosin staining revealed a predominantly neutrophilic infiltrate. Swab culture was negative for microorganisms. The diagnosis pyoderma gangrenosum was cofirmed and treatment with metilprednisolone (32 mg p.o.) was continued. Further controls were by dermatologist as metilprednisolone dose was tappered and the ulceration healed in 5 months. She finished the treatment with metilprednisolone and is still stable.

Fig 1

Fig 2

Conclusion: Pyoderma gangrenosum (PG) is a rare dermatosis that can have many different manifestations. We would like to stress the importance of the interdisciplinary approach to patients with possible pyoderma gangrenosum.

EP486 CONTENT IN UNDERGRADUATE NURSING EDUCATION ON VENOUS LEG ULCERS: AN E-DELPHI STUDY

Iván Durán-Sáenz[1], José Verdú Soriano[2], Pablo Lopez-Casanova[2], Susana Cariñanos Ayala[3], Miriam Berenguer Pérez[2]

[1]Osakidetza Basque Health Service, Araba University Hospital, Vitoria-Gasteiz School of Nursing, Vitoria-Gasteiz, Spain; Bioaraba, Basque Nurse Education Research Group, Vitoria-Gasteiz, Spain, Araba University Hospital; [2]Community Nursing, Preventive Medicine, Public Health and History of Science Department, Faculty of Health Sciences, University of Alicante, Alicante, Spain; [3]Basque Nurse Education Research Group, Bioaraba Health Research Institute, Vitoria Gasteiz, Spain; Vitoria-Gasteiz Nursing School, Osakidetza-Basque National Health Service, Basque Country, Spain

Aim: Identify the knowledge and skills that nursing students need to acquire regarding venous leg ulcer care and define strategies that can be applied during education.

Method: An e-Delphi study. The participants were nurses, experts in Chronic Wound Care. One question was constructed and agreed on by the research team to define the problem. A 2-round e-Delphi study was conducted from January to March 2022. The final number of panellists in the first round was 17, all of whom were informed of the first round results and invited to the second round via personalised links. Of these, 17 panellists participated in the second e-Delphi round. The data were analysed using statistical and qualitative analysis.

Results / Discussion: All participants were nurses, of which nine (52.9%) were male and eight (47.1%) female, fifteen (88.2%) had more than 20 years of work experience and two (11.8%) between 11 and 20 years. Regarding the level of studies, eleven (64.7%) reported having a PhD, three (17.6%) an official university master's degree, two (11.8%) a diploma/graduate degree/university degree and one (5.9%) a postgraduate degree (expert/specialist/unofficial master's degree).

Content must fulfil knowledge-skill areas: epidemiology, venous pathophysiology and aetiology, classification scales, knowing how to determine a differential diagnosis, treatment, measures for prevention and care of the venous return circuit, quality-of-life scales.

Conclusion: Seven categories and eight subcategories were created regarding knowledge/skills that nursing students should acquire.

EP487 PREVALENCE AND RISK FACTORS FOR PERIPHERAL ARTERIAL DISEASE (DAP):SCREENING WITH THE USE OF AUTOMATIC BRACHIAL ANKLE INDEX IN PREVENTION CAMPAIGN - BRAZIL

Christielle Montenegro[1], Juliana Lucinda dos Santos[2], Barbara Christovam[3]

[1]Emad , Especialista Clinica, Rio Branco, Brazil; [2]Prime Care Cuidados Integrados à Feridas, Diretora Tecnica , Santo André, Brazil; [3]UFF - Praia Vermelha Campus, Rio de Janeiro, Brazil

Aim: Toxic Epidermal Necrolysis (Lyell Syndrome) is a rare dermatological lesion, although of extreme severity, characterized by the sudden appearance of elevated fever, signs of systemic toxicity, and intense mucocutaneous exfoliation. It usually arises as a response to the administration of certain drugs, accounting for about 1% of all hospital admissions due to drug reactions.

Method: Ecase of an aware initially diagnosed with erysipela or venous ulcer, being treated for crystalline penicillin. Home care in the city of Rio Branco - Acre. It evolves with changes in symptoms with edema, hyperthermia and algia in MMSS, thus presenting allergic reaction to the medication administered.

Results / Discussion: When thedmitido in the Program EMAD - Multiprofessional Home Care Team, the patient was already impaired by the tissues of the hypodermis, dermis and muscle, besides presenting annathema in the pharyngeal oro region, making the possibility of swallowing impossible. Being in extreme catabolism, the multiprofessional treatment evolved with the use of covers: Hydrogel, Silver Foam, Activated Charcoal, Ibuprofen Foam, Calcium Alginate and Fitoscar Ointment. The nutritional treatment was based on L-arginine through Cubitan, in addition to supplementing with vitamins and minerals, amino acids of high biological value, maltodextrin, sunflower oil and fibers.

Conclusion: The multiprofessional treatment attributed an excellent antioxidant action, reducing oxidative stress and controlling the effects of catabolism. It is possible to observe significant improvement of immune function and gradual tissue regeneration.

EP488 INNOVATIVE APPLICATION OF NEGATIVE PRESSURE WOUND THERAPY WITH INSTILLATION IN MANAGEMENT OF COMPLEX HEAD AND NECK WOUNDS

Chin Yen Lee[1], Yun Ying Ho[2], V A Jacob Abraham[1]

[1]Hospital Tengku Ampuan Afzan, Wound Care Unit, Department of Orthopaedics, Kuantan, Malaysia; [2]Hospital Tengku Ampuan Afzan, Department of Internal Medicine, Kuantan, Malaysia

Aim: Negative pressure wound therapy (NPWT) has been refined recently with the latest technology called NPWT with instillation (NPWT-I). Adapting negative pressure wound therapies with constant distillation for complex wounds provides promising results in accelerating wound closure.[2] The application of NPWT-I in the head and neck region is clinically challenging to obtain tight seal. This case series has shown success in applying NPWT-I in such anatomically challenging areas to enhance wound closure.

Method: This case series demonstrated the effectiveness of NPWT-I in the treatment of infected complex wounds in head and neck region.

The first case was 64-year-old male, with underlying diabetes and hypertension who presented with complicated mandibular abscess secondary to dental caries. The wound was debrided surgically. NPWT-I was then applied 7 days post operatively. After one-week, secondary closure was achieved.

The second case demonstrated 68-year-old lady with diabetes, presented with necrotising infection secondary to otitis media infection, the cheek area was debrided surgically. NPWT-I was then applied ten days post operatively. The wound bed was then ready for skin graft after ten days.

Results / Discussion: NPWT acts as a barrier to isolate the wound from the external environment, create a moist wound bed, promotes angiogenesis and alters cell-blood perfusion which leads to more granulation.

The modification of conventional NPWT to NPWT-I has extended the usage of NPWT to septic wound and chronic wound management. NPWT-I enables less dressing change which alleviates pain and trauma experienced by patients.

Conclusion: The innovative usage of NPWT-I prepares the wound bed around the head and neck region for earlier wound closure.

EP489 PYODERMA GANGRENOSOUS: CONTRIBUTION OF RESTORATIVE CREAM WITH GROWTH FACTORS IN PERI-SURROUNDING SKIN

Sonia Horta[1]

[1]*ARS Algarve, USF Estrela-do-mar, Quarteira, Portugal*

Aim:

1 • To present the effectiveness of using the Repairing Cream with Growth Factors in the treatment of ulcerated skin abscess within a 2-month interval.

2 • Evaluate the action of the Repairing Cream with Growth Factors in repairing and remodeling the surrounding skin and wound edges.

Method: Observational, multicentric, non-comparative case study of a user with Ulcerated Cutaneous Abscess in Primary Health Care. Male user, 51 years old, overweight, dyslipidemia, arterial hypertension and uncontrolled Diabetes Mellitus, HbA1c 11.2%, 80kg, abdominal perimeter 103cm, BMI 29.4Kg/m2.

Results / Discussion:

25.03: Day 0 - 4,5x5,0cm
Lesion with fibrin tissue and devitalized. Started application of Repairing Cream with Growth Factors on the perilesional skin. Local itching and extensive erythema. Presence of intense smell. Pain 4

11.04: Day 18 - 4.2x4.6cm
The application of the Repairing Cream with Growth Factors was restarted. Cleaner lesion, with granulation tissue and fibrin tissue (fibrin removed daily with tweezers). No local itching. Presence of smell. Pain 1

26.04: Week 4 - 1,8x2,5

A very bleeding lesion was placed with calcium alginate. Less reddish skin. Less smell present. No local itching. Pain 1.

5.05: Week 6 - 1.5x2.00cm
Lesion with 10% fibrin tissue and 90% granulation tissue. Smelless. No local itching. Pain 1

20.05: Week 8 - Dimension – 1.5x1.2cm
Lesion with 100% granulation tissue, in the process of healing. Smelless. No local itching. Pain 0

July 2022 - Complete healing of the wound.

Conclusion: User adopted a better life hygiene and new healthy habits. He complied with the anti-diabetic therapy and carried out recommended treatments. Good results were observed in two months.

EP490 MANAGEMENT OF PAEDIATRIC PRESSURE INJURY IN A TERTIARY HOSPITAL USING POLYMERIC MEMBRANE DRESSING: A CASE SERIES

Chin Yen Lee[1], Yun Ying Ho[2], V A JACOB ABRAHAM[1]

[1]Hospital Tengku Ampuan Afzan , Wound Care Unit, Department of Orthopaedics , Malaysia; [2]Hospital Tengku Ampuan Afzan , Department of Internal Medicine , Malaysia

Aim: Pressure injury (PI) is defined as a localised injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear.[1] PI affects vulnerable patients due to intrinsic, extrinsic and external risk factors. PI is also associated with significant clinical and financial complications.[2] Pressure injuries in neonates and paediatric population are major concerns with significant morbidity.

Method: This case series demonstrated the application of polymeric membrane dressing in the management of neonatal and paediatric pressure injuries in a tertiary hospital in Malaysia. The patients were referred from the neonatal and paediatric intensive care units. Four cases of neonatal and paediatrics pressure injuries, with grade II, III and unstageable pressure injuries were managed with polymeric membrane dressing successfully.

Results / Discussion: This case series demonstrated uncomplicated and accelerated wound healing with the application of polymeric membrane dressing. A comprehensive wound care assessment and pressure injury care bundle were practised. The wound bed was prepared and healed completely within 2 weeks.

Management of PI requires the input of a multidisciplinary team led by the Paediatric team and wound care unit in collaboration with nursing staff, dietician as well as the orthopaedic team. Polymeric membrane dressing is able to cleanse the wound bed continuously, perform autolytic debridement, maintain moisture balance, and reduce secondary inflammation resulting in reduction of pain. It is also painless to remove during dressing change[3]. This is especially important in the paediatric population.

Conclusion: A comprehensive and holistic PI wound management using the pressure injury care bundle and polymeric membrane has shown improved patient outcome and quality of life.

EP491 CLINICAL APPLICATION OF AUTOLOGOUS CELL CULTURE TECHNOLOGY IN TOXIC EPIDERMAL NECROLYSIS

Liang Qiao[1]

[1]Ruijin Hospital, Shanghai Jiaotong University, School Of Medicine, Department Of Burn And Plastic Surgery, Shanghai, China

Toxic epidermal necrolysis (TEN) is a severe skin and mucous membrane reaction, characterized by extensive necrosis and exfoliation of the epidermis, with an area of ≥30% involved in the epidermis. The condition is extremely serious, and the affected skin resembles a second-degree burn. Mortality is high due to fluid and electrolyte imbalances and multiorgan complications. Traditional treatments include surgical debridement, leaving the exfoliated epidermis in place as a biological dressing, nonstick dressings containing silver, petroleum jelly-impregnated gauze to cover the exfoliated skin, or application of biosynthetic skin substitutes. But there was no significant improvement in the mortality rate of patients. We use an innovative treatment derived from the patient's own skin, combined with traditional techniques, to treat large epidermal defect wounds. Through cell separation and culture, cell spraying technology, autologous cell culture technology is used in clinical practice. This technology does not require cell culture in vitro and can be applied to autologous wounds during surgery at a ratio of 1:80. In a patient with TEN, the skin defect area was about 50%. We use this technology, that is, take a small piece of skin sample 2*3cm in size from the healthy skin of the patient's head, and then put it into the enzyme solution prepared in the autologous cell collector, through the enzyme. The action of the skin breaks down the skin sheet into a cell suspension containing a variety of cells. Spraying the prepared regenerated epithelial cell suspension on the wound surface after debridement treatment can promote wound healing. The wound was completely healed, and he was discharged from the hospital.

EP492 SINGLE USE NPWT INCORPORATED INTO THE MANAGEMENT OF OPEN, 'HARD TO HEAL' WOUNDS: CASE SERIES

Joanne Handsaker[1], Hayley Ryan[2]

[1]S+N, Global Clinical Strategy, Hull, United Kingdom; [2]WoundRescue, Wound, Glendale, Austria

Aim: A case series was analysed to demonstrate the safe and effective use of Single Use Negative Pressure Wound Therapy System[1] (sNPWT) in the management of static, 'hard to heal' wounds.

Method: Four patients (range, 48-88 years; 2 female), presented with complex non-healing wounds. Indications included venous leg ulcer, pressure injuries and a traumatic wound. The longevity of the wounds ranged from 6 weeks-6 years and all had historically received multiple dressing regimes. All patients were treated in their own homes and received sNPWT[1] employed in conjunction with optimal wound care strategies, including holistic assessment, comprehensive patient empowerment and education.

Results / Discussion: The holistic approach adopted and appropriate use of sNPWT[1] resulted in these chronic wounds all achieving closure despite complex histories.

Conclusion: NPWT has increasingly been seen as an enabling technology with which to move suitable patients out of the high-cost acute care hospital environment into the home (Hudson 2015)[2]. sNPWT has shown superior results in open wounds (Kirsner 2019)[3] and, due to its size and portability, lends itself to use in a community setting for patients requiring independence. The adoption of holistic assessment, proactive treatment, patient education and centered care, coupled with use of sNPWT, enabled all wounds to heal and the patients to achieve an acceptable quality of life.

EP493 PAIN MANAGEMENT WITH ELECTRICAL STIMULATION IN POST THORACIC SURGERY

Pinar Cagan Tezer[1], Irem Tezer Ates[2]

[1]Bahcesehir University Medical Faculty, Thorax Surgery, Istanbul, Turkey; [2]Nurokor Bioelectronics, Underwater and Hyperbaric Medicine, Birmingham, United Kingdom

Aim: Our aim is to show the effectiveness of KorOS technology in postoperative thorax surgery.

Method: The patient provided consent to proceed with the study. A case study of Mrs X aged 74 presented to the clinic with a persistent cough for more than a year. CT showed a frosted glass view and follow-up CT showed no regression. VATS+ Wedge resection biopsy resulted in Invasive Acinar Adeno CA and R upper lobectomy was performed. Additional to the normal postoperative pain management procedure (paracetamol 10mg/ml 4x1 iv), a wearable electrical stimulation device (ESD) was utilised to ease the postoperative pain.

Results / Discussion: Thorax surgery is one of the most painful procedures in the medical field and may cause severe postoperative pain. Non-effective postoperative pain management may cause increased morbidity and mortality, mostly due to respiratory and thromboembolic complications. KorOS2 dual wave technology peripheral nerve stimulation (PNS) formulation is designed for people who are suffering from chronic or acute pain. In this case, it is utilised for postoperative pain. The patient did not need extra stronger painkillers. There were no side effects of ESD.

Conclusion: Higher number of patients and RCT are needed to validate the evidence for the efficacy of the role of electrical stimulation.

In this case, a handy and wireless device helped to ease the pain and could be useful for postoperative surgery management in thorax surgery.

EP494 MENAGEMENT OF COMPLEX PERISTOMAL WOUNDS AND SKIN LESIONS

Željka Mihovilić[1], Ana Lamza[1]

[1]*Clinical Hospital "Sveti Duh", Department of surgery, Zagreb, Croatia*

Aim: to present management of complex peristomal wounds and skin lesions using modern wound dressings and ostomy care products.

Method: In this case series study we treated 5 patients with different degree of peristomal skin ulcerations. We present one patient with urostoma, one with ileostoma and 3 with colostoma. The treatment choice was the result of collaborative work of chronic wound specialist and enterostomal therapist. We assessed the wound using TIME protocol and stoma using SACS classification. The challenge was to combine wound dressing that would meet all the requirements of the peristomal wound and at the same time support appropriate ostomy care product. Best results were with the use of hydrocolloid adhesive dressing as coverage of the peristomal wound and as a good carrier of ostomy pouching system.

Results / Discussion: Peristomal skin is an important part of ostomy care. The ostomy pouching system's adherence is dependent on healthy, dry, intact peristomal skin and a properly fitted pouch. Peristomal wounds can be difficult to manage for patients and clinicians. Moisture and effluent from an ill-fitting pouching system can cause skin breakdown and wounds in the peristomal skin. Interventions to treat wounds include dressings that will fill the dead space in the wound, absorb wound exudate, maintain a clean wound bed, and achieve predictable wear time of the pouching system (at least 24 hours). **Conclusion:** Peristomal skin complications are the most common reason ostomy patients visit an outpatient nursing service. Prevention and management of peristomal skin complications are critical components of ostomy care. The importance of prevention and the impact of having access to knowledgeable care providers cannot be over-emphasized.

EP495 ACTIVATED CARBON CLOTH DRESSING VERSUS SILVER-BASED DRESSING IN A POPULATION OF DIABETIC FOOT ULCERS: A RANDOMISED CONTROLLED TRIAL

Mohd Yazid Bajuri[1], Muhammad Shazwan Shahul Hameed[1], Norliyana Mazli[2], Nik Alif Azriq Nik Abdullah[1]

[1]*Universiti Kebangsaan Malaysia Medical Centre, Department Of Orthopaedics @ Traumatology, Cheras, Malaysia*; [1]*Universiti Kebangsaan Malaysia Medical Centre, Department Of Orthopaedics @ Traumatology, Cheras, Malaysia*

Aim: Diabetic foot ulcer is a very complicated disease and needs a multidisciplinary approach in terms of its management. There is various modern primary wound dressing used in managing diabetic foot ulcer. This study is to compare activated carbon cloth dressing and silver-based dressing in a diabetic foot ulcer population.

Method: This is a two-arm pilot study in a Tertiary hospital that provide diabetic wound care services. A total of four patient were enrolled with the primary endpoint was the improved wound healing in diabetic foot ulcer patients. The secondary end points were wound size reduction, time to healing, and adverse events.

Results / Discussion: Dressing with activated carbon cloth for 8 weeks duration resulted in a significantly greater reduction of wound area compared to silver-based dressing for 8 weeks duration (6.07 ± 3.15 cm2 vs 5.80 ± 2.43 cm2). Correspondingly, the epithelialization rate was also found to be significantly higher in the activated carbon cloth group compared to the silver-based dressing group (97.4 ± 3.64% vs 93.40 ± 9.36%).

Conclusion: According to our data, dressing with activated carbon cloth promotes improved rate of healing in diabetic foot ulcer patients. Throughout this study period, no adverse events were observed. Further validation with larger sample size is needed in subsequent phases of clinical trial to improve the result's accuracy.

EP496 PAI-1 4G/5G POLYMORPHISM AND PREVENTION OF VENOUS ULCERS

Irem Tezer Ates[1]

[1]Nurokor Bioelectronics, Underwater and Hyperbaric Medicine, London, United Kingdom

Aim: Our goal is to present a case with 4G/5G allele polymorphism and venous insufficiency. The case shows a new method for leg ulcer prevention.

Method: 67-year-old retired teacher with a stroke history was experiencing pain in her lower back and legs. An impulsive electrical stimulation device was used on the lower extremity to ease the pain and to contract the calf muscles as a fake pump. The device was used at least once a week 20 min daily in the evenings when the patient took off her compression stockings for 6 months. A thermal camera is used for the follow-up. **Results / Discussion:** Her VAS was 8-9 before and 3-4 after the usage of the device for 6 months. Her intake of paracetamol 500 mg tablet was decreased from 7-8 to 1-2 a week. The thermal camera showed the circulation difference. Along with the traditional risk factors, PAI-1 4G/5G polymorphism is an independent risk factor for the development of venous thromboembolism. Unfortunately, these genetic tests are expensive and not common in practical life. Lots of people live with their mutations without any awareness. The detection of 4G/5G allele may therefore be helpful in the primary prevention of ulcers. CEAS classification C5-C6 could be harder to implant the pads on the ankle area because of the fragile and wounded skin. Level C4 is suitable to apply the device on patients and prevent venous ulcers.

Conclusion: The usage of electrical muscle stimulation devices could be effective for the prevention of venous ulcers, especially to compensate for immobilisation.

EP497 APPLICATION OF ACTIVATED CARBON CLOTH DRESSING FOR CHRONIC OSTEOMYELITIS PATIENT WITH CHRONIC NON-HEALING WOUND: A CASE REPORT

Muhammad Shazwan Shahul Hameed[1], Mohd Yazid Bajuri[1]

[1]Universiti Kebangsaan Malaysia Medical Centre, Department Of Orthopaedics & Traumatology, Cheras, Malaysia

Aim: Osteomyelitis is a progressive infection of bone, bone marrow and surrounding soft tissue usually caused by pyogenic bacteria. Although continuous antibiotic therapy is the cornerstone of the treatment, the management of osteomyelitis is complex. It is sometimes associated with chronic non healing wounds which typically in the lower extremities that are unresponsive to initial therapy or persist despite appropriate care. The standard of care for non-healing ulcers entails wound care including dressing application, wound cleaning and debridement, infection management, mechanical off-loading, and glycemic control.

Results / Discussion: We report a case in a 71-year-old gentleman who presented with open fracture of the right tibia following a road traffic accident in 2017 which was treated with plating of the right tibia. The patient was subsequently diagnosed with chronic osteomyelitis due to a surgery site infection and a non-healing wound that measured 9.5 cm by 2.3 cm on the right shin over the previous two years. Multiple rounds of wound debridement and various types of wound dressings were applied, but the wound was not healing at an ideal rate. After multiple failed attempts, we changed to a new effective dressing which is an activated carbon cloth dressing (Zorflex®) for the duration of 8 weeks and the wound successfully healed with secondary intention without any adverse reaction.

Conclusion: In conclusion, Zorflex® which is an activated carbon cloth that has antimicrobial properties which able to manage exudation, inflammation and infection is effective in treating a chronic non-healing wound in chronic osteomyelitis.

EP498 NEGATIVE PRESSURE WOUND THERAPY IN CONGENITAL OMPHALOCELE MANAGEMENT

Davide Scarponcini Fornaro[1], Emanuele Buccione[1], Chiara Cauzzo[2], Valentina Chiavaroli[1 3], Lorella Di Pietro[1], Susanna Di Valerio[1]

[1]Pescara Hospital Unit, Pescara, Italy; [2]Gabriele d'Annunzio University of Chieti and Pescara, Department of Pediatrics, Chieti, Italy; [3]Liggins Institute, The University of Auckland, Auckland, New Zealand

Aim: Omphalocele is a congenital abdominal wall malformation consisting of abdominal contents protrusion at the base of the umbilical cord. We report a case of a newborn with a giant omphalocele (Figure 1), undergoing surgical treatments for gradual repositioning of liver and intestinal loops and subsequent Negative Pressure Wound Therapy (NPWT) for the management of the non-suturable surgical wound (Figures 3, 4 and 5). The purpose is to describe the efficacy of NPWT in this case.

Method: A male infant was born at 35 weeks by elective caesarean section performed for the prenatal diagnosis of omphalocele. Clinical examination confirmed a giant omphalocele with extensive liver and small bowel herniation. Immediately, the omphalocele was wrapped with hydrocolloid dressings (Figure 2). At 22, 32 and 68 days of life patient underwent surgery for gradual liver and bowel repositioning. During the second surgical intervention a porcine dermal implant was placed to close the abdominal wall defect (Figure 3). Due to partial dehiscence of the surgical wound, NPWT was performed (Figures 4 and 5).

Results: NPWT was applied for 51 days, using increasing pressures (from -20 mmHg to -40 mmHg), obtaining progressive improvement of the 6 cm diameter wound (Figure 6). After NPWT removal, a calcium alginate dressing was placed.

Conclusion: This case highlights the efficacy of NPWT in abdominal surgical wounds due to congenital omphalocele, demonstrating a reduction in dressing frequency and related stress for the infant. Furthermore, NPWT guaranteed a relevant reduction in days needed for the surgical wound resolution.

EP499 THE USE OF SINGLE-USE NEGATIVE PRESSURE WOUND THERAPY (SNPWT) TO HELP FACILITATE WOUND HEALING AS PART OF AN OVERALL WOUND MANAGEMENT PLAN FOR AN ANAL WOUND POST RECTUM PROCTECTOMY

Line Hamann[1]

[1]Silkeborg Kommune, Sygeplejen, Silkeborg, Denmark

Aim: As a result of extensive surgery, the patient had a challenging wound at the anus, which was difficult to manage. The overall goal of the nursing team was to heal the wound as quickly as possible.

Method: Local wound care was carried out and a superabsorber dressing was applied twice a day. Skin irritation was observed on Day 13. After minimal progression of wound healing, sNPWT treatment was initiated on Day 33, with dressing changes reduced to twice per week.

Results / Discussion: The greatest reduction in terms of cm was reported after sNPWT treatment had replaced the use of the superabsorber dressing. When standard dressings were used between days 1 and 13, there was an overall approximate increase in size by 2.5cm in depth. Subsequent measurements following sNPWT use from day 33 demonstrated an approximate decrease in both depth (3 cm) and length (0.8cm) within 6 days.

Conclusion: The outcomes for this patient and his wound were positive. The use of sNPWT for 11 days and sNPWT for 7 days as part of a wound management plan, helped to facilitate a reduction in the size of the wound enabling it to heal.

EP500 TIBIAL ULCER MIMICKING PYODERMA GANGRENOSUM

Aikaterini Zacharopoulou[1], Themis Sgontzou[2], Eftychia Zouridaki[3]

[1 2 3]*"Andreas Syggros" Hospital, Dermatology*

Aim: Highlighting the diagnostic complexity of skin ulcers.

Method: We present a 31-year-old female patient who came to the ulcer unit of "Andreas Syggros" Hospital suffering from a festering necrotic ulcer that appeared a year earlier. She provided a previous punch biopsy result which was compatible with pyoderma gangrenosum. In accordance with the diagnosis, she was already treated with steroids, colchicine, and multiple antibiotics due to positive cultures for E. coli and Pseudomonas aeruginosa. These treatments had little or no response. Due to the atypical clinical presentation of a persistent ulcer and the later appearance of systemic symptoms, we proceeded to do a surgical wedge biopsy and an immunohistochemistry examination.

Results / Discussion: The new biopsy was compatible with a diagnosis of T-cell non-Hodgkin lymphoma (ALK+ large cell lymphoma).

Conclusion: In some cases, a punch biopsy may lead to a misdiagnosis, so it is useful to perform a surgical wedge biopsy.

Physicians should therefore be alert when a skin lesion persists, because it may indicate the presence of a serious underlying systemic disease.

EP501 REPAIRING CREAM WITH GROWTH FACTORS IN RADIOTHERAPY – TWO CLINICAL CASES

Cristina Silva[1] , Helena Vicente[1], Dora Lisa Rocha Franco[1], Sara Carvalhal[1], Sandra Russo[2], Ana Margarida Cabete[1], Carina Pinto[1]

[1]*IPOFG Lisboa, Portugal*

Aim: To verify the effects of radiotherapy (RT) on surgical wound scars (SW) of two patients where repair cream with growth factors (RCGF) was applied.

Check the comfort of patients with the application of the RCGF.

Method: Two clinical cases of patients monitored previous, during and after RT. The first was a man with head and neck cancer, irradiating retroauricular and cervical areas, after graft and flap failure. The second was a breast cancer female patient, after surgery with mammoplasty complicated with partial flap necrosis.

Both started adjuvant RT before the complication of the SW was completely resolved, and both applied only RCCF on irradiation sites.

Results / Discussion: In the first patient the SW completely healed one week after starting RT, it did not recur, and in the end, only radiodermatitis grade I was observed.

In the second patient, in the 5th week of RT, radiodermatitis grade I appeared, and the SW reopened with a small superficial ulcer, and 3.5% alginogel was started.

In the 2nd week after RT, wound closed and radiodermatitis completely healed.

Both patients felt only discomfort from the heat, which persisted within a week.

Conclusion: The results obtained with the application of RCGF in this study, positively contradict the clinical experience in RT and the statement in the literature.

The expected ulceration of the scar was only seen in the second patient, was superficial and healed quickly. There was also improvement in elasticity and aesthetic of these scars.

The positive results obtained can be a starting point to perform more broad exploratory studies in this area.

EP502 THE USE OF NEGATIVE PRESSURE WOUND THERAPY ON A PREPATELLAR ISTAP TYPE 2 SKIN TEAR WITH EXPOSED PATELLA – A PRACTICE CASE

Magali Nys[1], Ivan Kerschaever[1]

[1]*RZ Heilig Hart Tienen, Vlaams-Brabant, Tienen, Belgium*

Aim: The use of Negative Pressure Wound Therapy (NPWT) on a prepatellar ISTAP type 2 skin tear with exposed patella.

Method: NPWT was applied within 24 hours after the injury occurred. A soft silicone wound contact layer was used to seal the skin flap and to prevent ingrowth into the foam. Therapy was set on a continuous suction of -80mmHg for the duration of 4 days. Following to the first dressing replacement, therapy was set on intermittent suction mode in cycles of 2 minutes –60mmHg / 5 minutes -100mmHg with dressing replacements every 7 days for a duration of 14 days after which was switched to a canister free single use NPWT system with continuous suction of -80mmHg for 28 more days.

Results / Discussion: We applied NPWT to a 84 years old female patient who suffers from dementia. The therapy provided a solution to prevent total immobilization of the knee by allowing partial but reduced mobility of the joint combined to a vacuum sealed skin flap. The limited number of dressing changes reduced pain, fear and risk of infection and increased the chance of flap adherence. After less than 7 weeks the exposed patella was entirely covered by either granulation tissue or adhered flap. Negligible necrosis of the flap occurred.

Conclusion: NPWT proves to be a viable technology in the treatment of a prepatellar ISTAP type 2 skin tear with exposed patella.

EP503 ABDOMINAL WALL CLOSURE AFTER LARGE LAPAROTOMIC INFECTED DEHISCENCE WITH FISTULA IN SITU USING BACTERIA BINDING DRESSING

Giuseppe Giannetto[1]

[1]*The Hospital Giuseppe Fogliani, General Surgery, Milazzo, Italy*

Aim: To demonstrate the validity of an appropriate dressing also in extremely wound closure.

Method: Use of bacterial binding dressing in a complex abdomen wall infection.

Results / Discussion: Complete closure of abdominal wall.

Conclusion: Use of bacterial binding dressing as first choice for the healing of complex abdominal wall infection.

A 62-year-old man underwent emergency surgery due to a neoplastic perforation of the left colon. On the fifth post-operative day, a complete dehiscence of colicana stomosis with associated infection of the abdominal wall was carried out. In the subsequent surgery, a definitive left colostomy was performed leaving the abdomen open for subsequent dressing and subsequently implanting a VAC therapy system (NPWT) as a support. In the technical impossibility to attempt a healing for the first intention of the abdominal wall and for prudence, a biological prosthesis was placed to protect the contents of the abdominal cavity attempting a healing for the second intention of the abdominal wall by the use of advanced dressings. A few days after the realization of this therapeutic choice, a new complication has arisen, namely the onset of an enterocutaneous fistula. The choice of the type of advanced dressing fell on bacterial-reception dressings for the wide possibility of formats to be used and for the ductility and conformability of the same dressings. But even more to play in favour of this choice was the simple mechanism of action of binding and removal of pathogens by mechanism of different electrostatic charges limiting to the essential the use of substances for local disinfection of chemical origin that while guaranteeing a safe clinical result would have contributed to the accumulation of substances certainly with proven local and systemic toxicity. The complete healing course was achieved in just under a year with complete closure of the abdominal wall hesitating only the enterocutaneous fistula.

EP504 HEALING OF BILATERAL PLANTAR ULCERATIONS IN A PATIENT DIAGNOSED WITH SYSTEMIC SCLERODERMA BY THE USE OF NEGATIVE PRESSURE THERAPY

Mara Mădălina Mihai[1 2 3], Calin Giurcaneanu[3], Liliana Gabriela Popa[3], Beatrice Balaceanu[3], Ana Ion[3], Cristina Beiu[3], Marius Nicolae Popescu[4], Veronica Lazar[1 2]

[1]Research Institute of the University of Bucharest, Bucharest, Romania; [2]Department of Microbiology and Immunology, Faculty of Biology, University of Bucharest, Bucharest, Romania; [3]Department of Oncologic Dermatology- „Elias" Emergency University Hospital, „Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania, Bucharest, Romania; [4]Department of Physical and Rehabilitation Medicine- „Elias" Emergency University Hospital, „Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania, Bucharest, Romania

Aim: To report the case of a 49-year-old female patient diagnosed with systemic scleroderma, with healing of bilateral plantar ulcerations by the use of negative pressure therapy.

Methods: The anamnesis and clinical examination revealed chronic bilateral, intensely painful plantar ulcerations, with local signs of infection, progressing for 9 months, with a recent rapid extension in size and depth. The presence of Raynaud's phenomenon, sclerodactyly, and post-ulcerative digital cicatricial lesions on the hands, Mauskopf facies, positivity of anti-SCL70+ antibodies, and histopathological examination established the diagnosis of systemic scleroderma. Arterial and venous Doppler ultrasound examination of the lower limbs revealed femoral vascular axes stenosis and the presence of distal popliteal and interdigital flows. Wound bacteriological examination was positive for *Staphylococcus aureus* and *Streptococcus agalactiae*.

Results/ Discussion: Therapeutic management was complex by systemic treatment (antibiotics, alprostadil as vasodilator) and local therapy (surgical debridement, topical antiseptics, modern dressings, negative pressure wound therapy). The evolution was favorable with complete wound healing within 3 weeks.

Conclusion: Negative pressure therapy has proven to be beneficial in healing plantar chronic ulcers in a systemic sclerosis patient by: diminishing pain, removing the exudate, stimulating the development of granulation tissue, and maintaining a sterile optimal local environment throughout the whole healing process. There is little information in the scientific literature about the usefulness of negative pressure therapy in healing skin ulcers in patients with systemic scleroderma.

This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS/CCCDI – UEFISCDI, project number PN-III-P1-1.1-PD-2019-1225, within PNCDI III.

EP505 USE OF VAC VERAFLO THERAPY IN CHALLENGING PERIANAL WOUND

Irena Pukiova[1]

[1]Oxford University Hospitals, Tissue Viability , Oxford, United Kingdom

Aim: Enhanced debridement of infected tissue by utilizing VAC VeraFlo therapy.

Method: Case study.

Results / Discussion: The tissue damage was located from left iliac region via perineum, scrotum to right iliac region extending to right lumbar region. The wound base consisted of majority of devitalised tissue, mixture of slough, soft necrosis, and exposed testicle (Photo 1.). The decision was made to apply The VAC Veraflo cleanse choice therapy.

The wound was irrigated with 5L of normal saline with Iodine. The VAC Veraflo cleanse choice foams were cut in shape and applied to all areas. Prontosan solution was used to circulate through the dressing and irrigate the wounds.

Cavilon advanced skin protectant was utilised. VAC gel strips were applied to obtain a seal in perianal and groin areas. The testicle was wrapped in Jelonet dressing to protect the friable tissue, minimize trauma on removal and protect from bleeding. Therapy was set to soak time of 20 minutes with 150 mls of fluid, 8 hours of VAC therapy, 125mmHg, high intensity, continuous therapy.

Conclusion: VAC VeraFlo therapy is very effective in non-surgical debridement.

The dressing was changed after 4 days. Non-viable tissue significantly reduced in presence Photo 2. No obvious signs of bleeding or trauma were noted. The same dressing application was repeated for 28 days with improvements at each dressing change. Clean, granulation tissue was present after 4 weeks of treatment with VAC Veraflo therapy Photo 3.

After four weeks I had discussed with the plastics team the possibility of partial closure around anus to aid application and maintenance of the dressing to be able to maintain the seal.

EP506 MATRIDERM® DERMAL SUBSTITUTE IN THE RECONSTRUCTION OF A COMPLICATED EAR DEFECT

Perçin Karakol[1], Sabri Ozturk[1], Ali Aydin[1]

[1]Sisli Hamidiye Etfal Training and Research Hospital, University of Health Sciences, Plastic, Reconstructive and Aesthetic Surgery, Istanbul, Turkey

Aim: There are several methods for covering post-traumatic soft tissue defects, such as skin grafts or flaps. However, these options have some limitations, including a paucity of suitable adjacent tissue, and exposure of neurovascular, bony, or cartilage structures. Therefore, alternative dermal substitutes have been developed for soft-tissue defects. Matriderm® (Dr. Suwelack Skin and Health Care AG, Billerbeck, Germany), a single-layer dermal matrix, has been used often in burn treatment. This study aims to present the use of a dermal matrix in reconstructive surgery.

Method: A 39-year-old male presented to the emergency department with a complaint of total amputation of the right ear due to a dog bite. Surgical debridement and proper antibiotic therapy were administered. A two-stage ear reconstruction was then planned using a costal cartilage graft. After the first stage of ear reconstruction surgery, it was noticed that the skin flap on the cartilage prefabrication was thinner, there were detachments in the infected suture lines (Fig. 1). The infected wound was debrided. Afterwards, the exposed cartilage prefabrication, which excludes the perichondrium, was covered with a one-mm Matriderm® and a split-thickness skin graft in a single-step procedure. In addition, a vacuum device was applied.

Results / Discussion: The presented case had cartilage exposition, in which Matriderm® allowed the host cell to produce a fuller subdermal bed, over which the skin can epithelize. Complete healing of the skin graft was confirmed through outpatient follow-up at 4 weeks postoperatively.

Conclusion: The use of Matriderm® in combination with a skin graft in exposed structures is a simple, feasible method. Therefore, Matriderm® can be indicated in reconstructive surgery, where flap options are limited.

EP507 EARLY USE OF NEGATIVE PRESSURE WOUND THERAPY AND TOPICAL SOLUTION INSTILLATION IN COMPLEX WOUNDS OF PATIENTS WITH VASCULAR DISEASE

Jennifer Lindsay[1], Wendy Bowles[1]

[1]Royal Columbian Hospital, Vascular Surgery, New Westminster, Canada

Aim: For patients with vascular disease, early disease recognition and access to appropriate and timely treatment of complex wounds is critical for limb salvage and reducing healthcare utilization. We report our experience with immediate application of negative pressure wound therapy (NPWT) with instilled saline and a novel foam dressing with through holes in patients with compromised vascular integrity who presented with large complex wounds containing substantial areas of devitalized tissue and/or yellow fibrinous slough.

Method: Negative pressure wound therapy with instillation and dwelling (NPWTi-d) of saline was applied via a reticulated open-cell foam dressing with through holes (ROCF-CC) in three large complex wounds: a traumatic wound, surgical site wound infection, and diabetic foot ulcer. Two patients had history of vascular disease and one patient sustained a traumatic vascular injury. Conservative bedside sharp wound debridement was performed by nurses, and intravenous antibiotics were administered as appropriate. A pre-measured volume of topical normal saline was instilled every 3 hours with a 2-3 minute dwell time; dressings were changed 3 times/week. Therapy was switched to conventional NPWT when wound bed was covered with clean granulation tissue.

Results/Discussion: Average duration of NPWTi-d was 12.3 days. During use of NPWTi-d with ROCF-CC, thick exudate and slough were removed through the dressing. All wounds previously covered with devitalized tissue were converted to clean granulating wounds with subsequent closure and remodelling.

Conclusion: In these three complex wounds, adjunctive use of NPWTi-d with ROCF-CC facilitated detachment of slough and other infectious materials and promoted granulation tissue formation.

*3M™ Veraflo™ Therapy, St. Paul, MN

†3M™ V.A.C. Veraflo Cleanse Choice™ Dressing, St. Paul, MN

EP508 NECROTIZING VASCULITITS CAUSED BY LYMPHOMA WITH A LEUCEMIC COURSE

Dorothee Busch[1]

[1]*Hautklinik, Universitätsklinikum Erlangen, Erlangen, Germany*

Aim: Leg ulcers may have different causes and in some cases even rare differential diagnosis should be considered.

Method: We report the case of an 80-year-old female patient who was hospitalized with vasculitis in our dermatology ward. Due to a necrotizing course of the vasculitis, several leg ulcers developed on both sides.

Results / Discussion: With very slow response to treatment, further examinations were performed. Blood count changes were very conspicuous. A leukemic lymphoma was diagnosed and further treated in our hemato-oncological clinic. With treatment of the underlying disease, there was a continuous improvement in the condition of the wounds.

Conclusion: Leg ulcers caused by underlying systemic diseases may require extensive and systemic treatment to be able to heal.

EP509 A CASE OF DIABETIC FOOT: PRESERVING A LIMB, PRESERVING QUALITY OF LIFE

Filipa Meruje[1], Sara Correia[1], Pedro Barata[1], Rita Monteiro[1], Joana Peliteiro[1], Moutinho Teixeira[1], Tatiana Neves[1], Aida Paulino[1]

[1]*Hospital Amato Lusitano, Serviço de Cirurgia Geral, Castelo Branco, Portugal*

Aim: The diabetic foot is a burden on a patient's life. The balance between preserving a limb, the patient's life, and their quality of life is often fickle. We report on a case of conservative surgical treatment.

Method: We present a male patient, 59 years-old, admitted for an infected diabetic foot, with multiple comorbidities. Previously amputated: all toes on the left foot and three on the right.

Results / Discussion: The patient presented with fever, pain, two abcesses on the left foot, and two pressure ulcers on the right. We drained and explored the wounds, and started the patient on intravenous antibiotics. Offloading the right foot and wound care allowed for closure of the pressure ulcers. However, despite wound care and culture-directed antibiotic therapy, after fourteen days the patient's condition worsened, there was still abundant purulent drainage, and new complaints of pain on the left leg. A large abcess of the posterior compartment of the leg was found and surgically drained with both passive and active drains being left in place, allowing for instillation of povidone-iodine. The latter was used for eight days, after which passive drainage was kept for four more days. The patient was discharged after thirty-five days, thirty-one of which on antibiotics. Follow-up as an outpatient continues, he remains ambulatory and autonomous.

Conclusion: A surgical approach is often necessary when treating the diabetic foot. Limb-sparing treatment should be sought whenever there are greater gains in quality of life, especially when it concerns a patient's autonomy.

EP510 INTACT FISH SKIN GRAFT BY KERECIS A NEW HOPE FOR DEEP WOUNDS IN PATIENTS LIVING WITH DIABETES

Dured Dardari[1], Hilmar Kjartansson[2], Ragna Arsaelsdottir[2], Craig Fraser[2], Baldur Tumi Baldursson[2]

[1]*Hospital Center Sud Francilien, Corbeil-Essonnes, France;* [2]*Kerecis, Reykjavik, Iceland*

Aim: Patients with diabetic foot ulcer (DFU) end up with an impaired quality of life, and the medical care of patients with DFU consumes a considerable clinical and economic burden (hospitalisations, amputations, patients' follow-up, transportation, and lost workdays). 80% of amputations in patients with diabetes are preceded by the presence of a DFU; the longer the duration of DFU the higher the risk of amputation.

Method: A 34-year-old patient living with diabetes since the age of 9 consulted our clinic for the management of an extensive wound on the whole of the plantar arch of his left foot. He did not present with diabetic arteriopathy, but an infectious and inflammatory syndrome confirmed by hyperleukocytosis and a level of reactive protein C at 180 mg/dl. Surgical management and negative pressure therapy did not yield any positive results. After 1 month from the onset of the wound, the lesion was spread over the entire dorsal side of the foot with the appearance of the entire foot tendon through the lesion. Transtibial amputation was proposed as a last resort in case of stagnation of the lesion. However, the patient was treated with an intact fish skin graft once weekly by a home nurse with telemedical monitoring of the lesion's appearance.

Results / Discussion: After 1 month of using intact fish skin graft, a clear improvement in the appearance of the lesion was found. After 16 weeks, the wound showed complete epithelialisation and was declared healed.

Conclusion: The use of intact fish skin graft by Kerecis in DFUs represents a new hope for complicated wounds and in some cases can avoid amputation.

EP511 NEGATIVE PRESSURE WOUND THERAPY (NPWT) - AN ADDITIONAL EFFECTIVE THERAPEUTIC APPROACH IN THE TREATMENT OF ATYPICAL CHRONIC WOUNDS

Marijana Vicic[1], Domagoj Cuzic[2], Marija Kastelan[1], Ines Brajac[1], Larisa Prpic Massari[1]

[1]Clinical Hospital Center Rijeka and Medical Faculty, University of Rijeka, Department of Dermatovenereology, Rijeka, Croatia; *[2]Clinical Hospital Center Rijeka, Department of Dermatovenereology*

Aim: Multiple sclerosis (MS) is the commonest demyelinating disease of the central nervous system. Interferon beta (IFN β) is the most frequently prescribed drug to treat MS. A possible side effect of its administration is vasculitis, which leads to the formation of atypical chronic wounds notorious for slow healing. Negative pressure wound therapy (NPWT) is a treatment modality which uses negative pressure to help tissue healing. The use of NPWT has been recently significantly facilitated by the development of disposable and portable systems.

Method: Case report.

Results / Discussion: We present a 38-year-old woman with multiple necrotic ulcerations on her upper legs, upper arms and lower part of the abdomen. She was diagnosed with relapsing-remitting MS six months ago, after which she started subcutaneous self-injections of IFN β. One month later, the redness, which gradually turned into necrosis, appeared at the drug application sites. Skin biopsy and direct immunofluorescence confirmed vasculitis. The patient was introduced to systemic corticosteroid, gel for autolytic debridement and polyurethane foam, but a partial wound improvement occurred. So, we decided on an additional NPWT/ Hydrofiber technology pump. Two months after the first examination, the condition of all wounds significantly improved, and all ulcers completely healed.

Conclusion: MS is a chronic inflammatory disease that requires immunomodulatory therapy. The formation of cutaneous vasculitis and necrotic ulcerations after IFN β subcutaneous administration has been described. The treatment of vasculitis ulcers is complex. The atypical ulcerations that occurred in an MS patient after the IFN β application were successfully treated with systemic corticosteroids and NPWT application, which proved to be a practical, safe and effective treatment for hard-to-heal ulcers.

EP512 PREVENTION OF COMPLICATIONS OF TREATING FOOT GUNSHOT WOUNDS USING NEGATIVE PRESSURE WOUND THERAPY

Ante Bandalović[1], Marin Marinovic[2], Davor Primc[3], Endi Radović[4], Tanja Batinac[5], Ana Marija Marinović[6]

[1]University Hospital Center Split, Surgery Department, Orthopaedics and Traumatology Division, Split, Croatia; *[2]CHC Rijeka, Traumatology, Rijeka, Croatia*; *[3]Josip Juraj Strossmayer, University of Osijek, Faculty of Medicine, Vascular Surgery, Osijek, Croatia*; *[4]Special hospital Thalassotherapia, Crikvenica, Croatia*; *[5]Faculty of Medical Sciences, University of Rijeka, Rijeka, Croatia*; *[6]University of Split, University Department of Forensic Sciences, Split, Croatia*

Aim: Gunshot wounds caused by firearms are not common in surgical practice. Due to a high energy transfer on a relatively small skin surface, there is extensive trauma to the bone and surrounding soft tissue structures, with microorganism contamination that is usually followed by destructive infection. Foot injuries of such etiology represent an especial challenge to the surgeon due to anatomical and biomechanical specificity of the foot.

Method: Negative pressure wound therapy (NPWT) aids the healing process via its direct and indirect influence and prepares for definitive surgical management. Through the usage of NPWT we wanted to prevent infection development and further tissue necrosis and to avoid consequential amputation. By preparing the wound for closure with a skin transplant we planned to avoid the need for complicated surgical treatment by transfer of connected or free musculocutaneous flap

Results / Discussion: We present a patient with a gunshot wound of the dorsolateral side of the left foot with a consequent cutaneous and subcutaneous tissue defect and a lesion of the underlying tendons and fractured metatarsal bones. We primarily conducted a surgical debridement followed by the application of NPWT. After optimizing the local status and ensuring optimal closure conditions, we transplanted a partial skin thickness graft. After six months of treatment the patient went back to work and reported a painless, orthopedic accessory free, walk and the wound healed completely.

Conclusion: Treatment of the presented high energy gunshot wound patient with the usage of NPWT along with active surgical treatment resulted in a good functional and esthetic outcome.

EP513 THE EFFECTIVENESS OF ACELLULAR FISH SKIN GRAFT FOR THE MANAGEMENT OF CHRONIC WOUNDS

Kyung Ah Lee[1]

[1]*Inje University Haeundae Paik Hospital, Department of Plastic and Reconstructive Surgery, Busan, Korea, Rep. of South*

Aim: A chronic wound is defined as non-healing wounds after four weeks of conventional treatment. Another therapeutic approach should be considered when wound healing is delayed using conventional dressing. Here, we introduce our experience of wound healing using newer dressing material, acellular fish-skin derived dressing, Kerecis®.

Method: Between February 2019 and July 2019, we treated two patients with chronic wounds by Kerecis® (Table 1). Patient 2 had treated with a foam dressing. However, the wound did not heal after four weeks of conventional treatment (Fig.1). Because the patient did not prefer surgical intervention, the dressing material was changed to Kerecis® (Fig.2). We applied Kerecis® to wound and changed every week. Devitalized tissue was debrided when changing the Kerecis®. Foam dressing was applied as a secondary dressing and changed every two or three days.

Results / Discussion: The wounds were healed completely in 6 weeks (patient 2) and 10 weeks (patient 1) without complications such as infection or inflammation (Fig.3). The treatment of chronic wounds requires a moist environment and antimicrobial protection. Kerecis® is a fish-derived, protein-based, acellular dermal graft. Omega-3 contained in dressing acts as a bacterial barrier and reduces inflammation and it also helps moisten the wound. Changing Kerecis® could be done in outpatient settings. Compared to surgical options, Kerecis® could reduce cost and hospitalization and donor site morbidity.

Conclusion: Therefore, secondary wound closure using Kerecis® could be considered as an effective and economical option for the management of chronic wounds.

Table 1. Patients information

Patient no.	Age/ Sex	Cause of wound	Site	Comorbidity	Previous treatment	Time to healing
1	58/ M	Pressure injury	Heel	Rectal cancer	Foam dressing	10 weeks
2	34/ M	Flap necrosis following primary repair	Calf	(-)	Foam dressing	6 weeks

Figure 1. The photograph was taken at the initial visit (Patient 2). Repaired avulsion injury wound was necrotic on the right calf.

Figure 2.

Figure 3

EP514 CASE REPORT TREATMENT OF FOURNIER´S GANGRENE WITH NEGATIVE PRESSURE WOUND THERAPY

Amanda C.M.A.G. Brandão[1], Maria Emília Gaspar Ferreira Del Cistia[1], Danivea Bongiovanni Poltronieri Munhoz[1]

[1]*Hospital Israelita Albert Einstein, Intensive Care Unit, Brazil*

Aim: The objective of this study was to describe the experience of using negative pressure wound therapy (NPWT) in the treatment of Fournier´s gangrene.

Method: A descriptive study, a case report, performed in a private hospital in the city of São Paulo. After the patient's consent, the evaluations were performed through clinical observations and photographic records.

Results / Discussion: Patient C.P., 59 years old, male. Admitted to the hospital with lowered level of consciousness due to the use of benzodiazepines. Difficulty in passing a delayed urinary catheter, performing a cystostomy. Developed cellulitis in the perineal region and necrosis in part of the foreskin, diagnosed as Fournier's gangrene. Identified necrosis of 6 cm of the urethra. On 02/17/2020, surgical debridement of the perineal wound was performed and the 1st NPWT was installed, using white foam associated with silver foam involving the entire penile and perianal region, using pressure of -125 mmHg. On March 8th, burial of the penis and pubic feather flap was carried out. After 6 months, the patient was readmitted for release and penile exposure, repositioning of the testicles in the scrotum and partial skin grafting on the penile body (donor area of the right thigh). Dressing with rayon, gauze and koban was performed. Hospital discharge on October 2, 2020.

Conclusion: The use of NPWT as an adjuvant in the treatment of Fournier's gangrene proved to be effective in obtaining wound contraction, odor reduction, edema reduction, granulation tissue formation with improved blood supply. There was a decrease in the length of hospital stay and a more effective healing process, in addition to a simpler surgical resolution with minimal morbidity.

EP515 MANAGEMENT OF MARJULIN'S ULCER IN SCARCE-RESOURCE SETTING DURING THE COVID-19 PANDEMIC

Eulogio Coz[1], Irene Mendoza[1]

[1]*Manila East Medical Center, Head of Wound Management and Healing Section, Taytay, Philippines*

Aim: To present a case management of a rare, large Marjolin's ulcer in a far from ideal setting on 68 year old gentleman who was advised, but refused, to undergo above knee amputation

Method: Excision as wide and as feasible as possible. Adjuvant topical 5FU postoperatively combined with standard wound care. After wound bed preparation, a split thickness skin grafting was done. An improvised very low cost NPWT was used on the excision site. Wound was opened five days later.

Results / Discussion: Basal Margin, as anticipated, was positive for tumor. Wound bed preparation with the method described was very successful and a repeat biopsy was deemed unnecessary prior to skin grafting Skin graft take was more than 90%. Patient was followed up frequently post op until skin graft was fully stable. Two-year follow-up showed no recurrence of any ulcer and patient is able to live normally.

Prior to excision

After excision

After wound bed prep (before skin grafting)

After skin grafting (with improvised NPWT)

After 1 year and 9 months

Present

Conclusion: Where the only next option is a major amputation, a less radical excision of large Marjolin's ulcer combined with adjuvant topical 5FU and appropriate wound management may prove successful. It is a rare malignancy with no established treatment protocol and trying scientifically logical methods may save both life and limb.

EP516 CASE REPORT: SUCCESSFUL TREATMENT OF PSEUDOMONAS INFECTED LEG WOUND WITH ACETIC ACID COMPRESSIONS AND SKIN GRAFTING

Emma-Lotta Kiukas[1]

[1]*Etelä-Karjalan Keskussairaala, Lappeenranta, Finland*

Aim: The aim of this case report is to present successful treatment of complicated leg wound with pseudomonas infection by using acetic acid compressions and skin grafting.

Method: The patient is a 67 years old female with history of mucinous T1cN0 breast carcinoma, treated with mastectomy and five year exemestane, difficult scoliosis, bilateral knee prostheses, primary hyperparathyreosis, chronical esophagitis, duodenal stricture and postoperative status of gastrojejunostomy. She had a long history of bilateral edema in her legs and bilateral venous procedures. She had deep vein thrombosis at the end of 2018 and rivaroxaban was started as thrombosis profylaxis. The patient had erysipelas infection on January 2019 and since then she has had a complicated ulcer in her right leg. Also edema in her both legs has been challenging to treat despite proper use of compression garments. The wound problem started from two small wounds just 5mm diameter each but increased to cover 2TBSA% in her right leg. The base of the wound was red with yellow purulent secretion and the edges were round (Fig. 1a). Altogether five revisions and skin grafting attempts were made: first skin graft was infected and lost by acinetobacterium, next three were colonized by pseudomonas. In all of those four attempts the wound bed was cleaned by scoop and the skin graft was covered by Vaseline patches and NaCl compresses. The fifth revision was made as a fascial excision and a silver product (Acticoat Flex) was used to cover the skin graft. Unfortunately also this attempt failed and the skin graft was lost two weeks postoperatively and staph. epidermidis and coryneo bacterium grew in cell culture. Antibiotics were given every time based on previous findings in the culture. No further surgical procedures were planned because of poor results from previous operations.

Results / Discussion: The patient ended up to ER ten months after the last skin grafting attempt. Her CRP was 265, she was hemodynamically table and didn't have fever. Her wound in the right leg looked worse than ever (Fig. 1b.). The wound was badly colonized by pseudomonas. I ended up trying to use acetic acid-aqua compressions with daily change, repetitive surgical revisions (altogether three), three rounds of NPWT with silver foam and acetic acid rinsing during the NPWT changes and finally covering the defect with 1:1 meshed skin graft. The skin graft was covered with Vaseline patch and 2,5% acetic acid compression. The dressings were changed daily from POD 1. On POD 6 the skin graft was adhered perfectly (Fig. 2b) and daily changes of acetic acid aqua compressions were continued as long as the skin was perfectly healed. The patient was discharged to her home after 5 weeks rehabilitation and mobilization and the skin in the leg was in excellent condition (Fig. 2c.).

Conclusion: Pseudomonas aeruginosa (PA) is a common opportunistic pathogen in chronic wounds and there is increasing resistance to antimicrobic agents.[1] PA is unfavorable for skin grafting and predicts poor outcome.[2] Because systemic use of antibiotics does not prevent the wound bed from colonizing with PA, there's need for topical agents to enable skin grafting and wound healing. Acetic acid has been used already by Hippocrates[3] but has been slightly forgotten nowadays. The effect of acetic acid is based on lowering the pH of the wound and it's effective for large variety of bacteria and fungus.[4] It is inexpensive and nontoxic.[5] Reverse side is that using acetic acid requires daily dressing changes and can cause pain. For this patient acetic acid was a total game changer and this case reminds that acetic acid can be competitive alternative for treating complex pseudomonas colonized wounds.

References:

1. Tam VH, Chang KT, Abdelraouf K, Brioso CG, Ameka M, McCaskey LA, Weston JS, Caeiro JP, Garey KW. Prevalence, resistance mechanisms, and susceptibility of multidrug-resistant bloodstream isolates of Pseudomonas aeruginosa. Antimicrob Agents Chemother. 2010 Mar;54(3):1160-4.
2. Aerden D, Bosmans I, Vanmierlo B, Spinnael J, Keymeule B, Van den Brande P. Skin grafting the contaminated wound bed: reassessing the role of the preoperative swab. J Wound Care. 2013 Feb;22(2):85-9.
3. Nour S, Reid G, Sathanantham K, Mackie I. Acetic acid dressings used to treat pseudomonas colonised burn wounds: A UK national survey. Burns. 2022 Sep;48(6):1364-1367.
4. Agrawal KS, Sarda AV, Shrotriya R, Bachhav M, Puri V, Nataraj G. Acetic acid dressings: Finding the Holy Grail for infected wound management. Indian J Plast Surg. 2017 Sep-Dec;50(3):273-280.
5. Nagoba BS, Selkar SP, Wadher BJ, Gandhi RC. Acetic acid treatment of pseudomonal wound infections--a review. J Infect Public Health. 2013 Dec;6(6):410-5.

Figure 1 a. Wound in the beginning and b. situation as its worst

Fig. 1a

Fig. 1b

Figure 2a-c:
Fig. 2a after 3 revision surgeries, daily acetic acid dressing changes and 1 week NPWT, 2b. POD 6 after 1:1 TCL and 2c. Final outcome 5 weeks post operatively after TCL

2a.

2b.

2c.

EP517 EFFICACY OF HIGHLY COHESIVE POLY-ABSORBENT FIBERS IN CAVITY LESIONS

Giorgia Pavan[1], Sara Mirisola[1], Eleonora Ferri[1], Corrado Giunta[1]

[1]*Vita Serena Srl, Legnano, Italy*

Aim: We present one patient of 93 years old, with arthrosis, hypertension and fracture of the right femour, due to an accidental fall, which forced her to a two-month hospitalization, bedridden. For this reason, she came home with one pressure sore on the right heel (III degree) and a trauma+c injuries on the right calf. Our treatment schedule includes, in the first phase of treatment, three +mes a week visits. Starter Pain scale NRS=4.

Method: The wound dressing was changed 3 times a week by: Cleaning with physiological solution, and then applied a pad of polyacrylate poly-absorbent fibers, and a low-adherence bandage from the popliteal fossa to the toes. The fibrinous wound bed proves very difficult to dissolve so we decided to change the dressing with highly cohesive poly-absorbent fibers rope.

Results: The lesion decreased, the fibrin has reduced. There is no edema and the patient doesn't complain pain (NRS=0).

Conclusion: We observed that in the case of cavitary lesions, with a fibrinous wound bed, we have a better result with highly cohesive poly-absorbent fibers in cavity lesions compared to the polyacrylate poly-absorbent fibers pad. Also, we analyzed the importance of patient compliance with bandage and dressing management as well as injury prevention education, these are essential for wound healing.

EP518 CLINICAL APPLICATION OF BIOACTIVE GLASS IN A DIABETIC FOOT BONE INFECTION

Maria Stella Aliquo[1], Luigi Favuzza[1], Anna Maria Serio[1], Grazia Sabatino[1], Salvatore Corrao[1], Salvatore Mularo[1]

[1]*A.R.N.A.S. Ospedali Civico Di Cristina Benfratelli, Palermo, Italy*

Aim: Osteomyelitis is one of the most challenging disorders complicating Diabetic foot ulcers. Despite long antibiotic therapies, the patient must be subjected to amputation due to therapeutic failure. Diabetic foot infections involve the bone in 20-66%. Antimicrobial Resistance is one of the biggest challenges and the treatment of osteomyelitis in the diabetic foot is debated. It is medical or surgical therapy appropriate? Medical treatment can cause chronicity or recurrence of osteomyelitis, greater side effects and the emergence of germs resistant to antibiotics. Surgical treatment can destabilize the foot. In fact, a partial amputation can cause changes in the biomechanics of the foot and thus predispose to re-ulcerations, new ulcerations in different sites or to Charcot foot in patients with diabetic neuropathy.

Methods: We describe the case of a 54-year-old diabetic patient suffering from a dorsal ulcer of the 4th toe of the right foot, and osteomyelitis treated for over a year with antibiotic therapy. Osteolytic alteration affecting the middle proximal phalanges of the fourth finger. We made a dorsal incision, removed the infected bones and applied instead S53P4 Bioactive glass*.

Results: It is a material in granules composed exclusively of elements present in the human body, used for filling bone cavities. The granules naturally inhibit bacterial growth, significantly reducing the need to administer antibiotics. The patient recovered in one month and there were no recurrences at the six-monthly checkup.

Conclusion: S53P4 Bioactive glass* could be a new treatment opportunity for diabetic foot patients. It may represent a valid therapeutic opportunity in supporting Antibiotic therapy, reducing at same time, duration of Hospitalization and sanitary costs.

*BonAlive ®



EP519 COLD PLASMA AS A NEW CONCEPT IN THE TREATMENT OF EPIDERMOLYSIS BULLOSA DYSTROPHICA HALLOPEAU-SIEMENS

Georg Daeschlein[1], Eva-Luisa Feige[2]

[1]MHB Brandenburg, Oo; [2]Städtisches Klinikum Dessau, Germany

Aim: Epidermolysis bullosa dystrophica Hallopeau-Siemens (EBDHS) is a not curable chronic skin disease characterized by blisters, painful erosions and wounds strongly hampering quality of life. As cold plasma (CAP) showed good results in chronic ulcer wounds we tried CAP to support wound healing in a patient with EBDHS.

Method: A 35years old female EBDHS patient presented with generalized wounds and erosions and scarring mutilations, esophagitis and loss of nails. We experienced CAP therapy of wounds using three different CAP sources consecutively treating with a plasma torch and two dielectric discharge plasma sources one with glass electrode, the other with flexible electrode. Every lesion was treated three times a day over 3 min, the efficacy documented daily differentiating scaled pain, redness, secretion and wound size. Control lesions were treated by conventional topic wound management.

Results / Discussion: All CAP treatments were well tolerated and significantly reduced pain, erythema and wound secretions finally supporting wound healing. First pain relief occurred some hours after treatment, wound closure after at least 3 treatment days in contrast to only conventionally treated lesions. CAP efficacy and treatment expenditure depended on the size of the used electrode.

Conclusion: 35 years of patient´s history revealed no significant help treating wounds and pain leading to severe distress and mutilations. CAP presents as first treatment promoting wound healing in patients with EBDHS significantly improving quality of life. CAP has to be applied daily with several treatments of lesions favoring devices with large electrodes.

EP520 EXTENSIVE DEFECTS DUE TO CLOSTRIDIUM SEPTICUM INFECTION AFTER LIPOSUCTION

Alica Hokynkova[1 2], Petr Sin[1 2], Pavel Brychta[1 2], Zuzana Jelínková[1 2], Ivo Rovný[3], Michal Šenkyřík[4], Petr Suk[5]

[1]University Hospital Brno, Department of Burns and Plastic Surgery, Brno-Bohunice, Czech Republic; [2]Faculty of Medicine Masaryk University, Brno, Czech Republic; [3]University Hospital Brno, Department of Surgery, Brno-Bohunice, Czech Republic; [4]University Hospital Brno, Department of Internal Medicine and Gastroenterology, Brno-Bohunice, Czech Republic; [5]University Hospital Brno, Department of Anaesthesiology, Resuscitation and Intensive Care, Brno-Bohunice, Czech Republic

Aim: The aim is to describe extremely rare, life-threatening complication after liposuction - the necrotizing infection of the skin and subcutaneous tissues caused by *Clostridium septicum*. In contrast to other species, *Clostridium septicum* can cause gas gangrene without trauma and it can spread by blood stream from the gastrointestinal tract.

Method: A case report of 43-years old woman is presented. The patient underwent tumescent liposuction of the abdomen *extra muros*. First signs of the necrotizing infection appeared within 24 hours after the liposuction. The patient was first hospitalized in another hospital, where incisions, contra-incisions and drainage of the skin were performed. At the 15th day after liposuction, the patient was admitted to the University Hospital Brno with extensively dry dark-colour skin necrosis in the abdominal, genital and femoral areas in 8 % of TBSA (Total Body Surface Area) accompanied by multiorgan failure.

Results / Discussion: Key step in the surgical treatment was removal of all avital tissues and temporary application of dermoepidermal allografts. Due to extremely high inflammation markers, diagnostic laparoscopy with intraabdominal revision was performed. It revealed stenotic and inflammatory part of terminal ileum in the length of 30 cm. Histopathological examination supported the diagnosis of Inflammatory Bowel Disease. After sepsis subsided, phased skin grafting of all defects was performed and all wounds were healed up.

Conclusion: Liposuction is one of the most popular procedures of aesthetic medicine with relatively small risk of postoperative complications. Severe infection complication(s) can occur rarely but can turn-out life-threatening. In such case, urgent wound debridement and multidisciplinary approach is necessary.

EP521 THE EFFECT OF MULTIDISCIPLINARY WORK ON THE MANAGEMENT OF COMPLEX HEALTH PROBLEMS: HEALING OF DIFFICULT VULVO-PERINEAL INJURY

Daniela Fanfani[1]

[1]*Ospedale Santa Aaria Annunziata, USL Toscana Centro / SOS Firenze Sud Est, Bagno A Ripoli – Firenze, Italy*

Aim: This case report underlines the importance of networking among different health disciplines in solving particularly disabling patient's problems. This is the case of a 38-year-old woman, suffering from Chron's Disease and from hidradenitis suppurativa. After an ileostomy packaging associated with remediation of purulent fistulae in the vulvo-perineal area, the patient presented an extensive lesion in this area (75cm2, 5cm depth) and lesion on the left thigh (25cm2, 1cm depth), with irregular bottom, hypergranulation and adhesive fibrin. This complex situation led the patient's GP to refer her to the ostomy clinic and to the difficult wound clinic, both nurse-led hospital-based services.

Method: An interactive dressing consisting of an oxygen-enriched oleic matrix (primary dressing), a calcium alginate tablet (secondary dressing) and fixation plaster to be renewed every second day was used. The mechanical cleansing of the wound followed painkillers' administration. The consultations among the ostomy and wound care nurses, as well as the community nurses, allowed a timely and effective management of a complex situation.

Results: Dressing changes were atraumatic, with no evidence of discomfort for the patient. After 3 weeks a marked reduction of the vulvo-perineal lesion and the thigh lesion healing showed.

Conclusion: The highly complex situation had to do not only with the injury, but also with the effects on the patient's social and working life. The choice of dressing provided encouraging results in terms of healing, pain control and comfort.

EP522 THE USE OF A MEDICATION OF GELLING FIBRES IN THE MANAGEMENT OF EXUDATES

Stiubei Nela[1]

[1]*Wound Care Clinic, Wound Care, Alba Iulia, Romania*

Aim: The management of the exudate represents an important moment in wound bed preparation, there must be a moist environment to favour the healing, preserving in the meantime the perilesional skin from maceration.

Method: Two patients were recruited, both over 70 years of age, of both sexes, with not riepitelized wounds with exudates.

One patient (Patient 1) had outcomes of cerebral vascular disease, venous insufficiency, diabetes mellitus with an extensive wound at the right lower limb.

The second patient (Patient 2) had high comorbidities, among which diabetes mellitus, with a sacral lesion and the exposure of the coccyx bone.

It was kept in place for 72-96h, with a good management of the exudate even under bandage without maceration or trauma of the wound bed and the perilesional skin.

Results / Discussion:

- Removal of the medication in one piece
- Avoids spills of exudates
- Reduces the risks of maceration
- Captures fluids
- Saves time for operators and has a high comfort for the patient.

Conclusion: Is confirmed that the product taken in exam responds to directions for which it has been proposed and it opens an interesting perspective in the chapter, always in evolution, of exudate management in wounds.

EP523 THE DERMAL MATRIX AS A DEFINITIVE REGENERATIVE THERAPY IN THE TREATMENT OF ULCERS RUTHERFOTD 6: CASE REPORT

Andrea Ascoli Marchetti[1], Nella Mosca[2], Fabio Massimo Oddi[1]

[1]Università di Roma Tor Vergata, Biomedicina e Prevenzione; [2]Policlinico Tor Vergata, Roma, Italy

Purpose: The use of the regenerative dermal matrix consists in the bridge between the debridement and the coverage of the lesion by means of a skin graft. We describe our experience where healing was achieved without further wound coverage in a patient in whom leg amputation was indicated.

Methods: 89-year-old patient arriving in ED with a critical ischemic picture of the left lower limb Rutherford 6 with nutritional status MNA score <17. History of arterial hypertension. Weight 50 kg Height 1.60 cm. Undergoing CT angiography, revascularization was indicated with transformation of wet gangrene into dry gangrene, but with ample loss of substance of the forefoot for which the treating physician indicated leg amputation. After collective evaluation, an attempt was made to rescue the limb and she underwent necrosectomy surgery, amputation of the 2nd and 2nd toe, coverage with regenerative dermal matrix of the forefoot. After the intervention, the patient was taken in charge during the hospitalization in nursing consultancy for the outpatient continuum of care. In treatment with Clavulanic acid *Amoxicillin 1grx2 x os Wound specialist nurse (WSN) treatment. Due to an accidental fall, the patient was admitted to another facility where the local treatment continued.

Results: Almost complete healing of the lesion after less than a year, despite the interruption due to hospitalization in another facility.

Conclusions: Ulcer healing and limb salvage were achieved even though the lesion was not definitively covered thanks to advanced dressings and the regenerative capacity of the dermal matrix.

EP524 FLUORESCENCE-BASED EVALUATION OF BACTERIAL LOAD IN CHRONIC WOUNDS AND PERILESIONAL SKIN: A COMPARISON BETWEEN COMPRESSIVE MULTILAYER BANDAGE AND ZINC OXIDE BANDAGE

Alessandra Michelucci[1], Flavia Manzo Margiotta[1], Giorgia Salvia[1], Giammarco Granieri[1], Cristian Fidanzi[1], Matteo Bevilacqua[1], Agata Janowska[1], Marco Romanelli[1]

[1]University of Pisa, Dermatology, Pisa, Italy

Aim: A novel fluorescence imaging device has recently allowed real-time detection of bacteria in different types of wounds through endogenous autofluorescence. The fluorescence signals detected by the device provide health workers with a visual indication of the presence, load and distribution of bacteria. The aim of our study was to evaluate the level of bacterial colonization in venous leg ulcers and perilesional skin of patients treated with two different types of bandages: compressive multilayer bandage and zinc oxide bandage.

Method: We enrolled 14 patients with venous insufficiency, divided in two groups: group A was treated with compressive multilayer bandage and group B with zinc oxide bandage. We evaluated patients 2 times a week for 3 weeks using a fluorescent device able to detect potentially harmful bacteria in wound bed and perilesional skin. Evaluations were performed in a quali-quantitative way by two experienced operators on the frames taken at individual injuries.

Results / Discussion: We observed a reduction in the bacterial colonization levels of the wound bed and perilesional skin by 67% and 57.15% for group A and 71.16% and 61.54% for group B. We obtained a reduction in Numerical Rating Scale (NRS) for pain of 65% and 67% for group A and group B, respectively.

Conclusion: Our study demonstrates that the application of zinc oxide bandage provides a higher reduction in bacterial load in the wound bed and perilesional skin. On the other hand, we found no difference between the two bandages in terms of pain symptom reduction.

EP525 HIDRADENITIS SUPPURATIVA POST SURGICAL LESIONS TREATED WITH A NEW ULTRAPORTABLE NEGATIVE PRESSURE WOUND THERAPY: A CASE REPORT

Flavia Manzo Margiotta[1], Alessandra Michelucci[1], Giorgia Salvia[1], Giammarco Granieri[1], Agata Janowska[1], Marco Romanelli[1]

[1]*University of Pisa, Dermatology, Pisa, Italy*

Aim: Hidradenitis suppurativa (HS) is a chronic inflammatory disease that often requires a surgical approach with secondary intention closure. The aim of our case report was to explore the clinical improvement obtainable through the use of a new ultra-portable NPWT device in the post-surgical management of HS lesions.

Method: A 23-year-old male patient affected by axillary and intergluteal HS with Hurley IIC was admitted at our clinic in August 2022. The presence of a scarring area with a fistula in the right axilla was assessed, for which surgery was scheduled in October 2022. After the wide local excision, closure by secondary intention was planned and application of a silver hydrofiber and a thin polyurethane foam was performed twice a week. Due to the slow progression of wound healing, an ultraportable NPWT was applied at T28 and it was changed at T30, T34 and T38. At each visit, the wound was evaluated in terms of area, perimeter, depth, Wound Bed Score (WBS) and Numerical Rating Scale (NRS) for pain quantification.

Results / Discussion: NPWT resulted in higher WBS improvement compared to advanced dressings (ΔWBS 6 vs ΔWBS 2). Furthermore, it determined a greater reduction of area (ΔArea 4 vs ΔArea 5), perimeter (Δperimeter 18 mm vs Δperimeter 14mm) and maximum depth (Δdepth 2mm vs Δdepth 0mm) as well as a better improvement of NRS pain (ΔNRS 4 vs ΔNRS 3).

Conclusion: Ultra-portable NPWT represents a highly effective therapeutic strategy in the management of post-surgical HS wounds, allowing a fast improvement in terms of wound size and pain reduction, resulting in an overall gain of quality of life.

EP526 NETIC LESION IN LOWER LIMB DUE TO EXTRAVASATION OF MEDICATION IN PEDIATRIC PATIENT. CLINICAL CASE

Marianna Sansberro[1]

[1]*Hospital Pereira Rossell, Montevideo, Uruguay*

Aim: To achieve through healing in a humid environment the closure of necrotic lesion in the right lower limb.

Method: Patient with necrotic lesion due to extravasation of medication, admitted for leg amputation.

3-year-old girl, trisomy 21, thyroid hypo, chronic malnutrition. Admitted for septic shock, Foms (respiratory, caridovascular, hematological and renal). Resuscitated cardiorespiratory arrest.

Discharge from intensive care, to continue treatment. Reactive, does not speak, with little mobilization. Presenting in the right lower limb necrotic ulcerated lesion in 100% of the entire anterior aspect of the leg.

Treatment: it begins with a treatment of washes with serum and application in the lesion of collagenase dressing with chlorafenicol, plus hydrogel, with vaselinated gauze coverage and covered with gauze. Edges application of cream with zinc oxide and rest of the perilesional skin with essential fatty acids. Debridement with a scalpel was performed. Until the evolution to 100% granulation fabric continuing with hydrogel and coverage of vassine gauze and nylon and equal treatment of edges and perilesional skin. Working the scar with cream with hyaluronic acid. Together, we worked on rehabilitation in the mobilization.

Results / Discussion: The definitive closure of the lesion was achieved in 3 months. Leaving minimal scarring.

Conclusion: In the treatment of necrotic lesions due to extravasation of medication nothing is definitive to propose the amputation of a limb, being of importance the application of advanced cure in humid environment and teamwork, thus leading to the total recovery of a pediatric patient without loss of a limb.

EP527 CHEMICAL DEBRIDMENT IN NON-HEALING CHRONIC WOUNDS, A CASE SERIES

S.F. Amesz[1], Cora Slappendel[2]

[1]Deventer Hospital, Wound Expertise Centre, Deventer, Netherlands; [2]Groene Hart Hospital, Wound Expertise centre, Gouda, Netherlands

Aim: A biofilm is a dynamic collection of bacteria and fungi in a protective, self-produced matrix of sugars and proteins. Biofilms can be found anywhere, therefore also in (chronic) wounds.

Research has shown that biofilm is present in 60% of chronic wounds. However, a biofilm cannot be seen with the naked eye.

The presence of a biofilm has been shown to interfere with the normal healing process.

Therefore, it is necessary to remove the biofilm, for example by debridement. There are different methods of debridement, the method in these case series is a chemical debridement by an acidic gel. This gel withdraws water-molecules from the biofilm causing destruction of the biofilm.

Method: Ten patients have undergone the treatment with the acidic gel and underwent a sharp debridement every week in the treatment before the use of the gel. The progression has been reviewed on ease of application, pain, improvement of the wounds by getting smaller or less debris. The wounds were measured and documented by a camera 2.

Eight patients underwent the treatment in the hospital and two patients at their own home.

Results / Discussion: The wounds of nine patients had improved after one week, the wounds became smaller or contained les debris. In two patients, the pain decreased within a week to such an extent that the pain medication could be reduced.

Conclusion: The gel can be applied quickly and easily, and has proven to be an effective way of debriding chronic wounds. As such, this new form of chemical debridement is a welcome addition to other techniques.

EP528 A NOVEL USE OF OMEGA 3 FISH SKIN* IN PALLIATIVE WOUND CARE

Mark Suski[1]

[1]227 W Janss Rd, Thousand Oaks, United States

Aim: The objective of palliative wound care is to increase quality of life in patients with untreatable disease. Basal cell carcinoma is the most common malignant skin cancer. It is rare for basal cell carcinoma to metastasize or locally invade beyond soft tissue.

Method: The patient is a 95-year-old male with history of dementia and long standing fungating basal cell carcinoma of his vertex scalp. The patient's day to day quality of life was significantly impacted by bleeding and cellulitis, requiring multiple ED visits and hospitalizations. Family and primary care physician agreed upon palliative wound care only for this patient. Various wound dressings and treatments were used without success. Secondary to uncontrolled bleeding, surgical oncology performed a palliative resection which resulted in a large wound with exposed cranium and dura. In an effort to simplify wound care, Omega 3 fish skin* was placed over the surgical defect.

Results / Discussion: Seven days after placement of the fish skin the first dressing change was performed. No recurrent bleeding or infection was noted. Dressing changes were performed weekly, which was significantly easier for the family and nursing staff who had been changing dressings daily prior to surgery. Ultimately the patient was transferred to a skilled nursing facility and his family consented to home hospice.

Conclusion: The application of fish skin graft resulted in a unique solution for palliative wound care. It decreased the frequency of dressing changes, and controlled bleeding and infection. By controlling the acute wound issues, the family was able to reconcile hospice and the patient and family experienced a dignified passing at home.

*Kerecis

SESSIONE E-POSTER1: ANTIMICROBICI & INFEZIONE (ITA)

EP529 COMPARISON OF ANTIMICROBIC ACTIVITY BETWEEN MANUKA AND SILVER-BASED DRESSINGS USED FOR TREATING INFECTED VENOUS ULCERS

Stefano Dalle Molle[1], Valentina Spedale[2 3], Massimo Alberio[2 3], Rino Corrarello[4]

[1]Ospedale Pio XI, Dipartimento Area Cardio Toraco Vascolare, U.O. Cardiologia, Desio, Italy; [2]Ospedale San Gerardo - ASST Monza, Monza, Italy; [3]University of Milano-Bicocca, Department of Medicine and Surgery, Monza, Italy; [4]Ospedale Edoardo Bassini, Dipartimento Area Chirurgica e dell'Emergenza Urgenza, Poliambulatorio chirurgico, Ambulatorio di Vulnologia, Cinisello Balsamo, Italy

Aim: This study compared the antimicrobial activity of Manuka dressings with silver-based ones for treating infected venous ulcers. It also assessed the possible bacterial resistance to the two treatments.

Method: This study was an open longitudinal non-randomized clinical trial that evaluated the antimicrobial efficacy of Manuka and silver in terms of healing times for treating infected venous ulcers. The study population consisted of people with infected venous ulcers. The recruitment occurred according to inclusion and exclusion criteria, and treatment was chosen alternately by the professional. The evaluation of the wound occurred at T0 (enlistment), T1 (15 days from enlistment), and T2 (30 days). The tool used for monitoring at different times was a form created by experts.

Results / Discussion: The sample was 50 infected venous ulcers: 25 were treated with silver dressing and 25 were treated with Manuka. At T2, 13.6% of venous ulcers treated with Manuka (p-value 0.001; P -0.641) and 64% of venous ulcers treated with silver (p-value 0.000; P -0.900) were healed. However, after the swab test at T1, 84% of Manuka-treated ulcers were no longer infected, whereas 44% of silver-treated ulcers were still infected with microorganisms such as staphylococcus aureus and pseudomonas aeruginosa. Hence, a possible bacterial resistance to silver.

Conclusion: The results showed that the infected venous ulcer treated with Manuka was more effective than the silver-based one, although after a longer time. Additionally, Staphylococcus aureus and Pseudomonas aeruginosa may exhibit resistance to silver. To confirm these data, it would be helpful to conduct longitudinal RCTs.

EP530 USE OF NON-ADHERENT DRESSING WITH SILVER SULFADIAZINE (SSD) IN PATIENTS WITH HOMOLGOUS GRAFT FAILURE: CASE REPORT

Maristella Mencucci[1], Francesca Falciani[1], Carlotta Bini[1], Eleonora Bastarelli[1], Alessandra Pavanelli[1], Giovanna Sabatini[1]

[1]Azienda Usl Toscana Centro, Wound Care Team, Firenze, Italy

Aim: The homologous grafting represents a therapeutic strategy in the treatment of chronic wounds that are difficult to manage with advanced dressings. Sometimes, this type of procedure becomes even more difficult to manage, due to critical colonization that leads to an early detachment of the graft. The observed wound presents slough on the bottom, reappearance of painful symptomatology and reddened peri-wound skin. The dressings indicated at this stage need to release antiseptic agents. The dressing we used in the study is a polyester and carboxymethylcellulose gauze cloth soaked in SSD; the consistency of the gauze allows an atraumatic removal, as it's not adherent.

Objectives:

-Reduction of colonization signs and painful symptoms, during the dressing change.

-Reactivation of healing processes.

Method: Four patients with chronic wounds with a non-active healing process of various etiologies were recruited. They all underwent homologous skin grafting, which failed. The dressing was changed twice a week using the Push Tool scale (PTS) for injury monitoring and the VAS scale for pain evaluation. The pain related to the removal of the dressing evaluated through the VAS scale and the PTS was observed and evaluated at day five, ten, twenty and after thirty days from the dressing's application. Photographic documentation was produced at each revaluation.

Results / Discussion: All the four cases showed an improvement after the third wound dressing treatment, in particular showed a pain reduction, and the PTS showed improvement in all cases.

Conclusion: The use of non-adherent contact dressing containing SSD was found to be effective in treating pain at the removal of the dressing and in the decrease of signs of colonization. Moreover, it represents a valid dressing to be used on allergic/intolerant to iodine and/or chlorhexidine patients.

EP531 LA VERSATILITÀ DELLA TRAMA IN DACC (DIALCHILCARBAMOILCLORURO), UNA REVISIONE DELLA LETTERATURA

Anna Aloise[1], Ornella Forma[1], Alessandro Corsi[1], Gianluca Bertulli[1], Lina Carmela Ognibene[1], Sara Maria Lupi[1], Giulia Vidotto[1], Gaetano de Angelis[1], Umberto Cazzarò[1]

[1]Ospedale San Raffaele, Vulnologia, Milano, Italy

Scopo: Dimostrare tramite la letteratura la versatilità della trama in DACC(Dialchilcarbamoilcloruro).

Metodi: Revisione della letteratura, questo tipo di medicazione contiene dialchilcarbamoilcloruro (DACC), presente nella trama, che media il legame irreversibile dei batteri che presentano un'elevata idrofobicità della superficie cellulare (CSH). Molti batteri adesi o "intrappolati" vengono rimossi dalle lesioni ad ogni cambio di medicazione, senza distruggere la parete batterica, evitando l'aumento dell'infiammazione.

Risultati: Esistono numero studi a sostegno delle medicazioni rivestite di dialchilcarbamoile cloruro (DACC) che prevengono e riducono l'infezione nelle ferite tramite l'intrappolamento dei batteri, e illustrano come queste medicazioni, agendo con mezzi fisici, possono essere utilizzate con successo per prevenire/trattare infezioni della ferita. È stato dimostrato che diversi microrganismi importanti nell'infezione della ferita si legano al materiale rivestito di DACC, inclusi i microrganismi multiresistenti (MDRO) (ad esempio, *Staphylococcus aureus* resistente *alla meticillina* (MRSA)) e i microrganismi presenti come parte dei biofilm. Una serie di studi che esplorano numerosi tipi di lesioni (ad esempio, SSI, ferite difficili da guarire, ustioni) hanno mostrato l›uso efficace di medicazioni rivestite di DACC nella prevenzione e gestione dell›infezione attraverso la riduzione della carica batterica.

Conclusioni: E' un approccio innovativo nella gestione di lesioni contaminate ed infette. E' privo di agenti chimicamente attivi, pertanto non ha citotossicità, per questo motivo può essere utilizzata su tutti i pazienti, compresi bambini e donne in gravidanza e in allattamento. Sull'ex-site in pazienti con assistenza ventricolare sinistra (L-VAD). Come interfaccia con l'utilizzo di NPWT. Come zaffo di sottominature e quando la carica batterica compromette il processo di guarigione

EP532 MEDICAZIONE TECNOLOGICA SINERGICA TRA AG+ E HYDROFIBER PER GESTIRE ED ABBATTERE LE BARRIERE CHE OSTACOLANO LA GUARIGIONE DELLE LESIONI CUTANEE– STUDIO OSSERVAZIONALE

Sonia Silvestrini[1], Marta Nassi[2]

[1]Az Ospedaliera San Giovanni Addolorata di Roma, Medicina, Roma, Italy; *[2]Az Ospedaliera San Giovanni Addolorata di Roma, Cardiologia, Roma, Italy*

Scopo: L'essudato in eccesso e le infezioni rappresentano da tempo le cause di una ritardata guarigione delle lesioni, pertanto è necessario avere a disposizione medicazioni avanzate che si avvalgano di valide tecnologie che lavorino in sinergia per gestire le barriere fondamentali per la guarigione delle lesioni. i batteri in sospensione riaderiscono nel giro di pochi minuti, dopo 6 – 12 ore divengono via via più tolleranti ai biocidi come antibiotici e antisettici ed entro 24 ore si formano nuovi biofilm maturi, quindi è necessario agire consapevolmente.

Metodi: Sono stati trattati 30 pazienti di un'età comprensiva tra i 18 e i 87 anni, di cui 18 uomini e 12 donne, con lesioni cutanee iperessudanti, infette e con presenza di biofilm. Le ferite sono state deterse con la Soluzione di Propilbetaina e Poliesanide (PHMB) e conseguentemente sono è stata posizionata come primary dressing una medicazione antimicrobica a base d'argento con tecnologia Hydrofiber. Il rinnovo delle medicazioni delle lesioni prese in esame è avvenuto ogni 72 ore.

Risultati: I parametri presi in considerazione sono stati il dolore, il contenimento e controllo dell'essudato con la preservazione dei bordi delle lesioni, l'abbattimento della carica batterica e quello della wound healing. Tutte le ferite prese in carico e trattate con tale metodologia sono giunte a guarigione, con tempi diversi in rapporto all'eziologia, al quadro clinico generale, all'età, alle dimensioni della lesione.

Conclusioni: La medicazione avanzata utilizzata ha dimostrato che la sua formulazione della Teconologia all'argento spezza e disgrega la barriera del biofilm, impedendo la replicazione batterica uccidendo i batteri, mentre la tecnologia Hydrofiber crea un ambiente ideale alla guarigione della ferita bloccando l'essudato in eccesso prevenendo la macerazione della cute perilesionale. La sua microconformità al letto della lesione elimina gli spazi vuoti impedendo l'annidamento e la proliferazione dei batteri e la formazione di un gel coesivo che si crea a contatto con l'essudato, rende il cambio della medicazione, atraumatico.

EP533 L'AGENTE DI CONTRASTO DEL BIOFILM NELLE FERITE NO-HEALING, NELLE DEISCENZE CHIRURGICHE E PER LA PREVENZIONE DI COLONIZZAZIONE DELLE FERITE SUSCETTIBILI A SOVRAINFEZIONE BATTERICA : SULFADIAZINA ARGENTICA 1% CREMA – STUDIO OSSERVAZIONALE

Sonia Silvestrini[1]

[1]*Az Ospedaliera San Giovanni Addolorata di Roma, Medicina, Roma, Italy*

Scopo: La sovrainfezione batterica è un evento che può inibire o ritardare la guarigione della ferita o addirittura determinare una cronicizzazione della stessa. La terapia d'eccellenza per contrastare tale complicanza si avvale dell' uso topico della Sulfadiazina Argentica Micronizzata all'1 % crema, chemioterapico-antibiotico incluso nella lista dei 200 farmaci essenziali approvati dall'Organizzazione Mondiale della Sanità pubblicata documento pubblicato a marzo 2017 (W.H.O Model List Essential Medicines and W.H.O Model List of Essential Medicines for Children) inoltre le linee guida A.H.R.Q attribuiscono il livello di evidenza più alto (evidenza di livello A) per il trattamento topico delle infezioni sostenute da gram+, gram-.

Metodi: Sono stati presi in considerazione 96 pz di cui 45 donne e 51 uomini di un'età comprensiva tra i 09 ed i 84 anni : 53 pazienti con ferite chirurgiche (di cui 9 deiscenti), 16 con lesioni da pressione sottominate, 11 pazienti con ferite traumatiche deiscenti, 1 con lesioni da epidermiolisi bollosa, 8 con lesioni croniche di origine vascolare e 7 con ulcere croniche diabetiche. E' stato preso in considerazione anche un campione parallelo di 38 pazienti con ferite chirurgiche in ordine. I parametri presi in considerazione sono stati quello del TIMERS, del wound hygiene, del dolore e della wound healing.

Risultati: In tutti i casi presi in esame si è evidenziato un notevole miglioramento del letto della ferita , si è riscontrata una netta e significativa riduzione della flogosi, del dolore, del biofilm e dello slough, il mantenimento dell'idratazione, la rigenerazione tissutale, dal primo cambio di medicazione (dopo 48 ore) e nei pazienti affetti da deiscenze ingravescenti di ferite addominali, è stata scongiurata l'eviscerazione. I pazienti con ferite chirurgiche in ordine non hanno presentato alcuna contaminazione e/o deiscenza.

Conclusioni: Tutte le ferite prese in carico e trattate con tale metodologia sono giunte a guarigione, con tempi diversi in rapporto all'eziologia, al quadro clinico generale, all'età, alle dimensioni della lesione. Il trattamento precoce e preventivo delle ferite e deiscenze secondarie ad intervento chirurgico con Sulfadiazina argentica crema 1% ha determinato una notevole riduzione delle complicanze infettive, non ha dato atto a fenomeni di resistenza, con un favorevole bilancio costo/ efficacia (riduzione del numero di medicazioni e dei materiali ed esiti favorevoli) e miglioramento della qualità di vita del paziente con riduzione dell'intensità del dolore, sino alla sua scomparsa.

EP534 SVILUPPO DI UN FILM POLIMERICO A BASE DI CEFIXIMA PER IL TRATTAMENTO DI ULCERE CUTANEE INFETTE

Natascia Mennini[1], Silvia Fiani[1], Alessandro Greco[2], Giulia Nerli[1], Enrico Casalone[3], Barbara Richichi[1], Marzia Cirri[1], Francesca Maestrelli[1], Paola Angela Mura[1]

[1]*Università degli Studi di Firenze, Dipartimento di Chimica "Ugo Schiff" (DICUS), Firenze, Italy*; [2]*Azienda Sanitaria Locale, Frosinone (Italia), Laos*; [3]*Università degli Studi di Firenze, Dipartimento di Biologia*

Scopo: I film polimerici, impiegati nel trattamento delle ulcere cutanee, presentano numerosi vantaggi, in quanto consentono il mantenimento di un ambiente umido nel letto della lesione, sono di facile applicazione e rimozione atraumatica per il paziente, hanno una buona traspirabilità, sono conformabili e possono inoltre essere caricati con farmaci di varia natura. L'obiettivo di questo studio è stato quindi quello di sviluppare un film polimerico, a base di Cefixima (CEF), come agente antimicrobico, per il trattamento di lesioni cutanee infette.

Metodi: Nella prima parte del lavoro è stata effettuata la selezione dei polimeri costituenti la formulazione ed è stato scelto il "solvent casting" come metodo di preparazione, con il principale obiettivo di ottenere un film trasparente, conformabile e in grado di esercitare un'azione antimicrobica per 72 ore. La formulazione ottimizzata, a base di alcol polivinilico (PVA) e cellulosa nanocristallina sostituita con gruppi solfato (CNC), è stata successivamente caricata con CEF salificata con istidina, in modo da rendere il farmaco più solubile in ambiente acquoso. La dose di CEF da introdurre nel film è stata previamente determinata dopo valutazione della Concentrazione Minima Inibente (MIC) dell'antibiotico nei confronti dei batteri principalmente presenti in lesioni cutanee, tenendo anche conto del volume di essudato prodotto mediamente da un'ulcera infetta. Si è proceduto poi alla valutazione delle proprietà morfologiche del film attraverso microtomografia a raggi X e meccaniche con Texture Analyser; è stato inoltre determinato il profilo di rilascio del principio attivo tramite celle di Franz e dell'attività antimicrobica della formulazione con test ZOI (Zone of Inhibition). Quest'ultimo è stato effettuato contro tre ceppi batterici, *S. aureus, P. aeruginosa, E. coli,* combinati in modo da simulare la composizione media dei principali microrganismi patogeni presenti in un'ulcera cutanea infetta.

Risultati: In tabella sono riportate le principali caratteristiche del film polimerico emerse dagli studi di caratterizzazione effettuati su patch di 1,8 cm^2 di superficie.

Spessore (mm)	0,56 ± 0,10
Peso (g)	0,078 ± 0,004
Contenuto di CEF (mg)	1,94 ± 0,05
Indice di rigonfiamento (%)	357,3±33,3
Traspirabilità al vapore acqueo (mg/cm2/24h)	267,87 ± 14,28
Resistenza alla rottura (N/mm2)	3,22±0,14
Allungamento alla rottura (%)	71,7±0,01
Profilo di rilascio del farmaco	prolungato fino a 72 h
Durata dell'azione antimicrobica	fino a 72 ore

Conclusioni: Lo studio ha consentito di sviluppare un film polimerico con caratteristiche chimico-fisiche adeguate a un'applicazione cutanea, in grado di garantire una attività antimicrobica per 72 ore dall'applicazione, consentendo così una ridotta frequenza di cambio della medicazione.

EP535 LESIONI CUTANEE CRONICHE INFETTE: I VANTAGGI DI UNA ROUTINE RIPETIBILE IN OGNI CONTESTO

Domitilla Foghetti[1], Maurizio Carnali[2], Silvia Bertinelli[2], Silvia Chiavetti[3], Cinzia Ferretti[4], Sara Muzzini[5], Pamela Petroni[6], Sabina Sampaolo[6]

[1]AST Pesaro-Urbino, Ospedale San Salvatore, Chirurgia Generale, Pesaro, Italy; [2]AST Ancona, Ospedale Engles Profili, Centro Ferite Difficili, Fabriano, Italy; [3]AST Ancona, Medicina Generale Territoriale, Fabriano; [4]AST Ancona, Cure Domiciliari, Fabriano, Italy; [5]AST Pesaro-Urbino, Ospedale San Salvatore, Ambulatorio Ferite Difficili, Pesaro, Italy; [6]AST Pesaro-Urbino, Ospedale Santa Croce, Ambulatorio Ferite Difficili, Fano (PU), Italy

Scopo: Valutazione dell'efficacia di una routine di trattamento antimicrobico locale, su lesioni con significativa carica batterica, selezionate mediante l'utilizzo di un dispositivo di imaging a fluorescenza.

Metodi: Sono stati valutati 54 pazienti con 60 lesioni cutanee croniche, in assenza di segni sistemici di infezione, afferenti a tre ambulatori vulnologici ospedalieri. Mediante l'utilizzo di un dispositivo di imaging a fluorescenza, è stata rilevata la presenza di carica batterica $>10^5$ in 38 lesioni. È stato quindi proposto un trattamento bisettimanale con una routine basata sull'utilizzo prodotti a base di poliesanide e propilbetaina: salviette monouso per la detersione della lesione e della cute perilesionale, un pad in microfibra sterile per il debridment e una soluzione antimicrobica applicata per 7-10 minuti. In caso di persistenza di elevata concentrazione batterica alla rivalutazione con dispositivo, la routine si completa con l'applicazione di gel antimicrobico e medicazione secondaria non aderente.

Risultati: Definiti inquadramento clinico e protocollo di trattamento, in base all'organizzazione regionale definita dal Percorso Diagnostico Terapeutico Assistenziale-PDTA per le ferite difficili, si è proceduto a: suddivisione dei pazienti

candidati al trattamento antibatterico tra gli ambulatori specialistici in ambito ospedaliero o territoriale, in base alla disponibilità; invio dei restanti pazienti ad ambulatori infermieristici non specialistici territoriali. La rivalutazione ospedaliera con dispositivo a fluorescenza, dopo 30 giorni di trattamento, ha mostrato carica batterica $<10^5$ nel 60% delle lesioni trattate.

Conclusioni: L'utilizzo di un dispositivo a fluorescenza e di una routine riproducibile in diversi contesti assistenziali, consente un'efficace trattamento delle lesioni e una gestione razionale dei pazienti in base alle risorse a disposizione.

EP536 GESTIONE DELL'INFEZIONE E DELLA CARICA BATTERICA IN PAZIENTE DI COLORE CON ERISIPELA PRESENTE DA 1 ANNO

Carmela Milea[1], Cecilia Di Dia[1], Donatella Vasaturo[1], Miriam Villani[1], Giuseppina Losio[1]

[1]University of Rome Tor Vergata | UNIROMA2 · Dipartimento di Medicina dei Sistemi, Rome, Italy

Aim: Presentazione di un caso clinico in cui si dimostrano i vantaggi dell'utilizzo combinato della Wound Hygiene con medicazione a captazione antibatterica e per il controllo dell'infezione, successivamente l'utilizzo combinato della TNP monouso ad interfaccia luerlock per la WBP ad utilizzo di medicazioni con biomateriali.

Method: Caso clinico: uomo 39 anni, lesione da erisipela presente da 1 anno. Medicazioni a domicilio con betadine come indicazione del MMG. Giunge al nostro ambulatorio il 24/8 inviato dal dermatologo con diagnosi di Erisipela lesione 6.5x4 cm poosh tool 14. Medicazione consigliata sulfadizina argentica e garza grassa. Dopo 21 giorni di medicazioni non si osservano miglioramenti per cui si cambia medicazione con protocollo Wound Hygiene, captazione batterica e schiuma di poliuretano per il controllo dell'essudato con ottima detersione del fondo di ferita ma graduale aumento dell'essudato per cui il 04/11 si applica TNP monouso a tecnologia airlock con interfaccia di captazione batterica

Results / Discussion: La sfida di questo caso è in parte rappresentata dalla difficoltà di valutazione della cute perilesionale, dovuta all'etnia del paziente e dalla difficoltà di gestione dell'infezione con la medicazione prescritta dallo specialista dermatologo . L'approccio olistico della Wound Hygiene con la TNP monouso a tecnologia airlock ad intefaccia di medicazione a captazione batterica ha permesso la riduzione della lesione da 6.5x4 cm con poosh tool 3.0 di 14 a 6x2 cm con poosh tool 3.0 di 13 in 6 applicazioni.

Conclusion: La sinergia di utilizzo di metodiche combinate si è dimostrata efficace nel favorire la riattivazione della lesione, gestione della carica batterica e sta favorendo il processo di WBP per l'applicazione di medicazione con biomateriali.

EP537 IL MAIALE : UNO STRAORDINARIO CONTRIBUTO NEL WOUND CARE

Francesca Pasquali[1], Mara Roncali[2], Paola Tortarolo[3]

[1]S.S. Vulnologia ASLAL, Distretto Patria Alessandria, Alessandria, Italy; *[1]S.S. Vulnologia ASLAL, Distretto Patria Alessandria, Alessandria, Italy*; *[3]S.S. Vulnologia ASLAL, Distretto di Acqui Terme, Acqui Terme, Italy*

Scopo: L'emoglobina di maiale apporta un aiuto nelle ferite infette e deterse

Metodi: Si segnala un caso di linfangite reattiva alla sepsi del piede con versamento sottofasciale che, con l'aiuto di questo derivato utilizzato per otto settimane e associato a medicazioni avanzate, ha portato alla chiusura di una lesione di 11x5 cm del piede di un paziente scoagulato per fibrillazione atriale, diabetico e nefropatico.

All'ingresso in Dea l'ipotesi più accreditata era di fascite necrotizzante, questa non è stata supportata dagli esami radiologici, ematochimici ed emocolture.

Il paziente febbrile con un INR elevatissimo, una creatinina di 7 e linforrea, veniva sottoposto a numerose emocolture risultate negative, eco doppler arterioso negativo, TC e RM negative per fascite.

Risultati: Dimesso dopo terapia medica, viene preso in carico dalla struttura di vulnologia già durante il ricovero, al fine di eseguire debridment e medicazioni. Si concorda con il paziente l'applicazione settimanale di emoglobina derivata e purificata da eritrociti di origine porcina attraverso un processo di sintesi. Questa viene tenuta in situ da una medicazione secondaria non occlusiva per non interrompere il ciclo lavorativo dell'emoglobina dove la ferita è ipossica e infetta.

Conclusioni: Sostituendosi alla ricrescita per seconda intenzione e, attraverso la capacità di non formare cheloidi, l'emoglobina contribuisce alla rigenerazione dei tessuti.

EP538 USO DELL' OSSIGENO SINGOLETTO, ACIDO IPOCLOROSO E NITRITO DI SODIO NELLA GESTIONE DELL' INFEZIONE POST CHIRURGICA IN UN CASO DI CHIRURGIA DELL' ORECCHIO ESTERNO

Davide Johan Bottini[1], Barbara De Angelis[1], Fabrizio Orlandi[1], Chiara Di Segni[1], Carlo Cossi[1], Ruggiero Marrano[1], Nico Preite[1], Stefano Mogavero[1], Carmela Calbi[2], Valerio Cervelli[1]

[1]Tor Vergata/Medicina, Roma, Italy; [2]Policlinico Casilino, Medicina Urgenza e PS, Roma, Italy

Scopo: Solo il 3.6% dei pazienti sottoposti ad intervento chirurgico a livello del padiglione auricolare sviluppano una infezione del sito chirurgico, tipicamente causata da Pseudomonas o Staphylococcus. Lo scopo del presente lavoro è quello di valutare l'efficacia della duplice terapia combinata con antibiotico e il trattamento locale con miscela di acqua marina, acido ipocloroso, ipoclorito di sodio e ossigeno singoletto nel trattamento delle ferite infette post-operatorie.

Metodi: Viene presentato il caso di una pz di 79 anni sottoposta ad intervento chirurgico di asportazione di epitelioma dell'elice superiore destro con contestuale plastica di ricostruzione , che ha sviluppato dopo circa 8 giorni una infezione da P. Aeruginosa.

Nel perioperatorio è stata somministrata profilassi antibiotica con cefalosporina. La pz viene dimessa con buon controllo del dolore e ferita chirurgica in ordine, terapia antibiotica con amoxicillina e acido clavulanico e appuntamento di controllo a 6 giorni.

Al primo controllo post-operatorio evidenzia un decorso regolare. Due giorni dopo la sospensione della terapia antibiotica (8° giornata post-operatoria) la paziente manifesta forte otalgia, eritema, edema e iniziale deiscenza della ferita chirurgica con secrezione purulenta, per cui viene eseguito un tampone per coltura e antibiogramma della ferita e prescritta nuova terapia antibiotica empirica con cefixima. In decima giornata post-operatoria il referto del tampone riporta positività per P. Aeruginosa sensibile a ciprofloxacina. Alla luce del risultato si avvia la terapia antibiotica mirata e si iniziano medicazioni giornaliere con l'uso di disinfettanti e della miscela di acqua marina precedentemente menzionata.

Risultati: Nei successivi controlli si registra un graduale miglioramento del quadro clinico, immediatamente si registra un miglioramento del dolore fino alla sua progressiva scomparsa. L'edema e l'eritema. Migliorano progressivamente nell'arco di una settimana. La completa guarigione dell'infezione avviene dopo 7 giorni di terapia antibiotica mirata. Successivi controlli ematochimici con gli indici di flogosi e infezioni nella norma.

Conclusioni: L'analisi del caso clinico presentato mostra l'efficacia della terapia combinata con antibiotico orale e miscela di acqua marina, HClO, NaClO e ossigeno singoletto nel trattamento nei casi di ferite infette post-operatorie, in particolare l'associazione alle normali pratiche di medicazione della miscela di acqua marina sembra determinare una rapido viraggio in miglioramento dei segni clinici di infiammazione e infezione.

ActiMaris SENSITIVE

SESSIONE E-POSTER 2: MEDICAZIONI & QUALITÀ DELLA VITA (ITA)

EP539 CASE REPORT: I VANTAGGI DELLA MEDICAZIONE A CAPTAZIONE BATTERICA IMPREGNATA DI IDROGEL PER IL TRATTAMENTO DI UNA FERITA ESTESA POST TRAUMATICA DELL'ARTO INFERIORE

Sara Imbro[1]

[1]*ASST Lariana San Fermo Dela Battaglia - Como, San Fermo Della Battaglia, Italy*

Scopo: In questo report si dimostrano i vantaggi dell'utilizzo della medicazione a captazione batterica impregnata di idrogel per il trattamento di una ferita post traumatica, estesa alla faccia antero-laterale di gamba, infetta con associato ematoma organizzato.

Metodi: Caso clinico: donna presa in carico presso l'ambulatorio infermieristico vulnologico per estesa ferita di gamba, secondaria a caduta accidentale, con perdita di lembo cutaneo maggiore del 50%, essudato moderato, infezione locale ed importante ematoma associato. Terapia anticoagulante sospesa successivamente all'evento traumatico e sostituita con eparina a basso peso molecolare. Applicazione di medicazione primaria a captazione batterica impregnata di idrogel. Rivalutazione bisettimanale presso l'ambulatorio.

Risultati: Precoce riduzione del dolore associato alla ferita, già al primo cambio di medicazione, avvenuto 72 ore dopo. Nella prima settimana di trattamento, inoltre, la medicazione in oggetto ha garantito lo sbrigliamento della ferita, per più del 50%, raggiungendo nella settimana successiva l'80%, ottenendo così una ferita ben detersa e granuleggiante, senza alcun segno clinico d'infiammazione e/o infezione.

Conclusioni: L'utilizzo di medicazione a captazione batterica impregnata di idrogel si dimostra un valida scelta per la promozione del *debridement*, gestione della carica microbica e riduzione del dolore associato all'infezione locale e all'evento traumatico, promuovendo, in tal modo, un'adeguata preparazione del letto di ferita e favorendo la riparazione tissutale.

EP540 CASE REPORT SULL'UTILIZZO DI GEL A BASE DI POLIESANIDE E PROPILBETAINA NEL TRATTAMENTO DI ESTESA RADIODERMITE DI TERZO GRADO

Sara Imbro[1]

[1]*ASST Lariana San Fermo Della Battaglia - Como, Infermiera Specialista in Vulnologia, San Fermo Della Battaglia, Italy*

Scopo: In questo report si dimostrano i vantaggi dell'utilizzo di gel a base di poliesanide e propilbetaina nel ridurre la contaminazione batterica, il *bioburden* e il dolore associato ad estesa radiodermite di terzo grado, favorendo e accelerando il processo di guarigione delle lesioni.

Metodi: Caso clinico: donna ricoverata presso l'Unità Operativa di Oncologia per lesioni cutanee estese all'addome e alla pelvi, in trattamento radioterapico per tumore vulvare, associato a dolore non controllato. Eseguita consulenza infermieristica vulnologica all'ingresso con indicazione ad applicazione quotidiana di gel a base di poliesanide e propilbetaina dopo accurata detesione della lesione, senza necessità di medicazione secondaria. Rivalutazione settimanale.

Risultati: Riduzione della contaminazione batterica, pertanto, dei segni clinici d'infiammazione delle lesioni, riduzione del dolore associato, riduzione del maleodore, sbrigliamento delle lesioni con conseguente formazione di tessuto di granulazione e successiva riepitelizzazione. Guarigione in 3 settimane.

Conclusioni: L'utilizzo di gel a base di poliesanide e propilbetaina si dimostra una valida medicazione per la gestione delle complicanze delle radiodermiti. Mostra un'ottima tollerabilità cutanea e promuove la *Wound Bed Preparation*. Adatto per l'utilizzo ripetuto anche a lungo termine.

EP541 TECNOLOGIA TRIDIMENSIONALE A BASE DI COLLAGENE E ALGINATO DI CALCIO: CASE REPORT

Sara Imbro[1]

[1]*Ospedale Sant'Anna - San Fermo della Battaglia (CO), Infermiera Specialista in Vulnologia, San Fermo Della Battaglia, Italy*

Scopo: In questo report si mostra come la tecnologia tridimensionale a base di collagene e alginato di calcio abbia favorito la rigenerazione del derma, in una deiscenza di ferita con esposizione di fascia muscolare, a livello della gamba, sede di prelievo di lembo microchirugico di fibula.

Metodi: Caso clinico: uomo, 56 anni, iperteso e diabetico insulino dipendente, sottoposto a emimandibulectomia per carcinoma squamocellulare e riscostruzione mediante lembo microchirurgico di fibula e contestuale lembo cutaneo a copertura del difetto di gamba. Il paziente veniva preso in carico presso l'ambulatorio infermieristico vulnologico per successiva deiscenza di ferita con esposizione di fascia muscolare a livello della gamba. Quest'ultima si presentava protundente oltre i bordi di ferita, pertanto, causa principale di conicizzazione e mancata guarigione. Nel tentativo di stimolare i margini e fornire agli stessi un'impalcatura efficace per aiutare a rigenerare il derma mancante, è stata applicata una medicazione costituita dal 90% di collagene nativo e dal 10% di alginato di calcio. Rivalutazione bisettimanale presso l'ambulatorio.

Risultati: Aumento del tessuto di granulazione con stimolazione precoce dei margini di ferita, che in breve tempo hanno superato l'esposizione di fascia muscolare. Formazione secondaria di neoepitelio e riduzione dell'area di lesione. Risultati ottenuti in 14 gg.

Conclusioni: L'utilizzo di medicazione a base di collagene nativo e alginato di calcio, con tecnologia tridimensionale, si dimostra un valida scelta per la creazione delle condizioni ideali per la guarigione delle ferite, fornendo un supporto strutturale per l'adesione e la proliferazione cellulare, necessaria per la riparazione tissutale.

EP542 CASE REPORT IN A OLD DIABETIC FOOT WOUND TREATED WITH TLC-NOSF DRESSING

Elia Ricci[1], Monica Pittarello[1], Andrea Pietro Ricci[1]

[1]*St Luca's Clinic, Difficult Wound Healing Unit, Pecetto Torinese, Italy*

Aim: We present a case of a toe's chronic wound in a diabetic patient non-healing from a period longer than 4 years.

Methods: Inveterate soft tissue lesion of the big toe resulting in hyperkeratosis with deformation of the big toe appearing hypertrophic and dyskeratotic. The patient had refused the proposed amputation in another centre. Controls showed no infection or bone involvement. Previous treatment protocols adhered perfectly to gold standards, including total discharge. We started the treatment by applying the protocol proposed by Clean & Heal and a dressing based on TLC-NOSF*. The treatment lasted for 4 months.

Results: A progressive reduction of the lesion was obtained until complete healing. The process initially showed a reduction in deformities and perilesional dyskeratosis. While remaining a deformed big toe, its size was reduced by 25% with good recovery of functionality.

Conclusions: The damage above all of the perilesional tissues indicated a situation of chronic inflammation. Literature indicates that thorough cleansing and dressings based on TCL-NOSF technology are able to interact with the wound bed by blocking proinflammatory factors. We believe that this clinical case can confirm the efficacy in this indication.

* Urgostart Plus

EP543 DEVELOPMENT OF AN IN VITRO METHOD FOR MEASURING THE LATERAL SPREAD IN ADVANCED WOUND DRESSINGS

Natascia Mennini[1], Silvia Fiani[1], Francesco Pacini[2], Andrea Bellingeri[3], Francesco De Vita[4], Francesco Petrella[5], Alessandro Greco[6]

[1]University of Florence, Department of Chemistry " Ugo Schiff" (DICUS), Florence, Italy; [2]Municipality of Prato, Prato, Italy; [3]Foundation IRCCS Polyclinic S.Matteo, Pavia (Italy); [4]Renzetti Hospital, Lanciano (Italy); [5]Local Healthcare System Portici, Naples (Italy); [6]Local Healthcare System, Frosinone (Italy)

Aim: The lateral spread of exudate absorbed on the inner surface of the dressing can damage the wound rim and the surrounding skin. Therefore, high values of this parameter are indicative of poorly performing product. Since there is no standard test to measure the lateral spread, the aim of this study was to develop a specific device for its evaluation.

Method: The apparatus was made using a 3-D printer and consists of: two grid supports the upper one with a central hole simulating a wound, an artificial exudate supply system, a camera and an image analysis software. After fixing the dressing between the two grids, the inner surface corresponding to the simulated wound area was dye-saturated. The lateral spread both on the internal (D1) and external surface (D2) of the dressing was measured by processing the photo taken 2 minutes after the dye application. The test was performed on 13 polyurethane foams (mean of 3 times±SD).

Results / Discussion: On the basis of the results obtained, the dressings were divided into 5 categories: very low ($D1 \leq 5$), low ($5 < D1 \leq 10$), medium ($10 < D1 \leq 15$), high ($15 < D1 \leq 25$) and very high ($D1 > 25$) Lateral Spread (values in cm2). For each class were also identified the products with $D2/D1 \geq 1$, indicative of a correct distribution of the exudate within the matrix foam.

Conclusion: This study allowed to develop a reliable test able to intercept the differences in lateral spread existing between the foams analysed and attributable to their chemical composition, thickness, density and pore size.

EP544 POST SURGICAL WOUNDS TREATED WITH AN OXYGEN-ENRICHED OIL-BASED MEDICAL DEVICE WITH PROLONGED RELEASE OF REACTIVE OXYGEN SPECIES

Giorgia Salvia[1], Alessandra Michelucci[1], Flavia Manzo Margiotta[1], Giammarco Granieri[1], Agata Janowska[1], Marco Romanelli[1]

[1]University of Pisa, Dermatology, Pisa, Italy

Aim: The aim of our study was to evaluate the effectiveness of an oxygen-enriched oil-based medical device with prolonged release of Reactive Oxygen Species (ROS) in post-surgical wounds healing time.

Method: 5 patients were treated with surgical excision of head and neck lesions (4 suspected squamous cell carcinomas and 1 draining fistulas caused by hydrosadenitis suppurativa). The lesions were treated with an oxygen-enriched oil-based medical device with prolonged release of ROS and polyurethane foam. Patients were evaluated once a week for 4 weeks. During each visit a comprehensive wound assessment was provided. Wound area, perimeter and maximum depth of post-surgical wounds were evaluated by a 3D imaging system. Wound bed and surrounding skin features were evaluated with the Wound Bed Score (WBS).

Results / Discussion: An average improvement in WBS was observed over a mean observation time of 28 days, moving from 8 at week 0 to 14 after 4 weeks; the results in terms of area, perimeter and maximum wound depth are shown in the figures below. One patient achieved complete wound resolution after 28 days. The wound dressings were well tolerated without adverse events by all the patients.

Conclusion: The gel's oleic composition provided a correct moist microenvironment, while the sustained-release of ROS improved the process of angiogenesis, cell proliferation and collagen synthesis. Moreover, the constant and prolonged release of ROS appeared to be able to inhibit bacterial and fungal proliferation. The results obtained from this study demonstrated the preliminary effectiveness of oxygen-enriched olive oil in postsurgical wounds, to be confirmed through a future randomized controlled trial.

EP545 UTILIZZO DI UNO SPRAY, CONTENENTE FIBROINA E ZEOLITE, NELLA GESTIONE DI LESIONI CUTANEE ACUTE E CRONICHE DI DIVERSE EZIOLOGIE

Gaetano Pitoia[1], Ornella Forma[1], Alessandro Corsi[1]

[1]*Ospedale San Raffaele, Vulnologia, Milano, Italy*

Scopo: Valutare l'efficacia del prodotto nella gestione di lesioni sia croniche sia acute di varia eziologia.

Metodi: 25 candidati età media 76 aa.

19 pazienti portatori di ulcere ,anche con segni di infezione, di varia eziologia e 6 di lesioni acute.

Medicazione secondaria con trama non aderente con cambio giornaliero o 3/7 in base all'essudato.

Risultati a 30 giorni delle ulcere:

- N°9 lesioni con riduzione delle dimensioni del 40% e risoluzione della infezione e 1 dell'80%
- N° 10 lesioni guarite

Risultati a 30 giorni lesioni acute

N° 2 ustioni 2° grado superficiale : dopo 10 giorni guarigione completa del primo caso ;il secondo ,a 30 giorni ,guarigione quasi completa.

N° 2 traumi guarigione completa dopo 3 settimane (previo svuotamento ematoma)

N° 2 deiscenze di ferite chirurgiche superficiali guarigione dopo 20 giorni.

Risultati: Lo spray analizzato presenta alcune caratteristiche :

1. capacità di gestire efficacemente l' ambiente umido e rilasciare velocemente l'umidità.
2. Contrasta la macerazione ed evita formazione di ipercheratosi.
3. Allevia il dolore,il bruciore ed il prurito.
4. Agisce sulle infezioni.

Conclusioni: Con questo device abbiamo ottenuto risultati nella gestione di ulcere acute e croniche di lesioni varia eziologia: è ottimale nella gestione del fondo della lesione e della cute perilesionale attivando rapidamente l'orletto epiteliale.

EP546 MEDICAZIONI IDROFOBICHE A CAPTAZIONE BATTERICA: VERSO LA "MAGGIORE ETÀ"!

Alessandro Corsi[1], Ornella Forma[1], Giulia Vidotto[1], Lina Ognibene[1], Sara Maria Lupi[1], anna aloise[1], bertulli gianluca[1], Umberto Cazzaro[1], Gaetano de Angelis[1], Gaetano Pitoia[1]

[1]*Ospedale San Raffaele, U.O. Vulnologia, Milano, Italy*

Scopo: A quasi 18 anni dall'introduzione nel mercato delle medicazioni antimicrobiche, il DIalchilCarbamoilCloruro - DACC (componente principale delle medicazioni a captazione microbica per azione idrofobica) rappresenta ancora una valida arma nella lotta alle infezioni delle lesioni cutanee?

Metodi: Dall'esperienza clinica del San Raffaele (oltre 15000 applicazioni) abbiamo estratto i dati riguardanti la tipologia di lesioni, acute e croniche, trattate, i tipi di medicazione idrofobica usati e i risultati raggiunti.

Risultati: Con una esperienza estesa a pressoché tutto i range delle medicazioni idrofobiche, usate in lesioni di tutte le eziologie, i risultati ottenuti dimostrano che, ancora oggi, questo tipo di device dimostra una elevata efficacia, in termini di trattamento e di prevenzione, è una notevole versatilità di uso, senza evidenza di effetti collaterali, reazioni avverse o induzione di resistenza.

Conclusioni: Nonostante non si tratti ormai di una medicazione di recente introduzione, la tecnologia alla base della captazione microbica che la caratterizza si dimostra ancora estremamente efficace e priva di controindicazioni ed eventi indesiderati, ponendosi di diritto tra i trattamenti di prima scelta per la gestione della carica microbica.

EP547 TERAPIA FOTODINAMICA IN UN PAZIENTE AFFETTO DA PIEDE DI CHARCOT COMPLICATO DA ULCERA AL RETROPIEDE: CASE REPORT

Laura Di Michele[1], Manuela Bartolotti[1], Angela Catani[1], Laura Casadei[1], Maurizio Nizzoli[1], Silvia Acquati[1]

[1]*Endocrinology and Metabolic Disease Unit Romagna, Forlì, Italy*

Scopo: verificare l'efficacia e la tollerabilità della TERAPIA FOTODINAMICA CON RLP068 nel trattamento di un'ulcera al retropiede in paziente diabetico

Metodi: case report: paziente di anni 55 affetto da diabete di tipo 1 dal 1983 complicato da micro e macroangiopatia . Seguito per piede di Charcot. Pregresso ricovero per fascite arto inf dx. In giugno 2022 si presenta per lesione plantare retropiede destro con fondo essudante , lievi segni di flogosi e PTB positivo (TUC IIID). 23/06/2022 eseguita angioplastica della arteria tibiale posteriore e plantare destra con buon esito della rivascolarizzazione. Paziente in adeguato scarico con tutore OPTIMA CL HEEL. 29/ 06/2022 Es. Microbiologico positivo per Stafilococco Aureo e Pseudomonas trattato con antibioticoterapia mirata per 14 gg. Nel corso delle successive 8 settimane stabilità della lesione in termini di dimensioni, profondità ed essudato. 12/09/2022 si programmano n°8 sedute di terapia FOTODINAMICA CON RLP068 prevedendo 2 sessioni settimanali con medicazioni di idrofibra. Dimensioni all'inizio del trattamento (fig 1): cm 3,5x3,5 con PTB positivo.

Fig. 1

Risultati: *al termine delle sedute si ottiene una riduzione della profondità della lesione ed una riduzione dimensionale (TUC IA cm 2,5x3 fig 2).*

Fig. 2

Nelle settimane successive si è ottenuto un'ulteriore contrazione dei margini sino a giungere a mm 9x5 (fig 3) dopo 6 settimane dal termine del trattamento.

Fig.3

Conclusioni: La terapia fotodinamica ha consentito in questo paziente di raggiungere un risultato immediato in merito alla profondità della lesione; il trattamento ha consentito l'innesco dei meccanismi rigenerativi in una lesione complessa cronicizzata portando ad un progressivo miglioramento senza necessità di interventi chirurgici o invasivi, evitando l'ospedalizzazione e garantendo una buona qualità di vita del paziente.

EP548 UTILIZZO DI UNA MEDICAZIONE DI ULTIMA GENERAZIONE A BASE DI COLLAGENE E MIELE

Stiubei Nela[1]

[1]*Wound Care Clinic, Wound Care, Alba Iulia, Romania*

Scopo: Ci proponiamo di valutare efficacia e tollerabilità di una medicazione a base di collagene equino eterologo con l'aggiunta di miele come efficace coadiuvante nei processi fisiologici di cicatrizzazione delle lesioni acute e croniche.

Metodi: Sono stati reclutati 2 pazienti, entrambi portatori di lesioni da decubito IV stadio NPUAP ai talloni e lesione da decubito IV stadio EPUAP sacrale croniche con letto deterso privo di tessuto di granulazione di età > 65 anni di ambo i sessi, affetti da diabete tipo II senza ischemia

Il trattamento ha avuto inizio con la pulizia del letto della ferita utilizzando soluzione salina e con successiva applicazione di medicazione con collagene equino e miele e infine copertura con garze sterili. La medicazione veniva cambiata due volte a settimana.

Risultati: Dopo un periodo di 6 settimane le lesioni ai talloni erano guarite, invece la lesione sacrale è guarita in 10 settimane.

Conclusioni: Alla luce dei risultati l'impiego di medicazione a base di collagene equino e miele puro wound management ha permesso di conseguire:

- Favorisce la produzione di un tessuto di granulazione qualitativamente migliore rispetto alle medicazioni tradizionali (es. nella lesione da decubito sacrare in ambiente umido senza influenza sui tessuti vitali con il tessuto peri lesionale e i bordi della ferita integri.
- Azione stimolante i processi naturali di guarigione
- Consente la formazione di una cicatrice con buona elasticità e resistenza meccanica
- Atraumatica, facile da applicare.
- Minor numero di applicazioni.
- Favorevole rapporto costo/beneficio.

EP549 UN EPITELIO SINTETICO PRIVO AL 100% DI PRODOTTI UMANI O ANIMALI, CON ECCELLENTE CONFORMABILITÀ, TRASPARENZA, RESISTENZA E TRASPIRABILITÀ PER IL TRATTAMENTO DI FERITE DI VARIA EZIOLOGIA E COMPLESSITÀ – CASI CLINICI

Sonia Silvestrini[1], Marta Nassi[2]

[1]*Az Ospedaliera San Giovanni Addolorata di Roma, Medicina, Roma, Italy*; [2]*Az Ospedaliera San Giovanni Addolorata di Roma, Cardiologia, Roma, Italy*

Scopo: La membrana biosintetica è un epitelio temporaneo che sostituisce temporaneamente la barriera cutanea danneggiata, favorendo le condizioni per un rapido recupero. Questa membrana, conformabile, trasparente, resistente, traspirante, è costituita da un polimero biosintetico di molecole di zucchero, basato sulla tecnologia 'eiratex'.

Metodi: 1. Donna di 26 anni con una grossa ustione di 2°/3° grado all'arto inferiore sinistro, secondaria al robvsciamento di una pentola di acqua bollente.

2. Uomo di 52 anni con deiscenza della ferita chirurgica secondaria a un intervento chirurgico di rimozione del cancro allo stomaco.

3. Uomo di 60 anni, diabetico, con deiscenza di ferita chirurgica dell'avampiede sinistra da amputazione con deficit vascolare secondario.

In tutte le ferite trattate la prima medicazione è stata controllata dopo 48 ore e poi ogni 4 giorni fino alla completa risoluzione.

Risultati: La membrana sintetica aderisce completamente al letto della ferita, proteggendola dagli agenti esterni e da possibili contaminazioni batteriche, favorendo il processo di guarigione. L'evidenza e la garanzia del mantenimento dell'ambiente umido hanno permesso il mantenimento di un microambiente ideale per la vitalità dei tessuti, favorendone il recupero.

Conclusioni: Questa medicazione avanzata, grazie alla sua nanostruttura simile al collagene, all'altissima biocompatibilità e al suo effetto barriera contro la penetrazione dei batteri, ha dimostrato grande efficacia nella risoluzione delle ferite trattate. La sua trasparenza ha assicurato il monitoraggio continuo e semplice della lesione, è importante affermare che i pazienti hanno riferito una drastica diminuzione del dolore sin dalla sua prima applicazione. Abbiamo osservato che la sua applicazione favorisce l'angiogenesi e accelera il processo di guarigione con costi/benefici/efficacia/tempi di attesa sorprendenti. Inoltre, siamo convinti che il suo campo di applicazione debba essere ampliato, tutte le lesioni cutanee dei pazienti trattati si sono risolte in tempi diversi e riteniamo che quanto dimostrato debba essere oggetto di continuo studio.

EP550 MEDICAZIONE A PRESSIONE NEGATIVA SOTTO BENDAGGIO ELASTOCOMPRESSIVO NELLA TERAPIA DEI PAZIENTI CON LESIONI FLEBOSTATICHE DIFFICILI

Carlo Rivellini[1], Ester Ordonez Culebras[1]

[1]*Ospedale Regina Montis Regalis, Chirurgico, Mondovì, Italy*

Scopo: Le medicazioni a pressione negativa (NPWT) sono un valido alleato per il trattamento delle lesioni cutanee di difficile guarigione che non rispondono ai trattamenti standard (lesioni difficili). Abbiamo valutato l'efficacia dell'uso della NPWT monouso sotto il bendaggio elasto-compressivo in pazienti con ulcere flebostatiche "not healing," nel favorire i processi di riparazione tissutale.

Metodi: Sono stati analizzati 21 pazienti con lesioni cutanee difficili di tipo flebostatico (nessun miglioramento dopo 4 settimane di terapia adeguata). I parametri analizzati sono stati:

- Riduzione dell'area e della profondità della lesione in cm
- Falange score (comparsa di un valido tessuto di granulazione)
- La frequenza dei cambi di medicazione (gestione dell'essudato)
- L'eventuale comparsa di complicanze

Le lesioni trattate presentavano tutte un Vascular Clinic Score (VCSS) ≤ 26 mentre sulla base del Falanga score 9 erano in classe B, 7 in classe C e 5 in classe D.

Il campione era omogeneo per eziopatogenesi e clinica generale e in tutti i casi erano presenti alterazioni della cute perilesionale (ipodermite e lipodermatosclerosi).

I pazienti sono stati trattati con dispositivo monouso con medicazione in idrofibra per 30 giorni; in caso di lesioni profonde (> 0,3 cm) è stata associato un filler in idrofibra con argento e tensioattivi.

I cambi di medicazioni sono stati effettuati per saturazione della medicazione del 50%.

Risultati: Dopo 30 giorni tutti i pazienti hanno presentato un miglioramento clinico della lesione in termini di gestione dell'essudato, detersione del fondo e tollerabilità (5 pazienti hanno presentato irritazioni della cute perilesionale che si é risolta con applicazione di idrocolloide sottile al posto della pellicola adesiva). L'associazione al bendaggio elastocompressivo non ha comportato malfunzionamenti del dispositivo né complicanze locali.

Conclusioni: Le medicazioni a pressione negativa sono un valido aiuto nel trattamento delle lesioni difficili con miglioramento della qualità di vita dei pazienti e una riduzione dei costi indiretti fronte di una maggiore costo del dispositivo rispetto a una medicazione standard; l'utilizzo deve essere mirato nei pazienti che non rispondono nonostante un protocollo terapeutico adeguato. Il loro utilizzo è possibile anche nei pazienti portatori di bendaggio elastocompressivo in quanto non ne è compromessa né l'efficacia né la tollerabilità.

EP551 UTILIZZO DI MEDICAZIONE A MATRICE OLEICA A RILASCIO SPECIE REATTIVE DELL'OSSIGENO IN ASSOCIAZIONE A TERAPIA IPERBARICA IN TRAUMA DA SCIACCIAMENTO

Aldo Conti[1], Edgardo Norgini[1], Massimiliano Brilli[1]

[1]Azienda Usl Toscana Sud Est Sede Operativa Grosseto P.O. Misericordia, Camera Iperbarica - Ambulatorio Lesioni Lutanee, Grosseto, Italy

Scopo: Una lesione da schiacciamento è caratterizzata da ischemia acuta, a cui consegue ipossia e danno metabolico cellulare. Condizioni favorenti all'aumento della carica batterica in seguito a necrosi cutanea. Descriviamo la nostra esperienza di approccio multidisciplinare attraverso la somministrazione di ossigenoterapia iperbarica e utilizzo di medicazione avanzata a matrice oleica a rilascio costante e prolungato di specie reattive dell'ossigeno (ROS).

Metodi: Giovane donna di 29 anni, trauma da schiacciamento IV raggio mano sn con frattura metà distale III falange e frammentazione della parte apicale. Sofferenza ischemica e necrosi tissutale del polpastrello e della porzione apicale, porzione ungueale apparentemente indenne.

È stato proposto un ciclo di ossigenazione iperbarica (12 sedute) e applicazione locale di medicazione a matrice oleica a rilascio controllato di specie reattive dell›ossigeno due volte a settimana fino a guarigione.

Risultati: L'ossigenoterapia iperbarica ha consolidato la frattura e demarcato nettamente il tessuto vitale da quello necrotico. La medicazione a matrice oleica a rilascio costante e prolungato di specie reattive dell'ossigeno (ROS),ha creato un microambiente locale favorevole al naturale ripristino della microcircolazione e alla proliferazione cellulare e sfavorevole alla proliferazione dei patogeni, ha facilitato lo scollamento della necrosi, e permesso un rapido debridement e una precoce ripresa dei processi riparativi.

Conclusioni: L'approccio multidisciplinare è una scelta vincente nella gestione delle lesioni cutanee. L'Ossigenoterapia iperbarica ha permesso di recuperare tessuto vitale in anche in zone di distruzione vascolare, mentre l'applicazione di medicazione a matrice oleica a rilascio specie reattive dell'ossigeno , ha ottimizzato tutte le fasi del processo di guarigione.

EP552 ULCERE SCLERODERMICHE E VASCULITICHE…SE IPEROSSIDIAMO IL DOLORE E LA QUALITA' DI VITA MIGLIORIAMO

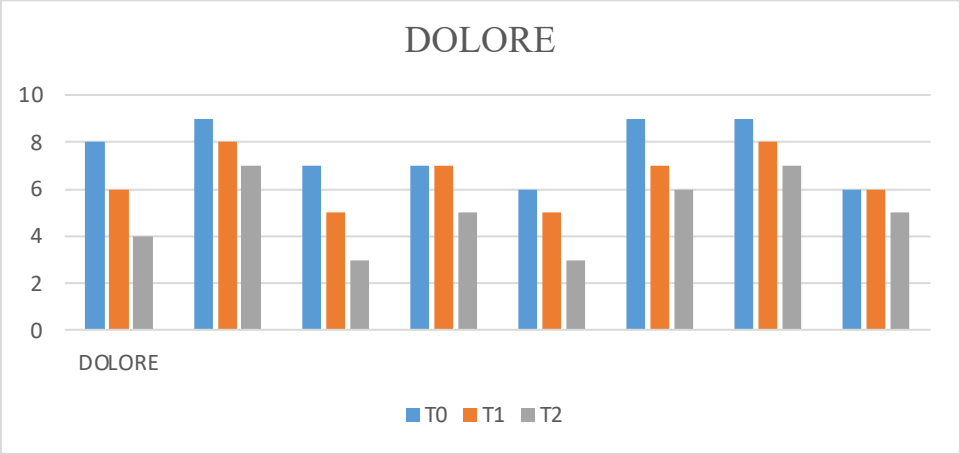
Valentina Martin[1]

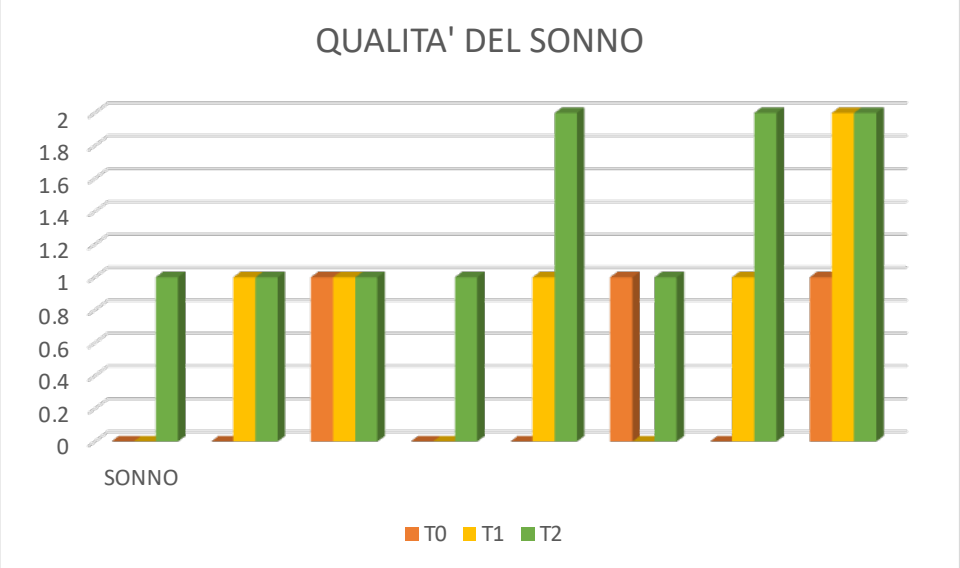
[1]*Poliambulatorio Borgo Cavalli, Ambulatorio Vulnologia, Treviso, Italy*

Scopo: Con questo studio si vuole dimostrare come l'applicazione di una medicazione a base di una matrice oleica a rilascio di specie reattive dell'ossigeno (ROS) in siringa e in supporto per le dita, sia un aiuto valido e concreto per i pazienti portatori di ulcere vasculitiche o sclerodermiche, in particolare per quanto riguarda la gestione del dolore, la qualità del sonno e la qualità di vita.

Metodi: Sono stati selezionati 8 pazienti, 7 di sesso femmine e 1 maschile, di età compresa tra i 50 e 65 anni; tutti sono affetti o da sclerodermia (4) o da vasculite (4) di varia origine, diagnosticata con biopsia; presentavano ulcere, 3 di essi alle dita delle mani, uno alle dita dei piedi, 4 a livello delle gambe; tutti riferivano dolore, perdita del sonno e peggioramento della qualità della vita; tutti avevano di base una terapia con oppiacei per il dolore. Al tempo 0, a 7 giorni, a 14 giorni sono stati valutati con la scala NRS il dolore, con delle domande, alle quali è stato attribuito un punteggio da 0 a 2 la qualità del sonno e infine la posologia della terapia antidolorifica in atto.

Risultati: C'è stata una riduzione del dolore, un miglioramento della qualità del sonno e una riduzione della posologia antidolorifica. Si è evidenziato un miglioramento del letto dell'ulcera, in un caso la completa guarigione.





Conclusioni: L'utilizzo di una medicazione a base di una matrice oleica a rilascio di specie reattive dell'ossigeno ha portato alla riduzione del dolore e a un miglioramento della qualità di vita del paziente con ulcere sclerodermiche e vasculitiche.

EP553 IL FENOMENO DELLE "KENNEDY TERMINAL ULCERS". REVISIONE DELLA LETTERATURA.

Vitavaleria Titone[1]

[1]*ASST Brianza - Ospedale di Vimercate, Vimercate, Italy*

Scopo: Lo scopo di questa revisione della letteratura è quello di fornire delle conoscenze ai professionisti della salute per effettuare una valutazione, gestione, trattamento e un riconoscimento precoce delle KTU, in modo da fornire all'assistito delle cure personalizzate rispettando sempre la dignità e assicurando un'adeguata qualità di vita sia al paziente che ai familiari.

Metodi: E' stata svolta una revisione della letteratura con metodo PRISMA. Al fine di formulare una valida strategia di ricerca, per un'efficace interrogazione delle banche dati e per un ottimale reperimento delle citazioni pertinenti all'argomento considerate è stato sviluppato un quesito clinico seguendo la metodologia PICO.

Risultati: Dai risultati emerge come vengano utilizzati in modo promiscuo termini diversi per descrivere lo stesso problema (KTU, Trombley- Brennan, SCALE, Skin failure). Dalla letteratura è emerso che si tratta di un fenomeno ancora poco indagato soprattutto per quanto riguarda la fisiopatologia, la distinzione tra lesione evitabile (danno da pressione) o inevitabile (KTU), evidenziando le principali differenze come l'eziologia, l'evoluzione, il trattamento e la prognosi.

Conclusioni: Anche la letteratura è sprovvista di evidenze forti, soprattutto per quanto riguarda la fisiopatologia di queste lesioni cutanee, poichè le conoscenze attuali si basano solo su delle ipotesi. Le ulcere terminali di kennedy non sono evitabili, quindi una gestione appropriata e un corretto controllo dei sintomi è utile a mantenere un'adeguata qualità di vita. Aumentare la nostra comprensione sulle KTU consentirà ai professionisti sanitari di erogare cure cliniche mirate e di istruire/indirizzare il pazienti e/o familiari sulle loro scelte di cure di fine vita, oltre a definire un indice prognostico di terminalità. C'è anche la necessità di concordare definizioni e termini e di iniziare a definire I criteri diagnostici per l'insuffienza cutanea e le alterazioni cutanee del fine vita.

EP554 PERCEZIONE DEL PAZIENTE SULL' USO DELLA TERAPIA LARVALE

Simone Maria Da Silva[1], Julianny Barreto Ferraz[2], João Evangelista da Costa[3]

[1]*Rsa Cuore Immacolato di Maria, RSA , Re, Italy*; [2]*HUOL, Comissão de curativos , Natal , Brazil*; [3]*HUOL, Natal, RN, Brazil*

Scopo: Descrivere la percezione del paziente sottoposto a terapia larvale.

Metodo: Studio qualitativo, esplorativo-descrittivo, utilizzando la storia orale di vita come tecnica di raccolta dati e referenza metodologica. Hanno partecipato allo studio sei pazienti con ferite di difficile cicatrizzazione sottoposti a terapia larvale.

Risultati: Le testimonianze dei pazienti/collaboratori indicano vari sentimenti, come la fede, la paura, l'accettazione e il sollevio per il miglioramento della ferita e del dolore. Essi hanno rivelato che non vi sono obiezioni di rilievo e che il chiarimento in merito al trattamento utilizzato si è rivelato importante nella decisione di accettazione.

Conclusioni: I sentimenti espressi dai pazienti, come il miglioramento della ferita, la riduzione del dolore e dell'odore, l'ottimizzazione del processo di guarigione, l'emergere di scintille di speranza per quanto riguarda il ritorno alla loro vita; tutto questo si traduce nei benefici della terapia larvale. Nonostante la sensazione del movimento dell'insetto sulla zona interessata e il disgusto che provoca ad alcuni professionisti e persone, la terapia larvale è stata considerata meravigliosa, soprattutto per la sua efficacia nella pulizia della ferita senza la necessità di interventi chirurgici.

SESSIONE E-POSTER 3: DISPOSITIVI E INTERVENTO (ITA)

EP555 DATI PRELIMINARI SULL'IMPIEGO DEL FLUORESCEIN DIGITAL IMAGING NEL WOUND CARE MANAGEMENT

Barbara Zanuzzi[1], Antonio Cardini[1], Gaetano Lanza[1], Lucia Filippi[1], Claudio Anza[1]

[1]*MultiMedica, Cardiovascolare, Castellanza, Italy*

Scopo: L'infezione batterica è uno dei principali ostacoli alla guarigione delle lesioni cutanee. L'impiego innovativo del fluorescein digital imaging (FDI) nella pratica ambulatoriale consente la visualizzazione real time, non invasiva e topografica della carica di batterica critica sulla lesione cutanea.Lo scopo principale di questa ricerca è stato quello di valutare l'utilizzo del FDI nella gestione ambulatoriale delle ferite cutanee e della ricaduta in termini di applicabilità, costo beneficio e vantaggi.

Metodi: Presso l'ambulatorio di Vulnologia di Multimedica SpA sede di Castellanza sono stati trattati dal 2019 al 2022 N° 14.810 pazienti portatori di lesione cutanea. N. 14.710 casi sono stati trattati in modo tradizionale senza FDI.N. 100 casi sono stati trattati con impiego anche di FDI.

Risultati: Da un primo esame risulta che nei casi trattati con FDI si è osservato un miglioramento oppure una restitutio ad integrum più rapida della lesione a parità di danno cutaneo iniziale (per sede, estensione, presenza di flogosi, essudato, altro).

Conclusioni: Nella nostra breve esperienza l'applicazione del FDI, in aggiunta alla best practice, si è dimostrata semplice ed efficace in quanto ha permesso di guidare l'operatore attraverso specifici piani di trattamento.

EP556 EFFETTI DELLA FOTOBIOMODULAZIONE CON LUCE BLU SUL WOUND BED SCORE IN PAZIENTI AFFETTI DA ULCERE DI VARIA EZIOLOGIA

Cosimo Maglio[1], Monica Gonnelli[1]

[1]*Azienda USL Toscana Sud Est, Ospedali Riuniti della Valdichiana Senese, Sezione Semplice di Vulnologia , Montepulciano, Siena, Italy*

Scopo: Verificare l'efficacia della Fotobiomodulazione con Luce Blu nel riattivare il processo di guarigione di ferite che non rispondevano alle terapie standard, in 4 settimane di trattamento.

Metodi: Sono stati selezionati 31 pazienti sia ambulatoriali che in assistenza domiciliare, con ulcere di varia eziologia, non rispondenti al trattamento standard; i pazienti sono stati randomizzati in due gruppi: per quattro settimane ad ogni visita settimanale i pazienti del gruppo trattato (17) sono stati sottoposti a terapia standard in base all'eziologia e Luce Blu per 60 secondi; i pazienti del gruppo di controllo (17) sono stati trattati solo con terapia standard. La misurazione del Wound Bed Score (WBS)[1] è stata effettuata alla prima visita e alla quarta settimana. Per il trattamento di Fotobiomodulazione è stato utilizzato un dispositivo medico che utilizza luce LED Blu.

Risultati: Il gruppo trattato ha mostrato una performance del WBS migliore: alla prima visita il WBS medio era 7,53 nel gruppo trattato e 10,79 nel gruppo di controllo; alla quarta settimana il WBS medio era 13,65 nel gruppo trattato (+44,8%) e 15,14 nel gruppo di controllo (+28,7%). Nel gruppo trattato sono stati registrati un maggior numero di pazienti guariti (6/17 vs 4/14) ed un minor numero di pazienti con WBS invariata (1/17 vs 4/17).

Conclusioni: In base alla nostra esperienza la terapia con Luce Blu può favorire la ripresa e l'accelerazione del processo di guarigione delle lesioni trofico-ulcerative più complesse, con conseguente riduzione dei costi associati alla gestione del paziente.

1. Schultz GS et al. Wound Repair Regen. 2003 Mar;11 Suppl 1: S1-28.

EP557 TRANSDERMAL OXYGEN DELIVERY SYSTEM IN THE TREATMENT OF CHRONIC ULCERS

Barbara De Angelis[1], Fabrizio Orlandi[2], Chiara Di Segni[2], Margarida Fernandes Lopes Morais D'Autillio[2], Carlo Cossi[2], Valerio Cervelli[2]

[1]*University of Rome Tor Vergata, Plastic and Reconstructive Surgery, Roma, Italy*

Aim: Continuous topical oxygenation provides a continuous flow of 98% pure and humidified oxygen on the wound bed. Used with an occlusive dressing, it creates an oxygen-rich environment, favouring the recovery / acceleration of reparative phenomena. It is indicated in patients with systemic or local oxygenation deficiency, in wounds with slowing or not healing. The therapeutic decision is based on the assessment of chronicity, degree of infection, depth, exudate and on the quality of the wound bed. This study evaluated epithelialization time, scar quality, exudate management, infection control, perilesional care, pain and satisfaction for operators and patients. Furthermore, the cost contraction has been evaluated. Based on our experience, this technique can improve the outcome of interventions such as angioplasty and/or plastic surgery. Furthermore, we achieved pain reduction and speeding up healing.

Method: We carried out our study with a 30 patient group, presenting treatment-resistant diabetical-vascular chronic ulcers. Single-use oxygen delivery system (ODS) placed on wound bed effectiveness in treatment has been evaluated (continuous oxygen providing system).

Results / Discussion: We evaluated re-epitelization time, pain, scarring quality, exudate, infection control, surrounding tissue care, physician and patient satisfaction, as well as expense decrease. We achieved complete lesion healing in 80% of patients within 4 weeks and 100% within 7 weeks.
Conclusion: ODS allows extrinsic oxygen therapy 24 hour a day, 7 days a week. It's a compact device which can be easily worn by patients, optimal placement is simple, therefore improving patient and physician's compliance.

EP558 EDUCAZIONE SANITARIA AL PAZIENTE PORTATORE DI L-VAD E AL CAREGIVER: L'ESPERIENZA DELLA VULNOLOGIA ALL'OSPEDALE SAN RAFFAELE DI MILANO

Linacarmela Ognibene[1], Giulia Vidotto[1], Sara Maria Lupi[1], Ornella Forma[1], Alessandro Corsi[1]

[1]*San Raffaele, Milano, Italy*

Scopo: Nei pazienti portatori di L-VAD (Left Ventricular Assist Device) una delle complicanze più frequenti è l'infezione dell' exit-site e della driveline. Il presente lavoro descrive il percorso educativo sviluppato per i pazienti con L-VAD e dei loro caregiver nell' ambulatorio di vulnologia dell'ospedale san Raffaele. Il percorso educativo one-to-one, intrapreso con i caregiver, li porta ad acquisire conoscenze e abilità, attraverso l'utilizzo di tecniche e materiali dedicati. L'obiettivo è quello di gestire l'exit-site e la drive line al domicilio, eseguendo il cambio medicazione in modo da: prevenire trazionamenti, riconoscere precocemente segni e sintomi di infezione, ridurre spostamenti rispettando la fragilità del paziente.

Metodo: 14 pazienti portatori di L-VAD sono stati inseriti all'interno del percorso educativo. Sono stati stabiliti 8 accessi ambulatoriali di un'ora nell'arco di un mese. Il caregiver inizia a cimentarsi nell'esecuzione della medicazione che viene suddivisa nei tre momenti fondamentali: rimozione della precedente medicazione, detersione e antisepsi, riconfezionamento della medicazione mantenendo la sterilità. Vengono alternati momenti di osservazione a momenti di pratica guidata. Viene consegnato un modellino in scala per proseguire l'addestramento al domicilio.

Resultati: La percentuale di pazienti che hanno sviluppano infezioni locali rimane invariata rispetto alla letteratura internazionale. In tutti i casi descritti, I caregivers sono stati in grado di riconoscere segni precoci di infezione, riducendo al minimo i giorni di ricovero per recidiva.

Conclusioni: Il percorso educativo così definito si è dimostrato efficace nella prevenzione delle infezioni, migliorando la qualità di vita del paziente e del caregiver.

EP559 BIOSTIMOLAZIONE OSSEA: PRESENTE E FUTURO

Alessandro Corsi[1], Ornella Forma[1], Gaetano Pitoia[1], Giulia Vidotto[1], Lina Ognibene[1], Sara Maria Lupi[1], Anna Aloise[1], Umberto Cazzaro[1], Gaetano de Angelis[1], Bertulli Gianluca[1]

[1]*Ospedale San Raffaele, U.O. Vulnologia, Milano, Italy*

Scopo: L'interessamento del piano osseo rappresenta uno dei fattori prognostici peggiori, nel trattamento delle lesioni cutanee, e l'osteomielite è sicuramente la complicanza più temibile.

Abbiamo valutato l'efficacia di un trattamento con biostimolante osseo in ulcere cutanee con esposizione ossea anche con osteomielite.

Metodi: 20 pazienti con lesioni cutanee croniche estese in profondità fino al piano osseo (esposizione, erosione, osteomielite) sono stati trattati con innesto di biostimolante osseo in pasta o granuli. E' stato valutato il tempo di miglioramento (copertura del piano osseo) o guarigione e il controllo radiologico dei segni dell'eventuale osteomielite.

Risultati: Il 75% delle lesioni trattate è giunta a guarigione in tempi inversamente proporzionali all'età dell'insorgenza della lesione stessa.

Il 20% ha mostrato una ripresa del processo riparativo dopo completa copertura del piano osseo.

Il 5% non risposto ma non ha mostrato segni di peggioramento. I segni radiologici dell'osteomielite sono risultati stabili o migliorati.

Conclusioni: La biostimolazione ossea con paste e granuli fornisce sicuramente una possibilità di rigenerazione tissutale anche in corso di osteomielite. Tuttavia, riteniamo che siano necessari trials specifici e un attento follow up, soprattutto per convalidare l'efficacia anche sul processo osteomielitico.

EP560 DEBRIDEMENT DI MANTENIMENTO CON DISPOSITIVO PORTATILE A ULTRASUONI

Alessandro Corsi[1], Ornella Forma[1]

[1]*Ospedale San Raffaele, U.O. Vulnologia, Milano, Italy*

Scopo: La gestione del letto di lesione richiede spesso l'esecuzione di debridement, anche con metodiche invasive ed eseguibili solo in ambiente ospedaliero. Tale atto richiede talvolta successivi reinterventi, al fine di mantenere le giuste condizioni tissutali per la guarigione. Sono disponibili devices utilizzabili in tal senso anche in setting di cura diversi?

Metodi: Utilizzo di un devices ad ultrasuoni, ricaricabile, portatile, nel debridement di mantenimento di lesioni cutanee, in ambiente chirurgico, ambulatoriale e domiciliare.

Risultati: La gestione periodica del fondo di lesione con questo devices (che unisce la doppia azione meccanica di frizione e vibrazione a quella dovuta agli ultrasuoni) è risultata efficace in termini di rimozione del tessuto non vitale, semplice da effettuare in ogni setting, priva di rischi e del tutto indolore per il paziente.

Conclusioni: Il devices utilizzato ha dimostrato ottime performance, sia come versatilità che come semplicità di uso e sicurezza, garantendo l'ottimale gestione del fondo di lesione con metodica semplice è ripetibile nelle diverse realtà di trattamento della persona con lesioni cutanee.

EP561 FOTOBIOMODULAZIONE A LUCE MONOCROMATICA O A FLUORESCENZA? RAZIONALE D'USO NELLA RIGENERAZIONE TISSUTALE

Alessandro Corsi[1], Ornella Forma[1]

[1]*Ospedale San Raffaele, U.O. Vulnologia, Milano, Italy*

Scopo: Gli eventi fisici e chimici scatenati dalla interazione tra luce e tessuti viventi (fotobiomodulazione) sono da anni utilizzati nel Wound Care per trattare lesioni, acute e croniche, al fine di stimolare la ripresa del processo di riparazione tissutale, tramite l'azione sui diversi fattori locali interferenti, ottenuta attraverso l'utilizzo di diverse fonti luminose, colori e tecnologie.

Questa osservazione clinica ha lo scopo di definire quali siano le effettive indicazioni della terapia BioFotonica a fluorescenza rispetto a quella ottenuta con luci monocromatiche (blu, rossa, verde).

Metodi: Analisi retrospettiva delle oltre 7000 applicazioni di FotoBiomodulazione tramite luce fluorescente, con evidenza dei risultati ottenuti in termini di tempistica (miglioramento / guarigione) e di qualità del tessuto rigenerato (esiti funzionali ed estetici), nelle diverse eziologie di lesione.

Risultati: Tutte le lesioni, acute e croniche, di qualsiasi natura, hanno mostrato efficace ripresa del processo riparativo, con risposte più rapide nelle lesioni di più recente insorgenza. I risultati sono maggiori (in accordo con quanto si evince da buona parte della Letteratura e nel rispetto del cosiddetto fenomeno della sincronizzazione) della somma di quelli ottenuti da ciascuna delle luci monocromatiche utilizzabili.

Conclusioni: La FotoBioModulazione tramite luce fluorescente dimostra maggiore efficacia nella modulazione dei diversi fattori locali interferenti nel processo riparativo, rispetto a quanto ottenibile dall'applicazione di luci monocromatiche usate singolarmente. Tuttavia, un'attenta valutazione dei diversi effetti ottenibili permettono di attribuire a ciascuna tecnologia uno specifico ruolo, senza che, tuttavia, si possa parlare di migliori o peggiori trattamenti ma, piuttosto, di precise (e in parte differenti) indicazioni cliniche.

EP562 LA FOTOBIOMODULAZIONE CON LUCE BLU NEL TRATTAMENTO DELLE FERITE DIFFICILI: SERIE DI CASI

Patrizia Almasi[1], Maria Vincenza Stefanizzi[2]

[1]*Ambulatorio Vulnologico, Sondrio, Italy*; [2]*Centro Cardiologico Monzino, Ambulatorio Vulnologico, Milano, Italy*

Scopo: Verificare l'efficacia di un dispositivo medico che utilizza la Luce LED Blu (EmoLED) come terapia per pazienti con feriti difficili.

Metodi: Sono stati selezionati 4 pazienti sottoposti a terapie convenzionali alle quali avevano dato una risposta nulla o parziale, presentando una situazione ancora critica. Paziente 1, cardiopatico, HIV positivo, con deiscenza di ferita sternale per infezione profonda; paziente 2, obesa, con ipertensione arteriosa e dislipidemia con ulcera apicale sul primo dito del piede sinistro; paziente 3 con asportazione importante di tessuto muscolare al braccio sinistro, causa incidente stradale, sottoposto a innesti autologhi, residuava estesa ulcera con sacca ascessuale; paziente 4, con asportazione quasi totale del tessuto cutaneo del piede destro causa incedente stradale, sottoposto a innesti autologhi, residuava ulcerazioni importanti. I pazienti sono stati sottoposti a trattamento con Luce Blu con l'obiettivo di riattivare e completare il processo di guarigione.

Risultati: Alla fine del periodo di trattamento con Luce Blu (dalle tre alle dodici settimane), i pazienti 1, 2 e 4 hanno ottenuto la guarigione completa. Il paziente 3 ha ottenuto una riduzione dell'area lesionata e la risoluzione della sottominatura; la completa chiusura è avvenuta dopo circa un mese dall'ultimo trattamento. Il paziente 4 ha continuato il trattamento dopo la guarigione allo scopo di migliorare la morfologia della cute riparata.

Conclusioni: La nostra piccola esperienza conferma che il trattamento con Luce Blu può modificare l'esito clinico in pazienti con ferite che non rispondono alle terapie standard, a prescindere dall'eziologia.

EP563 LA FOTODINAMICA (PDT) COME TRATTAMENTO ADIUVANTE LA GUARIGIONE DELLE LESIONI ACUTE E CRONICHE: RISULTATI PRELIMINARI DI UNO STUDIO OSSERVAZIONALE

Nella Mosca[1], Luciano Del Papa[1], Maria Tangianu[1], Alessia Bartolini[1], Alessandro Sili[2], Jacopo Fiorini[2]

[1]Policlinico Tor Vergata, Ambulatorio Infermieristico, Roma, Italy; *[2]Policlinico Tor Vergata, UOC Direzione Infermieristica, Roma, Italy*

Scopo: Promuovere il processo di guarigione delle ferite mediante l'utilizzo della PDT attraverso uno studio osservazionale. La PDT è una procedura non invasiva e sicura, in grado di ridurre l'area della lesione e la carica batterica. Ad oggi non è stata utilizzata per le lesioni vascolari e chirurgiche.

Metodi: Sono stati arruolati pazienti con lesione a difficile guarigione recalcitrante ai trattamenti più utilizzati. All'arruolamento la lesione veniva valutata attraverso il TIMERS® e il processo infettivo con un tampone colturale. L'applicazione PDT è stata effettuata una volta a settimana per 8 minuti (energia totale di 60J/cm^2) per 4 settimane. Nei 30 minuti antecedenti al trattamento, veniva applicato sulla lesione un coadiuvante per la PDT. L'endpoint primario era valutare l'impatto della PDT sulla guarigione delle ferite, in termini di dimensioni, mentre come secondario valutare il dolore riferito dai pazienti sulla ferita, attraverso la NRS scale.

Risultati: Sono stati arruolati 6 pazienti, tre uomini e tre donne con età media 64.96 (± 12.22) anni. Tutte le ferite presentavano all'arruolamento una positività per patogeni antibiotico multi-resistenti. Durante il trattamento sono state evidenziate una maggiore granulazione del fondo della ferita e una riduzione media dell'area delle lesioni dell'80%, con contestuale e graduale riduzione del dolore. È stata registrata una diminuzione della carica batterica, seppur senza somministrazione di antibiotici durante il trattamento.

Conclusioni: L'applicazione della PDT ha contribuito al processo di guarigione delle ferite, stimolando la granulazione tissutale, riducendone l'estensione e il dolore, e agendo sulla carica microbica.

EP564 VERSATILITA' DELL' UTILIZZO DEL SOSTITUTO DERMICO IN COLLAGENE NELLA CHIRURGIA RICOSTRUTTIVA DELLA VOLTA CRANICA

Davide Johan Bottini[1], Barbara De Angelis[1], Fabrizio Orlandi[1], Chiara Di Segni[1], Carlo Cossi[1], Ruggiero Marrano[1], Stefano Mogavero[1], Nico Preite[1], Valerio Cervelli[1]

[1]Tor Vergata/Medicina, Plastic and Reconstructive Surgery, Roma, Italy

Scopo: Nella chirurgia ricostruttiva della volta cranica molto spesso il chirurgo si trova di fronte a perdite di sostanza importanti che risultano risolte con diversi tempi chirurgici ed interventi complessi. Alla base di tale chirurgia troviamo lembi, innesti e tecniche combinate a seconda del caso. I sostituti dermici in collagene risultano essere molto versatili perché permettono la più veloce rigenerazione del tessuto deficitario come pure nelle tecniche combinate permettono la minore invasività chirurgico/demolitiva in quei pazienti complicati da altre comorbidità.

Metodi: Presentazione dei protocolli chirurgici in tecnica combinata in diversi pazienti sottoposti a ricostruzione della volta cranica post-oncologica o post-traumatica. Combinazione delle tecniche chirurgiche con sostituto dermico in collagene.

Risultati: Abbiamo ottenuto ottimi risultati in termini di compliance chirurgo /paziente nella tipologia di tecnica combinata. Semplicità di utilizzo in sala operatoria e ottimo risultato funzionale/ estetico degli esiti di guarigione. (iconografia delle tecniche combinate operatorie, delle fasi di guarigione e istologia).

Conclusioni: I sostituti dermici in collagene forniscono una ottima soluzione sia nella chirurgia ricostruttiva in unica soluzione sia nella chirurgia ricostruttiva più complessa con lembi liberi o peduncolizzati , ottimizzano il costo beneficio con riduzione di interventi plurimi con ospedalizzazioni prolungate ed hanno un' ottima compliance operatore/paziente con soddisfacienti esiti della parte guarita.

SESSIONE E-POSTER 4: ULCERA DA PRESSIONE, DOLORE & PREVENZIONE (ITA)

EP566 LA RAPIDITÀ DELLA RIDUZIONE DEL DOLORE E DELL'INFIAMMAZIONE UTILIZZANDO LA FLUORESCENT LIGHT ENERGY (FLE) NELLE ULCERE AUTOIMMUNI

Sara Maria Lupi[1], Gianluca Bertulli[1], Umberto Cazzarò[1], Anna Aloise[1], Gaetano de Angelis[1], Lina Carmela Ognibene[1], Giulia Vidotto[1], Ornella Forma[1], Corsi Alessandro[1]

[1]Ospedale San Raffaele, Milano, Italy

Scopo: Documentare la riduzione del dolore e dell'infiammazione locale attraverso l'utilizzo della fluorescent light energy (FLE) nel trattamento delle lesioni ad eziologia autoimmune. Il pioderma gangrenoso è una manifestazione cutanea poco conosciuta che non viene diagnosticata repentinamente. Di solito si manifesta dopo un trauma ed è associato ad una patologia autoimmune sistemica o a vasculiti. Le caratteristiche del pioderma gangrenoso sono la difficoltà della guarigione, l 'intenso dolore e l'importante infiammazione della cute che porta il paziente a sofferenza. **Metodi:** Sono stati trattati 34 pazienti con ulcere ad eziologia autoimmune. A ciascun paziente è stata somministrata FLE 5 minuti, 2 volte la settimana, per un totale di 8 applicazioni iniziali. Dalla documentazione clinica si estrapolano i seguenti dati:

-data di insorgenza dell'ulcera ed evoluzione

-aspetto dell'ulcera (Wound Bed Score), ripetuto a ciascun accesso

-dolore (scala NRS), ripetuto a ciascun accesso.

Risultati: Si è potuta registrare una riduzione generale del dolore del 20% dopo la prima settimana di trattamento con FLE e fino al 40% dopo due settimane. Il punteggio della WBS è migliorato dalla prima applicazione di 1 o 2 punti già dopo la prima settimana di trattamento nel 35% dei casi.

Conclusioni: La FLE è un trattamento molto efficacie nella riduzione del dolore e dell'infiammazione della cute perilesionale migliorando la qualità di vita del paziente

EP567 VALUTAZIONE DEL DOLORE DURANTE IL DEBRIDEMENT CON L'USO DELLA LIDOCAINA CLORIDRATO CREMA AL 5%

Gloria Dorigo[1], Angela de Siena[2]

[1]ULSS 6 Euganea, Ambulatorio Vulnologico, Italy; *[2]Azienda Ospedaliera Di Verona, Sala Operatoria Cardiochirurgica, Italy*

Scopo: Una delle priorità identificate nella gestione dei pazienti con lesioni e ferite cutanee croniche è il controllo dei sintomi algici. Il dolore deve essere affrontato e gestito in maniera efficace per evitare i disagi che quotidianamente investono la vita del paziente e del caregiver. La terapia antalgica locale con lidocaina 5 % durante le procedure del cambio di medicazione e come terapia additiva dopo la medicazione, rappresenta uno strumento fondamentale del percorso di cura. Il dolore non trattato può portare ad un ritardo nella guarigione dell'ulcera. Il dolore da lesione è un'esperienza sensoriale, psico-fisiologica altamente soggettiva; è multidimensionale e va affrontato con un approccio olistico. Il dolore spesso è mal gestito con ripercussioni sulla persona, sul sistema sanitario e sulla società, comportando spesso in casi di cronicizzazione, una passiva accettazione in quanto considerato come sgradito compagno di vita. Inoltre il dolore persistente aumenta con l'età. La valutazione del dolore è il primo passo per rispondere al bisogno specifico del paziente, infatti è considerato il 5 segno vitale. Il dolore procedurale deriva da un intervento di routine sulla lesione come ad esempio la rimozione della medicazione, le azioni di pulizia o l'applicazione di una nuova medicazione. Può esser associato a qualsiasi intervento che viene normalmente eseguito e che richiederebbe un anestetico locale per gestire correttamente il dolore.

Valutazione del dolore percepito dal paziente con lesione cutanea durante la procedura di debridement, valutando il dolore prima, durante e dopo il debridement con l'uso della lidocaina cloridrato crema al 5 %. L'obiettivo è il miglioramento dell'efficacia terapeutica, della soddisfazione e qualità di vita del paziente e la diminuzione della spesa farmaceutica.

Metodi: Utilizzo della scala NRS per identificare l'intensità del dolore procedurale trattando lesioni cutanee a domicilio. **Risultati:** Nella seguente tabella sono riportati i dati raccolti con l'utilizzo della scale NRS prima, durante e dopo il debridement a seconda dell'età del paziente e della lesione cutanea trattata.

TIPOLOGIA DI LESIONE	PRIMA	DURANTE	DOPO
ULCERA VASCOLARE MISTA (età 70)	7	5	4
ULCERA ARTERIOSA (età 90)	3	2	2
LINFEDEMA DA STASI VENOSA (età 75)	3	0	0
ULCERA VENOSA (età 85)	5	2	2
ULCERA VENOSA (età 77)	2	0	0
ULCERA ARTERIOSA (età 83)	5	2	2
ULCERE MISTE (età 87)	6	1	1
ULCERA ARTERIOSA (età 80)	4	1	1
ULCERA VENOSA (età 70)	2/3	0	0
ULCERA VENOSA (età 65)	5	1	1
LESIONE DA PRESSIONE TALLONE CON ESCERA (età 70)	2	1	1
LESIONE DA PRESSIONE 2 STADIO (età 76)	3	0	0
FERITA NEOPLASTICA (età 58)	9	7	6
ULCERA VASCOLARE MISTA (età 65)	3	0	0
ULCERA ATIPICA PAZIENTE DIABETICO (età 75)	4	0	0

Conclusioni: In conclusione si può notare che con l'uso della lidocaina cloridrato crema 5% il dolore percepito durante la procedura di debridement diminuisce dopo la sua applicazione, anche senza l'assunzione di antidolorifici sistemici. Inoltre ha portato ad una riduzione della dimensione della lesione ed ha dimostrato un'elevata tollerabilità.

Fase iniziale

Durante il trattamento

Guarigione

EP568 TRANSLATION AND CROSS-CULTURAL ADAPTATION OF THE NEONATAL SKIN RISK ASSESSMENT SCALE (NSRAS) TO ITALIAN

FELICE CURCIO[1 2], MANUEL VAQUERO-ABELLÁN[3], MARIA ZICCHI[2], OUMAIMA EZ ZINABI[4], MANUEL ROMERO SALDAÑA[3 5]

[1]*University of* Córdoba, Department of Nursing, Spain; [2]*Università degli Studi di Sassari, Facoltà di Medicina, Sassari, Italy*; [3]*University of* Córdoba, Department of Nursing, Cordoba, Spain; [4]*Humanitas Gavazzeni Hospital, Bergamo, Italy*; [5]*Maimonides Biomedical Research Institute of Cordoba (IMIBIC), GA 16 Associated Group Lifestyles, innovation and health, Cordoba, Spain*

Aim: The Neonatal Skin Risk Assessment Scale is the only tool exclusively designed for neonatal populations and it is the most recommended for neonatal skin risk assessment. To date, the NSRAS has been validated in different languages, but an Italian version was lacking. Consequently, the aim of this study was to translate and to provide a cross-cultural adaptation of the NSRAS into Italian.

Method: The translation and cross-cultural adaptation were conducted following an international instrument translation guideline across five steps: (1)translation, (2)forward translation review, (3)back translation, (4)back-translation review and (5)pre-test. Content validity was measured using the content validity index (CVI), calculating Aiken's coefficient, according to the opinion of an expert group.

Results / Discussion: The final version approved by the expert committee was well understood by all nurses who participated in the study and has obtained a good face validity and content validity. Expert evaluation provided a CVI-Total of 0.92 [0.85 - 0.96], with Aiken V values for each item analyzed ranging between 0.85 to 0.97.

Conclusion: The Italian Neonatal Skin Risk Assessment Scale (i-NSRAS) is a clear, simple, relevant, and unambiguous tool. It is also updated to current knowledge on PUs and evaluates the presence of clinical devices as a risk factor in neonatal population.

EP569 IMPACTE DE LA COVID-19 EN EL PROCÉS D'IMPLANTACIÓ DE LES DIRECTRIUS DE MILLORS PRÀCTIQUES DE LA RNAO; EFECTES SOBRE ÚLCÈRES/LESIONS PER PRESIÓ

Carmen Blasco[1]

1*Hospital Universitari Germans Trias i Pujol, Barcelona, Spain*

Aim: To assess the impact of COVID-19 on the implementation process of the Registered Nurses' Association of Ontario Best Practice Guideline (BPG) *Risk Assessment and Prevention of Pressure Ulcers.*

Method: A retrospective, pre- and post-intervention, quasi-experimental design, comparing quality indicators of pressure ulcers before and after implementation of BPG. All patients admitted to the internal medicine unit during the study period (2017-2021) were included, excluding those who had died or been discharged in the first 24 hours. Statistical analyses were performed using R comander. A *P* value of less than 0.05 was considered to indicate statistical significance.

Results / Discussion: 946 patients were included between the years 2017 and 2021; 49.9% of the people included were men and 50.1% were women. The average age for the two periods was 75 years. In both study periods, the percentage of individuals who presented pressure ulcers was 6%. There was no statistically significant evidence to consider that there was a difference between the number of pressure ulcers in 2017 and 2021 (p=0.72). Regarding the proportion of nosocomial pressure ulcers, a considerable increase was observed, being 28.1 % in 2017 and 59.3% in 2021.

Conclusion: Dedications of the nursing teams during COVID-19 were focused on providing the best possible care for patients. However, the increase in patient care needs was detrimental to quality standards. The results of this study lead to the design of improvement strategies to deal with possible future adverse events.

EP570 TRATTAMENTO COMBINATO CON UTILIZZO DEI POLIDESOSSINUCLEOTIDI IN PAZIENTI PARAPLEGICI AFFETTI DA LDP COMPLICATE

Barbara De Angelis[1], Chiara Di Segni[1], Fabrizio Orlandi[1], Valerio Cervelli[1]

1*Tor Vergata/Medicina, Plastic and Reconstructive Surgery, Roma, Italy*

Scopo: I Polidesossiribonucleotidi, particolarmente indicati per la riparazione di danni causati ai tessuti, esplicano la lora attivita' attivando la capacita' cicatrizzante , accelerarando il processo di guarigione di ferite difficili e delle ulcere croniche ,migliorandone le capacità riparative.

Metodi: Nel nostro studio abbiamo somministrato il i dessossiribonucleoditi in doppia dose 2 file da 5 ml / una volta a settimana per un periodo di 6 mesi . Il gruppo scelto composto da 20 pz paraplegici, tutti uomini di età compresi tra 30 ed i 70 anni paraplegici da almeno 10 anni , con ulcere da pressione di dimensioni maggiori di 10cm x 10 cm. L'esecuzione della mono-somministrazione veniva effettuata perilesionalmente ,prevedeva un intervallo di ca 2 cm di distanza l 'una dall'altra con una siringa luer-lock ed un ago da 18g che infiltrava fino a max una profondità di 2 cm .Si procedeva poi alla medicazione con sulfadiazina argentica e poliuretano espanso a nido d'ape previa disinfezione e detersione.

Risultati: In tale studio, i risultati preliminari hanno valutato l'efficacia dei desossiribonucleoditi sia nel miglioramento dei decubiti da pressione in pazienti paraplegici che nella riduzione della tempistica in relazione al gruppo di paziente affetti da stessa patologia e non trattati con le infiltrazioni. Sono stati effettuati esami istologici delle lesioni pere e post trattamento.

Conclusioni: Lo studio preliminare ancora in evoluzione dimostra che i polidesossiribonucleotidi uniti tra loro da legami fosfodiesterici raggiungono con elevato tropismo il sito flogistico interagendo con elementi quali piastrine e fibronectina risultando in grado di facilitare la rigenerazione tessutale, diminuendo il tempo di guarigione, attivano la neoangiogenesi ed infine risultano essere facilmente utilizzabili da personale medico.

Placentex Fiale

EP571 GESTIRE AL MEGLIO LE LESIONI DA PRESSIONE: UN PROGETTO DI FORMAZIONE INTERATTIVA E-LEARNING PER GLI INFERMIERI IN AZIENDA SANITARIA

Martina Trentini[1], Elisa Trentini[1], Serena Perli[1], Paola Onorati[1], Francesco Palmisano[1], Cristina Moletta[1], Federica Bresciani[1], Cristina Chiogna[1], Giuseppina Gasperi[1], Camilla Mattiuzzi[1], Cristina Manco[1], Diana Paterno[1], Zambiasi Paola[1]

1*Azienda Provinciale per i Servizi Sanitari, Trento, Italy*

Scopo: Aggiornare e uniformare le conoscenze degli infermieri dell'Azienda sanitaria nella gestione delle lesioni da pressione (LdP) negli adulti; supportare i professionisti nella scelta degli interventi di prevenzione e trattamento sulla base delle migliori evidenze disponibili, tenendo conto delle esigenze del paziente e del contesto di cura, e promuovere un approccio alla persona multiprofessionale e multidisciplinare.

Metodi: In Azienda è attivo un Comitato Aziendale multiprofessionale e multidisciplinare per la prevenzione e gestione delle ulcere da pressione che, nell'ambito del suo mandato, ha lavorato alle Linee guida aziendali per la prevenzione e il trattamento delle LdP negli adulti e alla messa a sistema di attività di sorveglianza delle LdP negli Ospedali.

Sulla base dei dati delle indagini di prevalenza e dell'analisi del fabbisogno formativo, nel 2022 è stata progettata un'apposita formazione accreditata, che prevede una prima fase innovativa ed interattiva in modalità eLearning ed una seconda in presenza per la discussione di casi complessi.

Nel 2022 è stata effettuata una prima edizione pilota per verificarne la tenuta formativa.

Risultati: I partecipanti all'edizione pilota sono stati 126, di cui 12 hanno completato la formazione in presenza; il fabbisogno formativo stimato è di 1800 infermieri, del servizio ospedaliero e territoriale.

Dal questionario di gradimento emergono: alta rilevanza ed esaustività degli argomenti, alta qualità ed utilità educativa e formativa, adeguata trasferibilità con soddisfazione del 94%.

Conclusioni: L'edizione pilota ha confermato che l'interattività della formazione eLearning è fondamentale per migliorarne l'efficacia ma ulteriori conferme si avranno nel 2023 con la prosecuzione del progetto.

EP572 L'EFFICACIA DI UNA CORRETTA IGIENE NELLA PREVENZIONE DELLE LESIONI DEL CAVO ORALE IN TERAPIA INTENSIVA NEUROCHIRURGICA

Nadia Pennacchio[1], Laura Dentali[2]

[1]San Raffaele, Neurorianimazione, Milano, Italy; *[2]San Raffaele, Milano, Italy*

Scopo: Le lesioni del cavo orale in Terapia Intensiva riguardano in particolare le mucose, possono insorgere rapidamente o in modo lento e progressivo. Assicurare un'adeguata e costante igiene del cavo orale nei pazienti intubati impedisce l'accumulo di placca dentale o secrezioni, che possono contribuire a ridurre il rischio di sviluppare ventilator associated pneumonie. L'obiettivo di questo studio è quello di dimostrare l'efficacia dell'igiene del cavo orale nei pazienti intubati nei reparti di Terapia Intensiva Neurochirurgica con l'obiettivo di prevenire principali patologie correlate a lesioni del cavo orale.

Metodi: Studio Osservazionale prospettico. È stato arruolato un campione di 50 pazienti intubati a cui è stata eseguita come da pratica clinica standard l'igiene del cavo orale 3 volte nelle 24 ore. Tale trattamento ha presupposto l'utilizzo di una matrice oleico iperossidante applicata a gengive, interno guance e lingua. Attraverso una scheda ad hoc è stata valutata l'evoluzione dello stato di salute del cavo orale.

Risultati: I primi risultati dello studio mostrano un miglioramento delle lesioni del cavo orale dopo 3 giorni che si rimarginano completamente dopo 5-7 giorni dopo inizio del trattamento.

Conclusioni: Una efficace e continua igiene del cavo orale nei pazienti intubati in terapia intensiva può essere efficace prima per la prevenzione poi per la cura delle principali patologie. Infatti, l'utilizzo di una matrice oleica iperossidante applicata sulle gengive, lingua e interno guance, è in grado di mantenere l'umidità ideale, avere un'azione filmogena di protezione favorendo la riepitelizzazione e la proliferazione dei fibroblasti.

EP573 NON C'È CURA SENZA IGIENE

Maria Cristina Caballo Garrido[1], Nadia Pennacchio[2], Sabrina Zarantonello[3], Germana Mazzon[4], Halina Liberek[5]

[1]IRCCS Ospedale San Raffaele, Rianimazione e Terapia Intensiva Generale, Milano, Italy; *[2]IRCCS Ospedale San Raffaele, Terapia Intensiva Neurochirurgica, Italy*; *[3]IRCCS Ospedale San Raffaele, Terapia Intensiva Cardiochirurgica/ Unità Coronarica, Italy*; *[4]IRCCS Ospedale San Raffaele, Medicina delle Cure Avanzate Iceberg, Italy*; *[5]IRCCS Ospedale San Raffaele, Cardiochirurgia, Italy*

Scopo: Condividere l'esperienza di una tecnica innovativa "la doccia idro-molecolare" sperimentata in alcune Unità Operative dell'Ospedale San Raffaele nell'approccio alle cure igieniche di pazienti a complessità crescente.

Metodi: Nelle Unità Operative di Terapia Intensiva Cardiochirurgica, Terapia Intensiva Neurochirurgica, Rianimazione e Terapia Intensiva Generale, Medicina 3 Iceberg e Cardiochirurgia è stata provata una nuova tecnologia per l'igiene del paziente: doccia idro-molecolar

Risultati: Il sistema si è dimostrato di facile trasporto, impiego e sanificazione.

La sicurezza microbiologica è rispettata poiché il rischio di contaminazione è assente.

Il dispositivo permette di lavare i cappelli in completa sicurezza, si evita l'impiego di presidi ingombranti e per nulla maneggevoli.

L'igiene in zone poco raggiungibili è garantita così come la rimozione di antisettici colorati.

La nebulizzazione dell'acqua è risultato molto gradevole ai pazienti vigili.

Riduzione dei tempi di esecuzione della procedura di igiene a letto.

Conclusioni: Sono stati ridotti i tempi di esecuzione delle cure igieniche soprattutto nei casi in cui vengono richiesti più trattamenti al giorno.

Apprezzata la possibilità d'uso di detergenti a base di CLOREXIDINA per procedure invasive o negli isolamenti da contatto.

Testato su pazienti vigili hanno riferito una piacevole percezione con questo trattamento.

EP574 UNA REVISIONE BIBLIOGRAFICA SULLA PREVENZIONE E TRATTAMENTO DELLE LESIONI CUTANEE RELATIVE AI DISPOSITIVI MEDICI

Consuelo Macchitella[1]

1*Azienda Ospedaliero Universitaria Careggi, Professioni Sanitarie, Firenze, Italy*

Scopo: L'outcome della revisione è stato individuare le strategie di prevenzione e di trattamento delle lesioni cutanee, relative al fissaggio dei dispositivi medici, per ridurne l'insorgenza nel setting di terapia intensiva.

Metodi: La revisione è stata condotta attraverso studi basati su disegni randomizzati controllati, realizzati nel periodo 2000 - 2020, che valutavano l'efficacia di un intervento preventivo nei pazienti individuati a rischio di sviluppare MARSI in terapia intensiva, a confronto di un mancato trattamento. Questo studio si è svolto tra settembre e dicembre 2022, includendo pazienti di terapia intensiva di età > 65 anni con quadro clinico compromesso, quindi sottoposti a lunghi tempi di degenza e con necessità di dispositivi medici.

Risultati: Da questa revisione è emerso che la continua pressione e trazione dei dispositivi medici sui tessuti cutanei nei pazienti, in un reparto di terapia intensiva, ha un'incidenza di lesioni cutanee: eritema (48,0%), dermatite da contatto (5,5%), stripping della pelle (5,4%), lesioni da tensione o vesciche (4,6%), macerazione (2,1%), lacerazioni pelle (1,6%).

Conclusioni: La scelta appropriata di un prodotto adesivo, unito al riconoscimento delle problematiche associate, ridurrebbe la prevalenza delle MARSI rappresentate: dall'eritema il 76%, dalle lesioni da forze di taglio il 7%, dalla dermatite e dallo stripping della pelle il 9%. Dunque è necessario valorizzare la formazione e l'aggiornamento del personale sanitario coinvolto nella prevenzione, incrementando l'utilizzo di medicazioni ipoallergiche, traspiranti e a bassa tensione superficiale. Questo allo scopo di ridurre processi di macerazione della cute e danni meccanici generati dagli effetti dalla continua rimozione del prodotto adesivo.

SESSIONE E-POSTER 5: FERITE ACUTE & ULCERA ALLE GAMBE (ITA)

EP575 SCAFFOLDS IN THE TREATMENT OF COMPLEX INJURIES IN POLYTRAUMA PATIENTS

Giamopaolo Monacelli[1 2 3], Alessandra Berardi[2]

[1]*Sapienza Università di Roma, dea, Roma, Italy*; [2]*Sapienza Università di Roma, Dipartimento Emergenza e Accettazione Policlinico Umberto 1, Roma, Italy*; [3]*Università Sapienza Clinica Chirurgica D'Urgenza, Dipartimento Emergenza e Accettazione Policlinico Umberto 1, Roma, Italy*

Aim: Scaffolds are stable resources for reconstructive surgery in trauma as well.

From February 2020 to February 2022, we studied a group of patients (25), who on admission to the trauma center of our local health care service, presented an AIS > 3 (Advanced Injury scale), concomitant with severe tegumental injuries, resorting to "Damage Control".

The early use of major reconstructive surgery on limb injuries determines the outbreak of fatal complications. ("Double Hit").

In the early stages of polytrauma management, we associated the use of scaffolds with the Negative Pressure Wound Therapy obtaining an improvement in wound healing and bone coverage, defined as "inert" over time.

The critical conditions of patients with traumatic injury of ortho-plastic nature have forced us, in compliance with the indications of the Damage Control technique, to pursue an early reconstructive approach with bovine and porcine scaffolds, associated with Negative Pressure Wound Therapy. This Wound Care solution implementing the necessary bone "coverage" is achievable without causing additional stress for the body.

Method: Scaffolds and Negative Pressure Wound Therapy lasted for an average of 22 days.

Results: There were 24 recovery cases, with low bone infections (3 cases) and one amputation due to necrosis.

Conclusion: In conclusion, the combination of scaffolds and Negative Pressure Wound Therapy represents a possible solution for those ortho-plastic traumas, in which the major surgical reconstructive approach is prevented by the severity of the patient's conditions, reducing the risk of sepsis and the related increase in major amputations.

EP576 SCAFFOLDS AND AUTOLOGOUS SKIN CELLS SUSPENSION GRAFTING AS AN ALTERNATIVE TO RECONSTRUCTIVE SURGERY IN TRAUMA

Giamopaolo Monacelli[1], Alessandra Berardi[2]

[1]Sapienza Università di Roma, Dipartimento Emergenza e Accettazione Policlinico Umberto 1, Roma, Italy; *[2]Sapienza Università di Roma, Rome, Italy*

Scopo: The use of scaffolds and autologous skin cell suspension grafts represents an efficient alternative to reconstructive plastic surgery in the trauma department. In our twelve months of experience, we have used bovine scaffolds and autologous skin cell suspension on injuries of traumatic nature in patients who couldn't undergo reconstructive surgery because of probable therapeutic failure.

Patients were ineligible for surgery due to the following criteria: elderly age, comorbidities (decompensated diabetes, infections, vasculopathy, venous insufficiency, heart disease, obesity), allergies, systemic therapies with glucocorticoids or chemotherapy, areas damaged by skin aging and patient's lack of consent to surgery.

Resorting to scaffolds combined with autologous skin cell suspension grafts represents a therapeutic solution that despite the absence of donor site morbidity allows the coverage of areas damaged by tegumental loss, with excellent effective and aesthetic results.

Metodi: The treatment, following debridement, demanded the urgent use of scaffolds and grafts of autologous skin cell suspension. The "Wound Bed Preparation" (WBP) is an essential requirement for their correct use.

Risultati: Presentation of 3 cases.

Conclusioni: Scaffolds and autologous skin cell suspension grafts represent the solution for those traumas where reconstructive surgery is hindered by factors that predict reparative failure, thus reducing the increase in the risk of major amputations.

EP577 IL TRATTAMENTO LOCALE DOPO TERAPIA RADIANTE IN UNA PAZIENTE CON CARCINOMA SQUAMOCELLULARE INFILTRANTE DELL'OROFARINGE

Sonia Brizzi[1], Cinzia Datteri[1], Claudia Sergiampietri[1]

1*Azienda Usl Toscana Nord Ovest, Carrara, Italy*

Scopo: La radioterapia è da considerarsi parte integrante del programma terapeutico per il trattamento del carcinoma squamocellulare infiltrante dell'orofaringe. La cute irradiata è molto sensibile e le alterazioni cutanee acute che si possono manifestare sono molteplici. È importante riconoscere e gestire in maniera adeguata e tempestiva le complicanze della terapia radiante per evitare ai pazienti sofferenze fisiche e psicologiche non necessarie.

Metodi: Si è approfondito il caso clinico di una paziente di 62 anni alla quale è stato diagnosticato un carcinoma squamocellulare infiltrante dell'orofaringe. Dopo 3 cicli di Chemioterapia e, in contemporanea, di 30 sedute di Radioterapia è comparsa, a livello del collo bilateralmente, un' epiteliolisi umida, accompagnata da intenso bruciore e dolore. La paziente è giunta alla nostra osservazione dopo circa una settimana dal termine della radioterapia. Abbiamo iniziato il trattamento con una medicazione rivestita con una matrice oleica costituita da olio extravergine di oliva biologico arricchita di ossigeno in grado di rilasciare specie reattive di ossigeno (ROS), associando un gel topico, della medesima composizione. Il cambio medicazione veniva eseguito ogni 72 ore, autonomamente.

Risultati: La paziente ha riscontrato un notevole beneficio, in termini di riduzione del bruciore e del dolore, che hanno iniziato ad attenuarsi già dopo la seconda medicazione. Anche l'estensione dell'epiteliolisi ha iniziato a ridursi notevolmente, fino alla completa riparazione cutanea avvenuta alla quarta medicazione.

Conclusioni: L'utilizzo di medicazioni con matrice oleica costituita da olio extravergine di oliva biologico arricchita di ossigeno in grado di rilasciare specie reattive di ossigeno (ROS), rappresenta un valido ed efficace trattamento, in grado di gestire in modo efficace tutti gli effetti collaterali della terapia radiante. .

EP578 COST OF ILLNESS DELLE FERITE DIFFICILI IN ITALIA: UNO STUDIO SU REAL WORLD DATA

Francesco Saverio Mennini[1], Matteo Scortichini[1], Paolo Sciattella[1]

1*Economic Evaluation and HTA (EEHTA CEIS), Facoltà di Economia, Università degli Studi di Roma "Tor Vergata", Roma, Italy*

Scopo: Stimare il consumo di risorse e la spesa ospedaliera a carico del SSN per il trattamento dei pazienti con ferite difficili in Italia attraverso *real world data*.

Metodi: Studio osservazionale, retrospettivo e multicentrico, basato su dati provenienti da 11 strutture ospedaliere.

La popolazione di riferimento è rappresentata da tutti i pazienti maggiorenni dimessi nel 2021, con diagnosi di:

- Ferite traumatiche
- Amputazione con moncone aperto e toilette chirurgica
- Deiscenze di sternotomie
- Lesioni da pressione
- Ferite chirurgiche
- Ulcere diabetiche
- Ulcere vascolari
- Fasciotomie
- Malattie/infezioni della cute con perdita di sostanza

Sono esclusi i pazienti con ulcere neoplastiche, ustioni, ferite chirurgiche chiuse, addome aperto.

Il consumo di risorse verrà stimato considerando le giornate di degenza, i farmaci, il trattamento della ferita e gli esami effettuati durante il ricovero.

La valorizzazione dell'assistenza avverrà considerando i prezzi di fornitura dei farmaci e le tariffe di rimborso regionali.

Risultati: Lo studio è stato approvato dai Comitati Etici delle strutture partecipanti ed è in corso la raccolta dati.

Lo studio prevede un'analisi descrittiva delle caratteristiche demografiche e del percorso assistenziale dei pazienti. Verranno dettagliate le prestazioni erogate durante il ricovero e la relativa valorizzazione economica, stratificando i risultati per patologia e severità.

Conclusioni: Ad oggi, non esiste uno studio di *Cost of Illness* che abbia stimato i costi associati al trattamento delle ferite difficili in Italia. Il presente lavoro permetterà di rispondere a questo gap informativo analizzando i dati *real world* provenienti da centri di riferimento nazionale.

EP579 ESITI CLINICO ASSISTENZIALI DELL' INFERMIERE SPECIALISTA IN WOUND CARE NEGLI UTENTI AFFETTI CON LESIONI CRONICHE DEGLI ARTI INFERIORI: UNA REVISIONE SISTEMATICA DELLA LETTERATURA

Dario Monaco[1 2], Serenella Savini[3], Roberta Marchini[3], Simona Ursino[4], Cristina Matranga[5], Carlo Turci[6]

[1]ASL Roma 4 Tutor Didattico Corso Di Laurea Infermieristica Sapienza, Italy; *[2]ASL Roma 4, Coordinatore clinico Rete Wound Care Ospedale Territorio ASL Roma 4, Italy*; *[3]ASL Roma 4 I.O. 1 Dipartimento professioni Sanitarie E Sociale, Italy*; *[4]ASL Roma 4, Direttore Sanitario ASL Roma 4, Italy*; *[5]ASL Roma 4, Direttore Generale ASL Roma 4, Italy*; *[6]ASL Roma 4 Direttore U.O.C. DAPSS Dipartimento Professioni Sanitarie E Sociali, Italy*

Scopo: Gli Infermieri specialisti in Wound Care (CNSws) sono riconosciuti nell'ambito ospedaliero e territoriale quale elemento chiave nella gestione degli utenti affetti da VLU (arteriose, venose, miste), per migliorare gli esiti clinico assistenziali. La letteratura propone conoscenze frammentate che richiedono di essere riassunte e sintetizzate. L'obiettivo è di identificare, riassumere e mappare tutte gli outcomes in relazione al management clinico dei CNSws negli utenti affetti da VLU.

Metodi: Revisione sistematica integrativa della letteratura, condotta con metodo PRISMA.La revisione è stata effettuata sulle banche dati Pubmed, Cinhal, Scopus, Cochrane , in un arco di tempo da dicembre 2021 a giugno 2022. Sono stati inclusi studi osservazionali o sperimentali relativi a utenti affetti daVLU presi in carico dal CNSws.

Risultati: Dei 1430 articoli sottoposti a revisione, 9 studi hanno soddisfatto i criteri di inclusione. Gli esiti più frequenti erano i tassi di guarigione e la qualità di vita dei pazienti con VLU. Risultati meno frequenti sono stati l'ottimizzazione delle risorse, i tempi di guarigione, il numero di accessi ospedalieri e aspetti economici ivi correlati.

Conclusioni: La revisione integrativa afferma che i CNSws possono migliorare i tassi e i tempi di guarigione, ridurre il numero di accessi ospedalieri, che gli aspetti economici e la qualità di vita degli utenti affetti da VLU. Studi fututidovrebbero prevedere i CNSws nelle VLU nei percorsi clinico assistenziali nei setting Ospedale-Territorio, quale garante per la qualità delle cure.

EP580 TRATTAMENTO CON MONOCITI DA SANGUE PERIFERICO NEI PAZIENTI CON ISCHEMIA CRITICA NON ULTERIORMENTE RIVASCOLARIZZABILE

Patrizia Dalla caneva[1 2], Pierfrancesco Frosini[3], Renzo Lombardi[4 5], Claudia Lasagni[3], Emiliano Chisci[1], Filippo Turini[5], Stefano Michelagnoli[5]

[1]Ospedale Torregalli, Firenze, Italy; *[2]Ospedale San Jacopo, Chirurgia Vascolare, Italy*; *[3]Ospedale San Jacopo, Italy*; *[4]Ospedale San Jacopo, Chirurgia Vascolare, Pistoia, Italy*; *[5]Ospedale Torregalli, Chirurgia Vascolare, Firenze, Italy*

Scopo: I pazienti affetti da ischemia critica non ulteriormente rivascolarizzabili con lesioni trofiche presentano una qualità di vita molto scadente a causa del dolore. Gli stimolatori midollari o gli interventi di simpaticectomia lombare (specie in passato) possono ridurre la sintomatologia dolorosa, da alcuni anni sembra portare un beneficio a questi pazienti (sia sulla riduzione del dolore che sul miglioramento delle lesioni) il trattamento con monociti da sangue periferico (A-PBMNC: Autologous Peripheral Blood-MonoNuclearCells) che presentano proprietà angiogenetiche ed antiinfiammatorie.

Metodi: Abbiamo trattato 29 pazienti affetti da ischemia critica con dolore a riposo e ulcere trofiche. 2Aneurismi poplitei trattati con 2 bypass ostruiti anche dopo fibrinolisi inefficace. Prevalentemente maschi affetti da ipertensione arteriosa, dislipidemia, diabete mellito. Di questi 3 pazienti dializzati e 18 affetti da cardiopatia ischemica. Tutti sono stati sottoposti ad almeno un tentativo di rivascolarizzazione endovascolare. Tutti trattati con tre cicli di infiltrazione con monociti. Un prelievo di 120 cc di sangue periferico che viene filtrato mediante sistema a filtrazione selettiva ed impiantate intra-muscolarmente lungo il decorso dei vasi tibiali e peri-lesione a distanza di 30 giorni

Risultati: 2 Pazienti affetti da IRC in HD sono stati candidati ad amputazione maggiore, le lesioni inferiori a 1 cm sono guarite a 6-12mesi dalle procedure,1decesso(COVID+), 86.2% di miglioramento del dolore

Conclusioni: Il trattamento con monociti nella nostra esperienza ha mostrato buoni risultati in termini di miglioramento della guarigione delle lesioni e soprattutto un netto miglioramento del dolore valutato con scala VAS. I pazienti che hanno risposto meno al trattamento erano quelli in trattamento dialitico. La procedura (effettuata generalmente in aestesia locoregionale) ha consentito una riduzione delle amputazioni maggiori, una maggiore e più veloce guarigione delle lesioni trofiche, riduzione e scomparsa del dolore e un miglioramento della ossigenazione periferica valutata mediante TcPO2.

EP581 LA FRAZIONE VASCOLO STROMALE NELLE LESIONI CRONICHE DEGLI ARTI INFERIORI: NOSTRA ESPERIENZA

Renzo Lombardi[1], Patrizia Dalla caneva[1], Cristiana Baggiore[2], Francsesca Falciani[3], Roberto Polignano[4], Stefano Michelagnoli[1]

[1]Ospedale Torregalli, Chirurgia Vascolare, Firenze, Italy; *[2]Ospedale Torregalli, Diabetologia, Firenze, Italy*; *[3]Ospedale Torregalli, Osservatorio lesioni cutanee, Firenze, Italy*; *[4]Ospedale Torregalli, Medicina Vascolare, Firenze, Italy*

Scopo: I costi schiaccianti dei servizi di cura delle ferite stanno aumentando in tutto il mondo. Il mercato dei prodotti per la cura delle lesioni sta superando I 15 miliardi di dollari. Le ferite croniche dell'arto inferiore rappresentano la frazione più grande, di queste le ulcere venose e del piede diabetico ne rappresentano il 70-90%. La medicina rigenerativa da sempre cerca con vari presidi di accelerarne il processo di guarigione. E' ben noto che il tessuto adiposo umano è fonte di cellule staminali multipotenti, in particolare la frazione vascolo stromale (ottenuta per centrifugazione dal tessuto adiposo e iniettata a livello delle lesioni) pare fornire buoni risultati in termini di guarigione per le lesioni croniche.

Metodi: Abbiamo trattato dall'inizio della nostra esperienza 20 pazienti affetti da lesioni croniche degli arti inferiori che non tendevano alla gaurigione da oltre 6 mesi (1 ulcera ischiatica da decubito, 4 ulcere venose, 4 post traumatiche, 6 arteriose, 5 ulcere diabetiche del piede). In tutti I casi il trattamento delle lesioni con la frazione vascolo stromale ottenuta da tessuto adiposo è stata preceduta da debridement.

Risultati: Tre pazienti non hanno risposto, dei restanti si è osservato una risposta significativa a partire dalla seconda settimana, completa guarigione a 3 mesi in 15 pazienti.

Conclusioni: Il trattamento con la frazione vascolo stromale ha dato risultati incoraggianti e si è dimostrato essere di semplice utilizzo, ben tollerato dal paziente e con buono il rapporto costi/benefici.

EP582 LA FOTOBIOMODULAZIONE PER IL TRATTAMENTO DELLE LESIONI NO HEALING

Renzo Lombardi[1], Antonio De Luca[2], Cristiana Baggiore[3], Sergio Bruni[4], Massimiliano Telleschi[4], Genny Barnini[4], Stefano Michelagnoli[1]

[1]Ospedale Torregalli, Chirurgia Vascolare, Firenze, Italy; *[2]Ospedale San Giuseppe, Diabetologia, Empoli, Italy*; *[3]Ospedale Torregalli, Diabetologia, Firenze, Italy*; *[4]Ospedale San Giuseppe, Ambulatorio Lesioni, Empoli, Italy*

Scopo: Le lesioni croniche sono definite come lesioni che non sono riuscite a procedere in modo ordinato e tempestivo nelle tappe dei processi di guarigione e con una incidenza che è in aumento. Ciò comporta alti costi per la gestione incidendo sul 3% della spesa sanitaria e peggiorando la qualità della vita. La maggior parte è rappresentata da lesioni diabetiche, da pressione e venose. Tra i trattamenti di medicina rigenerativa che hanno la finalità di far ripartire il processo di guarigione, da alcuni anni il trattamento con fotobiomodulazione pare fornire risultati incoraggianti.

Metodi: La nostra è una esperienza iniziale su 11 pazienti affetti da lesioni croniche a varia eziologia (3 arteriose, 1 venosa, 2 mista, 2 pressione di cui una paziente con artrite reumatoide, 3 diabetiche) e non tendenti a guarigione da oltre 6 mesi. Le lesioni erano localizzate, 8 a livello della gamba, 2 a livello del piede, 1 a livello di gamba e piede (in un paziente HIV positivo e diabetico). Le dimensioni delle lesioni variavano da un minimo di 4 cm2 ad un massimo di 100 cm2. I pazienti sono stati trattati con sedute di fotobiomodulazione una volta a settimana per 60 secondi, esposizione della luce blu a 4 cm dalla lesione e per un massimo di 8 settimane. Le lesioni prima del trattamento sono state sottoposte ad usuale detersione ed eventuale debridement.

Risultati: Il trattamento è risultato ben tollerato da tutti i pazienti, nessuna reazione avversa locale o sistemica. Nei pazienti che presentavano molto dolore all'esordio (VAS>4) si è registrato una riduzione dello stesso nella maggior parte dei casi già a 4 settimane. Abbiamo inoltre registrato riduzione della infiammazione, cute perilesionale più vitale e contrazione della ferita a 5-6 settimane.

Conclusioni: Nella nostra iniziale esperienza il trattamento con la fotobiomodulazione si è dimostrato essere di facile utilizzo (non richiede anestesia, maneggievole ed utilizzabile da personale infermieristico in ambulatorio) e pare favorire la ripresa dei processi di riepitelizzazione delle lesioni.

EP583 EFFICACIA DELL'INOCULO DI MONONUCLEATE PERIFERICHE AUTOLOGHE NEL TRATTAMENTO DELLE LESIONI TROFICHE "NOT HEALING": ESPERIENZA PRELIMINARE

Carlo Rivellini[1], Luciano Bersano[1]

1*Ospedale Regina Montis Regalis, Chirurgico, Mondovì, Italy*

Scopo: Numerosi lavori evidenziano l'efficacia delle mononucleate periferiche (PBMNC) nel trattamento dei pazienti con ischemia critica degli arti inferiori non rivascolarizzabile (no option patients) anche se su casistiche numericamente limitate ma pochi studi analizzano l'utilizzo di tale risorsa terapeutica specificatamente nella terapia delle lesioni cosiddette "not healing" (nessun miglioramento dopo 4 settimane di terapia adeguata). Abbiamo voluto valutare l'efficacia delle mononucleate prelevate da sangue periferico nel trattamento delle lesioni "not healing" di qualsiasi natura (ischemiche, flebostatiche, da pressione, ecc.).

Metodi: Da aprile 2022 ad oggi abbiamo trattato 12 pazienti consecutivi con lesioni difficili di cui 3 decubiti calcaneari (in un caso con necrosi del tendine achilleo), 2 decubiti sacrali, 1 decubito ischiatico, 4 lesioni ischemiche in pazienti "no option" e 2 lesioni flebostatiche. In tutti i casi è stato utilizzato il kit Hematrate con un protocollo che prevede 3 somministrazioni distanziate di un mese. L'inoculo è stato eseguito a livello perilesionale e sul fondo della lesione in tutti i casi modulando il volume da iniettare in funzione dell'ampiezza della lesione. L'età media è stata 65 anni (range 31-82).

Risultati: Tutti i pazienti hanno avuto un netto miglioramento clinico con miglioramento della flogosi perilesionale e risoluzione del dolore dove presente e guarigione della lesione in un tempo variabile da 6 a 13 settimane nel caso più complesso (paziente anziana con ampie lesioni flebostatiche con infezione dimostrata associate a decubito calcaneare profondo positivo al probe-test e necrosi del tendine achilleo). In tutti i casi si è registrata un'ottima tollerabilità e l'assenza di complicanze ed effetti collaterali.

Conclusioni: Questa esperienza preliminare ha evidenziato che l'inoculo di PBMNC costituisce una valida risorsa da utilizzare in casi particolarmente complessi; i costi elevati e la necessità di un setting adeguato (sala operatoria) ne limitano l'utilizzo che però può efficacemente risolvere casi altrimenti irrisolvibili.

SESSIONE E-POSTER 6: MISTO (ITA)

EP584 RISANZIKUMAB AS A THERAPEUTIC CHOICE FOR THE MANAGEMENT OF DIFFICULT-TO-TREAT CASES OF PYODERMA GANGRENOSUM

Alessandra Michelucci[1], Flavia Manzo Margiotta[1], Antonella Vietina[1], Giammarco Granieri[1], Agata Janowska[1], Marco Romanelli[1]

1*University of Pisa, Dermatology, Pisa, Italy*

Aim: Pyoderma Gangrenosum (PG) is a neutrophilic dermatosis that represents a challenge to the clinician in terms of diagnosis and treatment. Current research data are focused on the use of monoclonal antibodies (mAbs) directed against target molecules involved in the pathogenesis of PG. We reported the clinical cases of three patients affected by multi refractory PG, who were treated with a new approach based on both local and systemic therapies.

Method: The off-label use of a mAb directed against the p19 subunit of IL-23, Risankizumab (150 mg at week 0, 150 mg after four weeks and 150 mg every 10 weeks) was combined with proper local management of ulcers, based on the principles of PG-TIME applied to the inflammatory and non-inflammatory phases of PG. The efficacy of the therapy was evaluated through the use of the Wound Bed Score (WBS) system.

Results / Discussion: Patient 1 obtained a complete resolution at week 24 (WBS=7 vs WBS=16), while lesions of patient 2 were resolved at week 16 (WBS=5 vs WBS=16). The results obtained were maintained until the date of the last visit, at week 40, without side effects or recurrence of disease. Patient 3 moved from a WBS of 5 at week 0 to a WBS of 10 during the last visit at week 12.

Conclusion: In conclusion, our clinical cases demonstrated how Risankizumab can be a viable systemic therapy for recalcitrant PG, particularly when associated with local wound management.

EP585 GESTIONE COMBINATA TRA CENTRI ALTAMENTE SPECIALIZZATI NEL TRATTAMENTO DI LESIONI ATIPICHE: LESIONI PLANTARI DATE DA DISCHERATOSI CONGENITA

Francesca Turrini[1], Stefano Ghislanzoni[1], Maria Teresa de Rose[1], Loris Pelosi[1], Francesca Mistò[1], Stefania Chiarenza[1]

1*Istituti Clinici Zucchi Monza, Monza, Italy*

Scopo: Paziente giunge al Centro di Vulnologia Istituti Clinici Zucchi a Novembre 2022 con ulcere plantari causategli da una rara patologia dermatologica, la discheratosi congenita.

Nonostante fosse seguito dal centro dermatologico di riferimento italiano per questo tipo di patologie, il ragazzo, tredicenne, è obbligato a gattonare o muoversi in carrozzina per il dolore e il disagio causatogli dalle espressioni plantari di questa patologia.

Metodi: Fino alla presa in carico presso il nostro Centro la gestione della cura delle lesioni ai piedi di questo ragazzo, presenti ormai da circa due anni, veniva affidata alla mamma, ad un infermiere dell'ADI oppure al dermatologo del Centro di chirurgia plastica e dermatologia città di Torino. Dopo la presa in carico le valutazioni e medicazioni sono state accentrate esclusivamente presso il nostro Centro e solo da personale qualificato. Insieme al percorso legato alle medicazioni il nostro giovane paziente ha iniziato ad approntare plantari con scarico nei punti di lesioni e scarpe idonee.

Risultati: In un mese il Ragazzo ha potuto abbandonare la carrozzina e rimettersi a camminare, pur essendo portatore di ulcere.

Dopo una iniziale estrema diffidenza sulla possibilità di poter camminare, finalmente il 20 dicembre il ragazzo si presenta in medicazione senza carrozzina.

Conclusioni: Obiettivo della presa in carico di un paziente già seguito dal Centro specialistico dermatologico non è mai stato, fin dall'inizio, la pretesa di poterlo far guarire da queste lesioni. In letteratura sono lesioni poco studiate e che hanno un tasso di recidiva altissimo, bensì il restituire ad un ragazzo tredicenne la possibilità di avere una buona qualità della vita, un buon controllo di dolore e prurito e la possibilità di ritornare ad una normale socialità con il gruppo dei coetanei.

EP586 LESIONI DA SCOPPIO DI ORDIGNO BELLICO SU AMPUTAZIONE PARZIALE DI MANO

Rosanna Conte[1], Claudia Belloni[1], Antonella Bedotti[1], Roberta Seri[1]

1*ASL Roma 1, UOC Assistenza Infermieristica, Roma, Italy*

Scopo: Il caso riguarda una donna di 34 anni, vittima dell'esplosione di un ordigno bellico. Le ferite riportate interessano non solo il fisico, con esiti di fratture, cicatrici da ustione sul 90% del corpo, amputazione delle falangi della mano destra con margini di taglio ad aspetto spiculato, ma anche sofferenze psicologiche e stress post-traumatico. La cura ha come obiettivo: gestione del dolore, controllo della carica microbica, rimozione dei frammenti ossei e tessuto danneggiato, attivazione del processo di riparazione e rigenerazione cutanea.

Metodi: Valutazione delle lesioni secondo la WBP e il TIMERS, scala dolore NRS10, rilevata esposizione tendinea e presenza di frammenti ossei; non segni di infezione. Nella gestione del caso ci si è avvalsi di mediazione culturale e collaborazione formale con il Team Esperto di ferite da guerra dell'Ospedale Militare. La gestione Ambulatoriale del dolore ha previsto l'applicazione di Lidocaina cloridrato 5% crema prima del debridement e medicazioni a base di matrice oleica a rilascio di Specie Reattive dell'Ossigeno (ROS) sotto forma di Gel oleoso in siringa, benda e garza impregnata multistrato[1]; trattamenti tri-settimanali ed integrazione orale di Aminoacidi essenziali.

Risultati: Gestione del dolore procedurale, controllo della carica microbica, rimozione dei frammenti ossei e tessuto danneggiato, attivazione del processo di riparazione e rigenerazione cutanea.

Conclusioni: Le medicazioni a base di matrice oleica a rilascio di ROS consentono la loro rimozione in maniera atraumatica e agiscono sul microambiente locale della lesione favorendo la rigenerazione tissutale, la riepitelizzazione e la guarigione.

EP587 TASSO E CAUSE DI RIOSPEDALIZZAZIONE A DODICI MESI IN UNA COORTE DI PAZIENTI DIABETICI AFFETTI DA UN PROBLEMA ACUTO AL PIEDE

Valeria Ruotolo[1 1], Ermanno Bellizzi[1], Alfonso Bellia[1], Davide Lauro[1], Marco Meloni[1]

1*Policlinico Tor Vergata*

Scopo: Valutare il tasso e le cause di riospedalizzazione in un periodo di osservazione di 12 mesi in una coorte di pazienti diabetici ricoverati per un problema acuto al piede.

Metodi: Lo studio attuale è uno studio retrospettivo osservazionale in cui sono stati inclusi una serie di pazienti diabetici consecutivamente ospedalizzati dal 2019 al 2021 per un problema acuto al piede. Sono stati valutati il tasso e le cause di riospedalizzazione nell'arco di 12 mesi dal primo ricovero. Inoltre sono stati osservati gli esiti, quali amputazione maggiore e minore, guarigione e sopravvivenza.

Risultati: Sono stati inclusi 288 pazienti. L'età media era 68±12 anni, il 61.8% erano uomini, il 92.5% era affetto da diabete tipo 2, la durata di malattia era 20±10 anni; il 62.4% erano ischemici, l'81.6% avevano una lesione infetta, il 72.9% un'osteomielite. Il tasso di riospedalizzazione era del 20.5% con un tempo medio di riospedalizzazione 10±2 mesi. Le cause di riospedalizzazione erano: ischemia critica dell'arto controlaterale (28.8%), recidiva di ischemia critica (20.3%), nuova ulcera infetta omolaterale (20.3%), infezione del sito chirurgico (15.2%), lesione infetta controlaterale (15.2%). Gli esiti nei pazienti non riospedalizzati e riospedalizzati sono stati rispettivamente: amputazione minore 33vs46.8% (p=0.07), amputazione maggiore 5.4vs 6.8% (p=0.4), guarigione 86.8vs77.3% (p=0.1); sopravvivenza 97.6vs93.2% (p=0.2). L'ischemia critica risultava fattore indipendente di riospedalizzazione [OR 3.8 95%CI (1.6-8.1),p=0.0001].

Conclusioni: l'ischemia critica risultava la causa principale di riospedalizzazione nei pazienti diabetici con precedente ricovero per un problema acuto al piede. La riospedalizzazione aumentava il rischio di amputazione e mortalità.

EP588 TERAPIA BIOFOTONICA CON LUCE FLUORESCENTE: UN ESEMPIO DI CONIUGAZIONE TRA CLINICA, FORMAZIONE E RICERCA NELL'ESPERIENZA CLINICA DELL'OSPEDALE SAN RAFFAELE DI MILANO

Alessandro Corsi[1], Ornella Forma[1], Sara Maria Lupi[1], Giulia Vidotto[1], Anna Aloise[1], Linacarmela Ognibene[1], Bertulli Gianluca[1], Umberto Cazzaro[1], Gaetano de Angelis[1], Gaetano Pitoia[1]

1*Ospedale San Raffaele, U.O. Vulnologia, MIlano, Italy*

Scopo: In qualsiasi ambito viene sottolineata la necessità di accompagnare la clinica alla ricerca e a momenti formativi, in un continuum che permette un permanente miglioramento del risultato grazie all'approfondimento basato anche sull'esperienza di altri gruppi.

Metodi: Abbiamo analizzato l'attività della nostra U.O. relativamente all'uso della terapia Biofotonica a luce fluorescente, valutando le performance del team sotto l'aspetto della clinica, della ricerca e della formazione, analizzando i risultati ottenuti in termini numerici.

Risultati: Accanto agli ottimi risultati clinici ottenuti in oltre 7000 applicazioni, abbiamo annotato l'effettuazione di oltre 50 eventi formativi dedicati in presenza e 5 online, in un periodo di 5 anni (comprensivi dei mesi interessati dalla recente pandemia), di un documento di posizionamento sul razionale d'uso delle diverse tecnologie (luce monocromatica e fluorescenza), l'Istituzione di un corso di perfezionamento sulla terapia Biofotonica, e l'avvio di 2 ricerche cliniche sulla risposta tissutale agli stimoli luminosi.

Conclusioni: Un'adeguata esperienza clinica permette al team sanitario di condividerne i risultati e di essere trasmessa, in eventi formativi dedicati, essendo nel contempo fonte di scambio colturale e approfondimento, oltre che base per la ricerca scientifica.

EP589 RETE PAZIENTI FERITE DIFFICILI OSPEDALE -TERRITORIO ASL ROMA 2 /REGIONE LAZIO

Barbara De Angelis[1], Barbara Porcelli[2], Fabrizio Orlandi[1], Marcello Rovere[2], Chiara di Segni[1], Valerio Cervelli[1]

[1]Tor Vergata/Medicina, Plastic and Reconstructive Surgery, Roma, Italy; *[2]Azienda Sanitaria Locale Roma 2, UOC Assistenza alla Persona, Roma, Italy*

Scopo: I pazazienti fragili con patologie croniche affetti da ferite complesse necessitano di assistenza continuativa e multidisciplinare. In particolare nell'epoca pandemica che stiamo vivendo risultano fondamentali le collaborazioni e le cogestioni tra centri di vario livello. Lo sviluppo di sistemi informativi semplici ed attuabili in rete tra le strutture sanitarie permette di migliorare e velocizzare l'inquadramento , la presa in carico e la cura dei pazienti con ferite difficili. La formazione continua dei professionisti e l'approfondimento della ricerca scientifica in continua evoluzione sono cardini irrinunciabili per raggiungere gli obbiettivi come guarigione e miglioramento di qualità di vita dei pazienti con lo sguardo attento alla spesa sanitaria.

Metodi: In questa presentazione vengono esposte le modalità in rete tra ospedale e territorio (ASL ROMA 2 – Università di Roma TOR VERGATA CHIRURGIA PLASTICA) per la cura dei pazienti con ferite difficili cosiderando la territorialià e la tipologia di situazione generale e locale. Il paziente con ferite difficili viene cogestito tra ospedale /territorio e viceversa controllando i miglioramenti le evoluzioni e prevenendo le recidive. Inoltre la formazione continua e lo scambio di opinioni /protocolli su basi scientifiche è fondamentale

Risultati: Dal 2017 abbiamo iniziato questa collaborazione sempre in crescita soprattutto nel 2021 in cui abbiamo espanso a tutti gli ambulatori territoriali il protocollo di rete. Sia gli operatori che i pazienti risultano soddisfatti e attendiamo ulteriori incrementi.

Conclusioni: Il protocollo da noi strutturato ci ha permesso di andare in contro alle esigenze dei pazienti con ferite difficili tendendo una mano quando molto spesso si trovano abbandonati a se stessi. Con l' utilizzo della rete possiamo dare ai nostri pazienti il migliore piano terapeutico adattandolo da caso a caso come pure intervenire ai vari livelli a seconda delle esigenze.

EP590 SUPERFICI ANTIDECUBITO, IL RAZIONALE NELL'UTILIZZO NELLA PREVENZIONE E TRATTAMENTO DELLE LESIONI DA PRESSIONE

Diego Ceci[1], Francesco Iavarone[2]

[1]Azienda Ospedaliero - Universitaria Sant'Andrea, U.O.C. Professioni Sanitarie, Roma, Italy; [2]Azienda Ospedaliero - Universitaria Sant'Andrea, UTIPO CTV, Roma, Italy

Scopo: I fattori di rischio per lo sviluppo di un'ulcera da pressione variano da persona a persona. Le superfici di supporto (ausili antidecubito) sono "dispositivi specializzati per la ridistribuzione della pressione, progettati per la gestione dei carichi sul tessuto, del microclima e/o altre funzioni terapeutiche (ne fanno parte: qualsiasi materasso, sistema di letto integrato, materasso sostitutivo, sovramaterasso, cuscino per sistema di seduta o sovracuscino per sistema di seduta)"

Metodi: Valutazione restrospettiva sulla documentazione clinica dei pazienti ricoverati nel quadrimestre che va dal 01/11/2021 al 28/02/2022 presso Azienda Ospedaliero Universitaria Sant'Andrea, periodo in cui è stata introdotta la scheda informatizzata sulle lesioni da pressione. Gli strumenti utilizzati nello studio di ricerca sono stati, la scala di Braden, la scala NPAUP, la scheda di richiesta delle superfici antidecubito.

Risultati: Pazienti dimessi 4502, 3889 (86.38%) sono stati valutati a rischio mediante scala di Braden. 1020 superfici antidecubito posizionate per tali pazienti. La media della Braden sui pazienti a rischio a cui è stata richiesta una superficie antidecubito è 8.82.

Durante il periodo di osservazione si sono sviluppate lesioni su 25 pazienti, con un'incidenza dell'0.58%, ben 233 pazienti presentavano lesioni da pressione al ricovero.

I pazienti che presentano lesioni al ricovero solo il 3,86% di essi presenta un peggioramento della lesione mentre il 96,14% migliora o rimane invariato

Conclusioni: L'utilizzo delle superfici antidecubito determina sia un miglioramnetto delle lesioni presenti che un non peggioramento delle lesioni in essere. Tanto è vero che l'89,15% (230 pazienti) dei pazienti affetti da lesioni da pressione è migliorato o rimasto stazionario in termini di numero di lesioni contro il 10,85% (28 pazienti) di pazienti che sono peggiorati.

EP592 IL SUPPORTO NUTRIZIONALE ORALE E IL RUOLO NELLA GUARIGIONE DELLE DEISCENZE DI FERITE CHIRURGICHE: CASO CLINICO

Luciano Del Papa[1], Nella Mosca[1], Maria Tangianu[1], Alessia Bartolini[1], Alessandro Sili[2], Jacopo Fiorini[2]

[1]Policlinico Tor Vergata, Ambulatorio Infermieristico, Roma, Italy; [2]Policlinico Tor Vergata, UOC Direzione Infermieristica, Roma, Italy

Scopo: Valutare l'influenza di un integratore nutrizionale orale (ONS) nel processo di guarigione delle deiscenze di ferite chirurgiche (DFC). Studi recenti supportano che la guarigione delle ferite è influenzata dal supporto nutrizionale complementare fornito al paziente.

Metodi: Previo consenso, un paziente di sesso maschile caucasico di 42 anni, BMI 16.8 m/kg^2, albumina plasmatica 1.90 * gr/dl, è stato sottoposto ad intervento chirurgico Open Abdomen per addome acuto da neoformazione perforata del colon ascendente con peritonite purulenta a Settembre 2022. Il paziente è stato seguito e valutato presso l'Ambulatorio Infermieristico secondo un protocollo condiviso (approccio TIMERS®, diagnosi, BMI, MNA e trattamento). La DFC veniva rivalutata settimanalmente e documentata fotograficamente. Il paziente assumeva 2 volte/die un ONS composto da aminoacidi essenziali, determinanti per la sintesi proteica, acidi organici (citrico, malico e succinico) che potenziano l'attività mitocondriale, producendo energia e vitamine B1 e B6, necessarie per il metabolismo proteico.

Risultati: Il paziente con MNA score 5 è stato preso in carico dal 10/10/2022 al 13/12/2022 per 63 gg per DFC addominale infetta. Si è registrata la chiusura totale della rima chirurgica con 19 accessi al servizio, nonostante le scarse condizioni cliniche e la malnutrizione severa.

Conclusioni: L'ONS potrebbe avere un ruolo complementare nel trattamento delle DFC e potrebbe essere inserito nel piano assistenziale individualizzato della persona assistita, grazie alla facilità di utilizzo e pronta disponibilità delle proteine per il metabolismo cellulare, permettendo di ridurre i tempi di guarigione della deiscenza e far iniziare il trattamento chemioterapico precocemente.

E-POSTER IN ESPOSIZIONE: CASE STUDY (ITA)

EP593 CASE REPORT: NEGATIVE PRESSURE INSTILLATION FOR THE TREATMENT OF AN IATROGENIC UPPER LIMB ULCER

Rosa Somma[1], Marino Ciliberti[1], Vincenzo Balzano[1], Vincenzo di Martino[1], Francesco Vitagliano[1], Concetta Inghilterra[1]

1*Ospedale Gragnano, Gragnano, Italy*

Aim: To evaluate the efficacy of Vac VeraFlo for the treatment of an iatrogenic upper limb ulcer, in minimizing the risk of infection, accelerating healing times and improving quality of life.

Method: Combined home and outpatient care for the management of a full thickness lesion of the left forearm, in a patient with Hodgkin's lymphoma.

Case Presentation: 57-year-old male, July 2020 diagnosed with hodgkin's lymphoma, underwent three cycles of chemotherapy with ABVD (Adriamycin, Bleomycin, Vinblastine, Dacarbazine); January 2021 chemotherapy extravasation. June 2021 presents extensive full-thickness eschar on the left forearm, which, although serious, does not deteriorate its constitution, but aggravates its quality of life.

Phase 1: Debridement; Phase 2: NPWT with instillation; Phase 3: Skin graft.

Results / Discussion: Excellent wound bed preparation to receive a dermo-epidermal graft.

Conclusion: Hospital-territory continuity increases patient compliance allowing for a reduction in treatment times which translates into better outcomes.

EP594 GESTIONE DELLA CANDIDOSI PERISTOMALE DA CHEMIOTERAPIA IN UNA PAZIENTE PORTATRICE DI UROSTOMIA

Nicola Leggio[1], Mattia Boarin[1], Ornella Forma[2]

[1]Ospedale San Raffaele, UO Urologia, Milano, Italy; [2]Ospedale San Raffaele, Servizio di Vulnologia, Milano, Italy

Scopo: La candidosi è un'infezione che tende a svilupparsi nelle aree umide cutanee e può essere causata dall'abbassamento delle difese immunitarie post-chemioterapia; si presenta con eruzioni rossastre, desquamazione e prurito. L'obiettivo del lavoro è presentare un intervento combinato e multidisciplinare sul paziente con urostomia.

Metodi: Una paziente di 60 anni portatrice da 15 mesi di ureterocutaneostomia bilaterale per neoplasia vescicale, sottoposta a chemioterapia adiuvante, accede all'ambulatorio urostomizzati per comparsa di lesioni da candidosi a livello della cute peristomale e conseguente scarsa tenuta dei dispositivi di raccolta. Dopo accurata igiene della cute, è stata verificata la pervietà dei cateterini ureterali per evitare infiltrazioni degli effluenti e il peggioramento della condizione. Il trattamento specifico è iniziato con la protezione dell'area peristomale con applicazione di antimicotico topico (Clotrimazolo 1%) e film-barriera; il dispositivo urostomico è stato sostituito ogni 48 ore presso l'ambulatorio.

Risultati: Dopo circa dieci giorni dall'inizio del trattamento, è stata osservata una progressiva risoluzione della candidosi; le lesioni originarie erano così avanzate da determinare fragilità cutanea che è stata controllata applicando un adesive remover ad ogni sostituzione di dispositivo. L'applicazione topica di Clotrimazolo 1% e l'impiego del film-barriera hanno permesso una completa regressione della sintomatologia e la guarigione della cute peristomale a circa un mese dall'inizio del trattamento, migliorando la tenuta dei dispositivi di raccolta.

Conclusioni: La candidosi peristomale post-chemioterapia è una condizione con impatto negativo sui pazienti urostomizzati. La presa in carico tempestiva e il trattamento specifico hanno permesso di aumentare il livello di qualità di vita della paziente.

EP595 CONSERVATIVE TREATMENT OF TRAUMATIC PARCEL AMPUTATION OF THE FIFTH FINGER DISTAL PHALANX WITH STABLE OZONIDES: A CASE REPORT

Michele Ruggiero[1], Carlo Alessandro Talarico[1], Roberto Cassino[2]

[1]"Villa dei Gerani" Clinic, Department of Medicine and Surgical Sciences, Vibo Valentia, Italy; [2]"Sacra Famiglia" Korian Nursing Home, Geriatrics - Long Term Care, Pieve del Cairo, Italy

Scopo: management of distal phalangeal amputations depends on its level. When the nail is intact, it's necessary to preserve it but when the lesion is more proximal, maintaining the nail is normally useless and hypersensitivity or pain may appear: so it's preferable to remove the small part of the nail with its root and cover it with a split thickness skin graft. Aim of this work is to demonstrate the effectiveness of Ozoile®-based dressings for the treatment of fifth finger distal phalanx amputation with nail residue preservation.

Metodi: parcel amputation of the fifth finger distal phalanx including the nail (Allen 3) in a 7-year-old girl, due to a domestic accident; the amputated part had partial nail residue. After RX showing partial amputation of the distal phalanx bone as well, the patient underwent skin grafting with the amputated phalanx and preservation of a minimal residue of the nail root. Medication with spray and gauzes containing Ozoile®, a pool of stable ozonides derived from olive oil*. Dressing change every 48 hours. We evaluated infection signs onset, pain and Healing Time.

Risultati: Complete healing within one month (HT 28 days); pain was greatly reduced already after the first medications (NRS <4). Once healed, a sensitivity check was performed which revealed a complete recovery of neurosensory activity.

Conclusioni: Contrary to the surgical treatment indications, we observed the effectiveness of Ozoile®-based dressings in the treatment of the fifth finger distal phalanx amputation even if there's a nail residue.

* Rigenoma Spray/Gauzes (Erbagil-Italy)

EP596 TRATTAMENTO DI UN'ULCERA ISCHEMICA MEDIANTE MICROINNESTI CUTANEI A SPESSORE PARZIALE E OZONOTERAPIA TOPICA

Pablo García Molina[1 2], Maria Cabarcos Serantes[3], Tamara Blasco Pérez[4], Laura Plá Marzo[5], Paula Balaguer[4], Alba Guerrero Jordan[6], Biagio Nicolasi[7]

[1]Hospital Clínico Universitario de Valencia, Unidad Enfermera de Úlceras y Heridas Complejas, Valencia, Spain; [2]Facultad de Enfermería y Podología. Universidad de Valencia, Enfermería, Valencia, Spain; [3]Centro di assistenza sanitaria di base, Ourense Salute, Ourense, Spain; [4]Hospital Clínico Universitario de Valencia, Servicio de Cirugía General, Valencia, Spain; [5]Hospital Clínic Universitari, Unidad Enfermera de Úlceras y Heridas Complejas, València, Spain; [6]Centro di assistenza sanitaria di base, Clinico-Malvarrosa, Valencia, Spain; [7]Meyer Scientific Institute for Research, Burn Centre and Wound Care, Firenze, Italy

Scopo: Valutare l'utilizzo di microinnesti cutanei a spessore parziale (sigilli), asscoiato all'ozonoterapia topica, in paziente con ulcera vascolare ad eziologia arteriosa.

Metodi: Donna di 89 anni accede presso l'Unità "Ulcere e Ferite Complesse" a causa di una lesione cronica, presenta da 1 anno all'arto inferiore destro, nell'area di inserzione del tendine di Achille.

Anamnesi prossima: ischemia arteriosa cronica degli arti inferiori, in trattamento con Omeprazolo, Doxazosina, Atenololo, ASA 100 mg, Lercadip, Allopurinolo, Losartan, Neurontin, Palexia Retard, Nolotil, Furosemide e Ferroglicina.

La lesione in questione era di 4 x 5 cm, con letto pallido, esposizione del tendine di Achille e bordi moderatamente eritematosi. Dolore rilevato VAS 10.

Il trattamento precedente prevedeva un unguento cicatrizzante (Cikagel®) e medicazioni antiaderenti e antimicrobiche (Cutimed Sorbact®). La lesione è stata preservata da potenziali infezioni, ma non è giunta a guarigione.

Considerata la patologia ischemica di base e l'intenso dolore riferito, è stato definito un trattamento con microinnesti cutanei a spessore parziale (sigilli) e ozonoterapia topica, per la promozione della microcircolazione locale.

Dopo aver escluso possibili complicanze ischemiche in MMII, per il prelievo degli innesti è stata individuata la superficie della coscia destra. Rispettando le indicazioni di base di antisepsi e sterilità, dopo anestesia locale con Mepivacaina, sono stati prelevati diversi innesti di tessuto dermoepidermico (fino al derma papillare) di circa 0,5 centimetri. Questi "sigilli" cutanei sono stati posti sul letto dell'ulcera.

L'area di prelievo è stata cicatrizzata con alginato; l'area ricevente i sigilli è stata sottoposta ad ozonoterapia con sacca topica a 30 mcg/3L (20 min), trattata con rete antiaderente a base di modulatore delle metalloproteasi (UrgoStart Contact®) e TPNT, secondo la comune pratica.

Risultati: Tra i rusultati ottenuti si denota anzitutto la riduzione del dolore, con scala VAS da 10 a 4, in seguito all'applicazione degli innesti "a sigillo". Inoltre, la superficie di prelievo presentava un ottimo aspetto, grazie alla buona vascolarizzazione dell'area individuata; nell'area ricevente il 50% degli innesti ha attecchito.

Non sono statiriscontrati segni o sintomi di infezione durante tutti i follow-up e le strategie terapeutiche sono state ben tollerate dal paziente.

Conclusioni: L'approccio tradizionale alle lesioni non è sempre sufficiente per ottenere la guarigione, così come è stato riscontrato nel caso proposto.

Con l'impiego di terapie avanzate disponibili e alla nostra portata, è stato possibile migliorare l'evoluzione della lesione, nonché la qualità di vita del paziente; inoltre, possiamo supporre che si tratti di un risultato economicamente vantaggioso.

Sarebbe opportuno generare più evidenze relative al trattamento proposto, non solo a livello individuale, analizzandone le diverse possibili combinazioni, verificarne gli effettivi benefici, magari se fossero maggiori, e ridurre i tempi di guarigione.

EP597 THE USE OF A NEW OIL MATRIX TECHNOLOGY RELEASING REACTIVE OXYGEN SPECIES IN THE TREATMENT OF ONCOLOGICAL ULCERS WITH NEOPLASTIC ETIOLOGY: CASE REPORT

Sara Sandroni[1], Gianluca Simonelli[1], Paola Belardi[1], Donatella Nardi[1], Laura Fratini[1], Manuela Bellucci[1], Amalia Dragone[1], Franca Borghesi[1], Simonetta Magnanini[1], Donato Casella[2]

[1]Azienda USL Toscana Sudest, Italy; [2]Azienda Ospedaliera Universitaria Senese, Italy

Aim: In the last 5 years we have seen an increase in the number of women with breast cancer undergoing systemic therapy and reconstructive plastic surgery treatment, with a significant reduction in age <55 years.

We have increased the use of new bioactive dressing technologies to improve the quality of care.

Method: 51-year-old female, growing, bleeding skin lesion, extension 10x15, presented in the Emergency Department. Family history with familiarity, without specific risk factors.

Time zero with TB bone scintigraphy, TB CT, mammography with histological examination, cardiological examination, medication and referral to the skin lesions specialist clinic.

Set up a bi-weekly dressing plan with 16-layer gauze with oleic matrix releasing reactive oxygen species.

Results / Discussion: Data relating to:

- Percentage of lesion area reduction >80% in 2 months

- Microbiological evaluation

- Wound Bed Preparation

-Customer satisfaction

Conclusion: The oleic matrix technology with reactive oxygen species release represents an important opportunity allowing the maintenance of the technology even with different local conditions of the lesion.

EP598 GESTIONE DI LESIONI POST-TRAUMATICHE AL GINOCCHIO ATTRAVERSO MEDICAZIONI AVANZATE, IN AMBULATORIO ULCERE DIFFICILI

Daniela Airaldi[1], Monica Anselmo[1], Daniele Notarrigo[1], Piera Bondavalli[1], Marco Cacciapuoti[1], Marcello Cavaleri[1]

1*Ospedale San Paolo, Savona, ASL2 Regione Liguria, Savona, Italy*

Scopo: Gestire lesioni post-traumatiche con medicazioni avanzate per velocizzare i processi di riparazione tissutale, ridurre il numero di accessi e migliorare il confort del paziente.

Metodi: Lesioni valutate secondo Wound Bed Preparation e Time, scegliendo la medicazione avanzata più appropriata. Abbiamo utilizzato:*medicazione in carbossimetilcellulosaNa Ag e attiva su biofilm *collagene. Detersione con ipoclorito di sodio 0,05%. Per contrastare l'ipergranulazione abbiamo utilizzato nitrato di Ag al 3%. Le lesioni sono state trattate secondo Wound Hygiene per contrastare il biofilm. Per Sbrigliamento pad in monofilamento.

Risultati: CASO1: Pz. F.T., donna aa 50, lesione post traumatica al ginocchio SX. La lesione, con escara secca e segni di flogosi, è stata detersa chirurgicamente e gestita con proteolitico per 4gg. E' stata prescritta antibioticoterapia sistemica. Abbiamo posizionato una medicazione in carbossimetilcellulosa sodica contenente Argento e agenti specifici antibiofilm per 15 giorni. Successivamente, visto il notevole miglioramento della lesione, siamo passati ad una medicazione in collagene fino a chiusura avvenuta dopo 2 mesi.

CASO2: Pz. F.M., donna aa 72 , ferita lacero-contusa al ginocchio SX, perdita di sostanza, lembo suturato per trauma avvenuto 5gg prima. La lesione presentava escara secca, dopo rimozione chirurgica è stata posizionata una medicazione antimicrobica in idrofibra Ag e bendaggio all'ossido di Zn fino a chiusura della lesione avvenuta dopo 49 gg. Rimossi i punti dopo 15 gg, la lesione si presentava migliorata e diminuita l'ipergranulazione con soluzione di Nitrato di Ag. Per i segni di colonizzazione critica abbiamo proseguito con idrofibra Ag.

Conclusioni: L'utilizzo di medicazioni avanzate in idrofibra e Ag, ci ha permesso di ridurre il numero degli accessi, tenere sotto controllo la carica batterica e migliorare l'outcome del paziente.

EP599 UTILIZZO PRESSIONE TOPICA NEGATIVA SU LESIONE CRONICA VASCOLARE VENOSA IN PAZIENTE SOCIALMENTE COMPLICATO

Franco Nicosia[1], Luisa Tagliani[2], Claudia Amolini[1], Antonella Pastori[2], Erika Gaspar[3], Ottavio Scarano[1], Daniela Lucente[1], Alessandra Marengoni[4]

[1]*Medicina 1 ad Indirizzo Geriatrico. P.O. Montichiari, Italy*; [2]*Poliambulatori. P.O. Montichiari, Italy*; [3]*Unità Cure Subacuta. P.O. Montichiari, Italy*; [4]*Università degli Studi di Brescia. Dipartimento Scienze Cliniche e Sperimentali, Italy*

Scopo: P.M. di anni 59, tra gli altri affetto da coinfezione HCV/HIV, tromboflebite settica della vena succlavia da MSSA, tabagismo, mutazione fattore V di Leiden, IRA con acidosi metabolica, infezioni a varia sede da K.Pneumoniae, S.Capitis meticillino resistente, S. Aureus, E.Hermanii, C. Albicans. All'ingresso presentava a livello della faccia laterale esterna della gamba destra vasta lesione vascolare di tipo venoso, recidivante, già sottoposta a innesto cutaneo senza esito, della dimensione di 12,5 x 8 cm con presenza di esposizione tendinea. Il fondo lesionale si presenta deterso, granuleggiante, con margini adesi. L'essudato era presente in quantità media/abbondante di tipo sieroso e non maleodorante. Assenza di evidenti segni di infezione locale.

Metodi: il paziente è stato sottoposto a terapia a pressione negativa (NPWT) con pressione subatmosferica di -125mmHg in modalità continua per circa 30 giorni e bendaggio compressivo multistrato.

Risultati: Al termine dei 30 giorni, portato a copertura il tendine esposto, la dimensione della lesione era di 5.5 x 3.5 cm ; è stata rimossa la terapia a pressione negativa e ha proseguito le medicazioni con schiuma di poliuretano e bendaggio compressivo multistrato con accesso settimanale in ambulatorio. Durata complessiva del trattamento 120 giorni.

Conclusioni: Questo caso mostra come pur in condizioni cliniche, sociali, igieniche estremamente compromesse, la motivazione del paziente risulti fondamentale nel processo di guarigione.

EP600 USO PRESSIONE TOPICA NEGATIVA IN ULCERA A GENESI MULTIPLA E COMPLESSA DEGLI ARTI INFERIORI

Franco Nicosia[1], Luisa Tagliani[2], Claudia Amolini[1], Antonella Pastori[2], Erika Gaspar[3], Giulia Gorla[1], Andrea Corbani[1], Alessandra Marengoni[4]

[1]Medicina ad Indirizzo Geriatrico. ASST Spedali Civili P.O. Montichiari, Italy; [2]Poliambulatori. P.O. Montichiari ASST Spedali Civili di Brescia, Italy; [3]Unità per Cure Subacute. P.O. Montichiairi Asst Spedali Civili di Brescia, Italy; [4]Dipartimento Scienze Cliniche e Sperimentali - Università degli Studi di Brescia, Italy

Scopo: M.F.F. di anni 63, presentava deiscenza di ferita chirurgica inguinale sinistra in esiti di intervento di rivascolarizzazione dell'arto inferiore sinistro per ischemia acuta. Recente shock anafilattico con arresto cardio-circolatorio da infusione di mezzo di contrasto durante esecuzione di TC con secondaria ischemia acuta dell'arto inferiore sinistro sottoposta a rivascolarizzazione (Fogarty + TEA +patch femorale) ed occlusione di fistola artero-venosa avambraccio destro sottoposta a disostruzione con Fogarty.

Insufficienza renale terminale secondaria a nefropatia da reflusso inveterata per stenosi uretrale in emodialisi trisettimanale.

Recente intervento di esclusione endovascolare (EVAR) di aneurisma dell'aorta addominale sottorenale.

Esiti di intervento di esclusione endovascolare (T-EVAR) di ulcera aortica penetrante al passaggio toraco-addominale.

Pregresso NSTEMI sottoposto a PTCA + BMS su Cdx.

Il paziente presentava deiscenza di ferita chirurgica a livello inguinale sinistro di cm 10.5 x 8.5 con profondità di 6 cm.

Il fondo lesionale presentava tessuto adiposo e tessuto di granulazione. L'essudato era presente in quantità abbondante, di tipo sieroso non maleodorante. La zona perilesionale si presentava umida e macerata.

Metodi: Si decide di posizionare pressione topica negativa mantenendo una pressione subatmosferica di -80 mmHg (pz scoagulato, lesione in prossimità di vasi). Sono stati effettuati 3 cambi settimanali. Totale giorni di terapia 21.

Risultati: Al termine la lesione misurava 4,5 cm x 4,8 cm, il fondo era completamente ricoperto da tessuto di granulazione. Il paziente è stato dimesso con medicazione in schiuma di poliuretano ed accesso bisettimanale ambulatoriale. La lesione è stata portata a remissione in 55 giorni.

Conclusioni: Anche lesioni estremamente complesse si giovano della terapia con pressione negative.

EP601 GANGRENA DI FOURNIER TRATTATA CON TERAPIA A PRESSIONE NEGATIVA CON INSTILLAZIONE (NPWTI-D)

Stefania Bottos[1], Mauro Vallan[2]

[1]Azienda Sanitaria Friuli Occidentale AsFO, Direzione Medica Ospedaliera, Pordenone, Italy; [2]Azienda Sanitaria Friuli Occidentale AsFO, Medicina Interna, Pordenone, Italy

Scopo: La terapia a pressione negativa con instillazione (NPWTi-d) trova indicazione nelle lesioni cutanee acute e cronicamente infette associata alla buona pratica clinica come lo sbrigliamento o la terapia antibiotica. Il caso descrive l'uso della NPWTi-d con filler in schiuma tubolare, idonea per le lesioni con geometrie complesse, come tunnel e sottominature. L'obiettivo è stato portare a guarigione le estese lesioni cutanee con un buon esito cicatriziale in tempi ridotti.

Metodi: Case report.

Risultati: Paziente ricoverato per stato settico da perforazione intestinale da ernia inguinale con infezione intraddominale estesa a scroto ed ulcerazione cutanea (Snd di Fournier). In anamnesi: ipertensione arteriosa, FA in NAO, scompenso cardiaco cronico (NYHA2), pregressi TIA. Il 27/8/19 eseguito intervento di escarectomia inguinale, drenaggio delle raccolte toilette, resezione dell'ansa perforata e confezionamento ileostomia sx. Posizionati 5 drenaggi. Il 31/08/2019 eseguita laparotomia esplorativa, toilette addominale, toilette delle cavità inguinali e applicazione di TPN, posizionamento di due drenaggi addominali. Il 11/09/2019 posizionato NPWTi-d con filler in schiuma tubolare e schiuma nera previa terapia antalgica. Impostato instillazione di 30 ml di Poliesanide/Biguanide, ciclo di 5 minuti di infiltrazione e 3 ore e mezza di aspirazione a 75 mmHg con intensità bassa. Proseguito cambi bisettimanali con progressivo miglioramento del fondo di lesione sempre e modifica dell'essudato da purulento a sieroso giallo. Riduzione delle aree sottominate e tunnelizzate. Il 26 settembre sospeso l'instillazione e proseguito solo con TPN. Il 10 ottobre sospeso TPN prosegue con medicazioni avanzate. Guarigione a marzo 2020.

Conclusioni: Il caso illustra le capacità della NPWTi-d nella gestione di ferite cutanee infette e complesse per dimensioni e forma garantendo buoni esiti cicatriziali.

EP602 CARCINOMI BASOCELLULARI GIGANTI: C'È CONTINUITÀ DEI PROTOCOLLI DI CURA?

Monika Rimdeikaite[1], Rytis Rimdeika[2]

[1]Università di Vilnius, Facoltà di Medicina, Vilnius, Lithuania; [2]Lithuanian University of Health Sciences, Kaunas, Lithuania

Scopo: Valutare un trattamento ottimale per il carcinoma basocellulare gigante.

Metodi: Il carcinoma basocellulare è il tipo più comune di cancro della pelle, diagnosticato fino all'ottanta per cento nei pazienti con cancro della pelle non melanocitico. Come definito dall'American Joint Committee on Cancer, il carcinoma basocellulare gigante è un BCC di oltre cinque centimetri di diametro. Questa è una forma rara di BCC, diagnosticata fino all'uno per cento nei tumori delle cellule basali. Questa grande neoplasia può manifestare una profonda invasione dei tessuti ed essere difficile da trattare.

Risultati: Verranno presentati i nostri casi clinici di carcinoma basocellulare gigante. Questi tumori neoplastici devono essere rimossi radicalmente e quindi il trattamento chirurgico può lasciare un difetto di dimensioni relativamente grande. Poichè la maggior parte dei pazienti è anziana, non tutte le opzioni di ricostruzione tissutale sono ottimali. Si è scoperto che l'innesto cutaneo a spessore parziale è un metodo semplice e sostenibile per la chiusura di questo difetto. L'innesto cutaneo a spessore parziale non richiede un intervento chirurgico prolungato; può essere eseguito in anestesia locale e l'area donatrice non provoca morbilità a lungo termine. Il recupero è veloce e il trattamento è relativamente economico.

Conclusioni: In conclusione, la chirurgia radicale è ancora il metodo migliore per trattare il carcinoma basocellulare gigante. L'innesto cutaneo a spessore parziale può essere eseguito su pazienti di tutte le età, nonostante le dimensioni del tumore e le comorbidità.

EP603 APPLICAZIONE DI UN SISTEMA DI PRESSIONE TOPICA NEGATIVA MONOUSO DOPO AMPUTAZIONE AD ARTO INFERIORE

Cinzia Lanzone[1], Sara Rossi[2], Matteo Sivori[2]

[1]Azienda Sanitaria Locale 4, Chirurgia, Chiavari, Italy; [2]Azienda Sanitaria Locale 4, Chiavari, Italy

Scopo: Il Piede Diabetico rappresenta ancora oggi la causa principale di amputazione d'arto minore o maggiore. In passato, l'amputazione comportava una profonda disabilità; grazie alla continua e notevole evoluzione delle tecniche operatorie , alle medicazioni avanzate, a dispositivi innovativi ed allo innovative protesi ortopediche, attualmente è possibile raggiungere ottimi risultati e riprendere le proprie attività quotidiane.

Metodi: Pz straniero, proveniente da zone limitrofe a sede si guerra, di anni 63, collaborante , ma con barriera linguistica, affetto da Diabete mellito tipo 2, giunge al PS con diagnosi di flemmone al piede dx e gangrena alle dita; già amputato all'arto inf sx. Viene sottoposto ad amputazione transmetatarsale nel marzo scorso. Dopo 1 mese di medicazioni standard, il pz è stato preso in carico dall'Ambulatorio Infermieristico Ferite Difficili.

Lesione a inizio trattamento : cm.12x6, cavitaria, tessuto irrorato, con tracce di fibrina e sottominature.

Detersione e tensioattivi; applicazione di Idrofibra Ag e successiva Pressione topica negativa monouso, con cambi ogni 5 giorni. Si è completato il trattamento con medicazioni bioattive per 20 giorni

Risultati: Dopo 1 mese chiusura completa della ferita. Il pz ha potuto avviarsi alla protesica.

Conclusioni: rapida guarigione della ferita, soddisfazione e recupero della propria vita per il paziente, soddisfazione degli operatori per aver saputo prendersi cura di lui e averne contribuito all'inserimento sociale in una nazione che anche con i risultati gli ha dimostrato accoglienza.

EP604 L'UTILIZZO DI IDROFIBRA, PRESSIONE NEGATIVA E LASERTERAPIA IN UN PAZIENTE CON LESIONE DA PRESSIONE TORACE POST-COVID 19

Graziela de Paula Povresan[1], Luciana Bona Marolo[1], Priscyla candida Sotelo[1]

1*Prefeitura Municipal de Santos, Secretaria de Saude, Santos, Brazil*

Scopo: La competenza nella valutazione delle lesioni è importante per la scelta del trattamento del paziente. Le ferite cavitarie richiedono una copertura in idrofibra per l'equilibrio idrico. La terapia a pressione negativa viene eseguita attraverso l'aspirazione continua dell'essudato, favorisce la stimolazione per la granulazione, il laser a bassa intensità esegue la biomodulazione cellulare, favorisce il riempimento della zona della cavità. Il comune di Santos lavora investendo in tecnologie e qualificazione di professionisti, al fine di migliorare i tempi e la risposta del paziente con un infortunio.

Metodi: Paziente trattato con le tre tecnologie citate, affetto da IP cavitario di grande estensione nella regione toracica, è rimasto in Terapia Intensiva COVID per 17 giorni, nei primi dieci è stato eseguito giornalmente lo sbrigliamento di una lesione di 12cm X 6cm con una profondità di 5cm giorni con idrofibra con argento con successivo intervallo di sostituzione ogni tre giorni introducendo laserterapia a bassa potenza alla lunghezza d'onda di 660nm rosso a fluenza di 20 jaules per cm^2, e 808nm infrarosso con la stessa fluenza e pressione negativa.

Risultati: L'intero processo di guarigione è durato 4 mesi, con il recupero riuscito del paziente. Il successo del lavoro corrisponde alla formazione costante degli infermieri nella competenza di valutare gli infortuni, potendo scegliere le coperture corrette che garantiscono il successo del processo di guarigione.

Conclusioni: L'uso delle tecnologie associate ha mostrato risultati soddisfacenti nella guarigione più rapida, fornendo la qualità della vita per i pazienti in tutte le fasi del loro recupero.

EP605 CICATRICARE – PERCEZIONE DEL MANAGER INFERMIERISTICO DI FRONTE ALL'IMPATTO DELL'EMPRENDORISMO NEL TRATTAMENTO DELLE FERITE IN BRASILE - RAPPORTO SULL'ESPERIENZA

Everton Rocha[1], Juliana Lucinda dos Santos[2], Christielle Montenegro[3], Nilva Pereira[4]

[1]*Cicatricare, CEO, Brazil*; [2]*Prime Care Cuidados Integrados à Feridas, Diretora Tecnica, Brazil*; [3]*EMAD, Especialista clinica, Rio Branco, Brazil*; [4]*Prime Care Cuidados Integrados à Feridas, Brazil*

Scopo: Riportare l'esperienza di imprenditorialità nell'assistenza infermieristica nel trattamento delle ferite nella città di Araranguá SC.

Metodi: Lo studio porterà un approccio esplicativo e descrittivo sotto forma di un rapporto di esperienza dell'esperienza dell'infermiera intraprendente nella creazione di un modello di clinica privata con supporto tecnologico nel trattamento delle ferite.

Risultati: Cicatricare è una società specializzata nell'assistenza ambulatoriale e domiciliare relativa al trattamento di ferite complesse, siamo da 3 anni la nostra sede stiamo già servendo più di 8 comuni nella regione meridionale di Santa Catarina, abbiamo un team multidisciplinare con un infermiere manager e direttore e 5 infermieri, fisioterapisti, nutrizionisti e tecnici infermieristici, medici (telemedicina), tutti focalizzati sulla cura umanizzata, che fornisce più sicurezza e comfort al nostro paziente, abbiamo già filiali a Torres, Porto Alegre RS.

Conclusioni: Il nostro grande obiettivo con la cura della CIl nostro grande obiettivo con la cura della cicatrice e che molte persone possono essere guarite e favorite con il nostro lavoro e che la mia azienda è riconosciuta dal suo marchio in vari luoghi in Brasile, principalmente per la cura umanizzata, l'empatia, la disciplina e la cura di sé che abbiamo con i nostri pazienti, ancora di più che gestire la salute del paziente / cliente è una gestione dei sentimenti, afflizioni, dolori, sofferenze, una lunga storia della vita di ciascuno. La gestione va ben oltre la gestione delle persone, sappiamo che gestire un'impresa è qualcosa che ha bisogno di aspetti rilevanti per farlo funzionare e ottenere grandi risultati, spesso abbiamo bisogno di decisioni rapide per raggiungere determinati obiettivi, obiettivi, disciplina, pianificazione strategica. È di fondamentale importanza avere una buona organizzazione, coordinamento, controllo e previsione per avere successo nei processi amministrativi per quanto riguarda il business.icatrice e che molte persone possono essere guarite e favorite con il nostro lavoro e che la mia azienda è riconosciuta dal suo marchio in vari luoghi in Brasile, principalmente per la cura umanizzata, l'empatia, la disciplina e la cura di sé che abbiamo con i nostri pazienti, ancora di più che gestire la salute del paziente / cliente è una gestione dei sentimenti, afflizioni, dolori, sofferenze, una lunga storia della vita di ciascuno. La gestione va ben oltre la gestione delle persone, sappiamo che gestire un'impresa è qualcosa che ha bisogno di aspetti rilevanti per farlo funzionare e ottenere grandi risultati, spesso abbiamo bisogno di decisioni rapide per raggiungere determinati obiettivi, obiettivi, disciplina, pianificazione strategica. È di fondamentale importanza avere una buona organizzazione, coordinamento, controllo e previsione per avere successo nei processi amministrativi per quanto riguarda il business.

E-POSTER ON DISPLAY (ENG, ALL CATEGORIES)

EP606 EVALUATION OF THE ANTISEPTIC ACTIVITY OF 5% ALCOHOLIC POVIDONE-IODINE SOLUTION USING FOUR DIFFERENT MODES OF APPLICATION: A RANDOMIZED OPEN-LABEL STUDY

Filippo Favalli[1], Anne Simon[2]

[1]*Meda Pharma S.p.A. A Viatris Company, Monza, Italy*; [2]*Groupe hospitalier Jolimont, Belgium*

Aim: Objective of this study was to investigate if the mode of application (both application technique and volume) affects the antiseptic efficacy of 5% alcoholic PVP-I (povidone iodine) solution, as measured by the number of colony-forming units (CFUs).

Method: Randomized, open-label, explorative single-center study conducted in France. Alcoholic PVP-I was administered to the backs of healthy adults using four modes of application: (A) concentric circle method, 3 mL; (B) concentric circle method, 10 mL; (C) back-and-forth friction method, 3 mL; (D) back-and-forth friction method, 10 mL. Safety was monitored.

Results / Discussion: 113 participants were screened; 32 were randomized. Alcoholic PVP-I showed significant antiseptic activity with all modes of application. Significantly greater efficacy was seen with back-and-forth friction (C+D) versus concentric circles (A+B), which was more evident for smaller volumes (Table 1). A notable volume effect was observed for the concentric circle application, which highlights a potential risk of underdosing with this method. No safety issues were observed.

Table 1: Effect of application technique on change from baseline in CFU count

Application method	Adjusted mean change in log10/cm2 CFU count from baseline (SE)	90% CI	p value
A vs C (concentric circle vs back-and-forth friction for 3 ml)	0.32 (0.13)	0.11, 0.53	0.012
B vs D (concentric circle vs back-and-forth friction for 10 ml)	0.11 (0.13)	−0.1, 0.33	0.372
Concentric circle vs back-and-forth friction overall	0.22 (0.09)	0.07, 0.37	0.017

Conclusion: The mode of application may influence antiseptic efficacy. As a result, studies comparing the efficacy of chlorhexidine alcohol versus alcoholic PVP-I, need to consider the same application method and comparable volumes to determine which treatment is most efficacious.

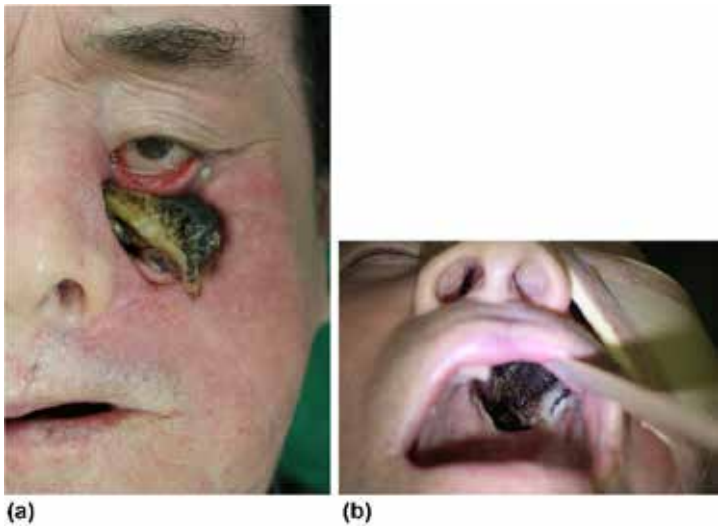
EP607 A CASE OF SEVERE RHINO-ORBITO-CEREBRAL MUCORMYCOSIS TREATED USING A FREE COMPOSITE ANTEROLATERAL THIGH FLAP AND AMPHOTERICIN B IRRIGATION

Kyung Ah Lee[1]

[1]*Inje University Haeundae Paik Hospital, Department of Plastic and Reconstructive Surgery, Busan, Korea, Rep. of South*

Aim: Rhino-orbital-cerebral mucormycosis (ROCM) is a rare, opportunistic and severe angioinvasive fungal infection that despite relevant treatment has high mortality. Here, I describe a patient with ROCM unresponsive to surgical debridement who has treated successfully with irrigation of Amphotericin B (AmB) and ALT free composite flap.

Method: I present the case of a 69-year-old Korean diabetic male with ectropion, epiphora, hemifacial deformity with foul odor from fungal ball at March, 2017 (Fig. 1. (a), (b)).



(a) (b)

He was diagnosed with ROCM due to Aspergillus and Mucor spp. and underwent maxillectomy in January 2016. Despite the surgical debridement, the ROCM was not regulated and all of the soft tissues covering the cheek were lost. To treatment of the ROCM, 25 mg (6 ml) of liposomal AmB was injected directly into the wound for 4 weeks, and 25 mg (6 ml) of remaining AmB was used for irrigation. At the same time, intravenous AmB (1.5 mg/kg/day) was administered. Infection was controlled and granulation tissue began to appear within the maxillary sinus (Fig. 2).

On the MRI, infection was no longer spread and stable. ALT-FL free flap was performed to reconstruct the defect in the face, intravenous liposomal AmB was administered for 4 weeks.

Results / Discussion: The patient is survived without complication such as ectropion as well as infection (Fig. 3).

The aggressive nature of this disease requires rapid diagnosis, early intervention with antifungal therapy, and the reversal of the underlying immunocompromising conditions.

Conclusion: This is the first documented case of treatment-resistant ROCM that was successfully treated with local L-AmB irrigation and injections, in conjunction with systemic antifungal therapy and surgical debridement.

E-POSTER SESSION: TRANSLATIONAL SCIENCE

EP608 THE ROLE OF DERMAL ADIPOCYTES IN WOUND HEALING

Anna Schwarz[1 2], Johanna Einsiedler[1], Judith CJ Holzer-Geissler[2], Martin Zacharias[2], Elisabeth Hofmann[1 2], Julia Fink[1], Lars Peter Kamolz[1 2], Petra Kotzbeck[1 2]

[1]Joanneum Research Forschungsgesellschaft mbH, COREMED, Graz, Austria; [2]Medical University of Graz, Division of Plastic, Aesthetic and Reconstructive Surgery, Department of Surgery, Graz, Austria

Aim: Wound healing is a complex process involving various cell types. Dermal adipocytes have been recently identified for their important role in wound healing. It is still unclear under which circumstances dermal adipocytes differentiate and how they interact with the wound healing cascade. The aim of our study was to investigate the role of inflammation on dermal adipocyte formation in wounds.

Method: Wounds (split thickness, full-thickness, burn wounds) were inflicted on the dorsal skin of pigs. To induce an exaggerated inflammatory response, half of the wounds were treated with resiquimod, a TLR7/8 agonist. Biopsies for histology and gene expression analysis were collected at distinct time points after wounding. Gene expression of adipogenic markers (FABP4, CD36) and the adipokines leptin and retinol-binding protein 4 (RBP4) were analysed.

Results / Discussion: We found that adipocytes predominantly occurred in resiquimod-treated wounds and burn wounds when inflammation was significantly increased. In both resiquimod-treated wounds and burn wounds, the formation of a significant adipocyte layer in the dermis and epidermis was observed. Gene expression analysis of adipogenic markers and adipokines showed that FABP4, leptin, and RBP4 were altered in resiquimod-treated wounds.

Conclusion: We found that wound inflammation increased the number of adipocytes in the skin and interfered with adipogenic markers and adipokine expression. Further in vivo studies are intended to expand the sparse existing knowledge about the role of dermal adipocytes in wound healing.

EP609 PERFORMANCE OF A ONETIMEINTERDISCIPLINARYTEAM IN THE TREATMENTOF LYELL SYNDROME: HOME CARE - EMAD - BRAZIL

Christielle Montenegro[1 2], Jacqueline Sachett[3], Juliana Lucinda dos Santos[4], Barbara Christovam[5], Herleis Maria Chagas[6]

[1]EMAD; [2]EMAD , Especialista Clinica, Rio Branco, Brazil; [3]Normal Superior School - UEA, Brazil; [4]Prime Care Cuidados Integrados à Feridas; [5]UFF - Praia Vermelha Campus, educação , Brazil; [6]UFAC - Federal University of Acre, Professora, Brazil

Scopo: raccontare un caso di un giovane che è sopravvissuto a un avvelenamento da Bothrops atrox. È stato morso alla gamba destra e poco dopo ha sviluppato una CS e necrosi tissutale, che ha richiesto fasciotomia, sbrigliamento chirurgico multiplo, innesto e supporto di terapia intensiva. L'incidente ha avuto un impatto sulla sua funzionalità portando a una grande disabilità cronica.

Metodi: Lo studio tratterà un approccio descrittivo, ed esplicativo sotto forma di relazione sull'esperienza. Eseguito durante l'assistenza infermieristica nella citta Amazonia- Brasile.

Un maschio di 27 anni con istruzione superiore, del comune di Sena Madureira, Stato di Acre (Brasile occidentale Unmazon), vittima di un avvelenamento da morso di serpente Bothrops atrox, è presentato in questo articolo. L'incidente è avvenuto il7 settembre 2018, intorno alle 9 del mattino, mentre tornava a casa dalle attività ricreative (pesca). Subito dopo l'incidente, la vittima ha avvertito un dolore acuto alla gamba destra. Mentre tornavo a casa, una passeggiata di 10 minuti, sono apparse vertigini, nausea e visione offuscata. ha portato a diversi episodi di vomito. Il paziente ha sviluppato confusione mentale dopo 1 ora. Solo acqua e sapone sono stati usati per pulire la ferita. Dopo due giorni, lo stato di salute del paziente si è deteriorato. È stato portato in un posto sanitario locale per un consulto medico, ricoverato d'urgenza in un ospedale di riferimento nel comune di Rio Branco. È arrivato in ospedale il 9 settembre 2018, alle 5 del mattino, presentando ipotensione e confusione mentale e iniziato a perdere conoscenza e ha richiesto l'intubazione. Dodici fiale di antiveleno Bothrops sono state somministrate all'arrivo in ospedale.

Risultati: Questo paziente si presentava in ospedale disidratato, anemico, trombocitopenico, con creatinina, urea e CK elevati. Ha sviluppato insufficienza respiratoria e ha richiesto l'intubazione. L'insufficienza d'organo è più diffusa nei pazienti deceduti vittime di morsi di serpente .Dopo quasi sei mesi dall'infortunio il paziente non è ancora stato in grado di tornare al lavoro o mantenere le precedenti attività quotidiane.

Conclusioni: Gli incidenti da snackebites, come presentati in questo rapporto, possono portare a un'estesa perdita di tessuto e danni permanenti all'arto interessato, con un forte impatto sulla funzionalità individuale nel tempo. Di conseguenza, le attività economiche, che di solito si basano su membri maschi attivi della famiglia in tali località, vengono ostacolate. Ciò influisce notevolmente sui guadagni e, di conseguenza, sulla qualità della vita della famiglia e della comunità. Sottolineiamo l'importanza di gravi complicazioni come la possibilità che gli incidenti di Bothrops si sviluppino in CS, che possono portare a rischi di amputazione e disabilità per tutta la vita; la necessità di agire rapidamente sull'avvelenamento; e che l'assistenza riabilitativa, con fisici e terapisti, deve essere disponibile. Un adeguato accesso all'educazione e alle strategie di prevenzione sui modi di affrontare le attività nelle zone rurali ad alto rischio, un trattamento rapido ed efficace e la disponibilità di riabilitazione sono essenziali per affrontare il problema.

FREE PAPERS

FREE PAPER SESSION: PREVENTION

OP001 THE CONJURING OF DIABETES AND OBESITY ON HUMAN WALKING STRATEGY

Nicola Riitano[1], Elisabetta Iacopi[1], Rosario Bellini[2], Caterina Tramonti[3], Francesco Giangreco[1], Carlo Moretto[2], Carmelo Chisari[3], Alberto Piaggesi[1]

[1]Pisa University Hospital, Diabetic Foot Section, Pisa, Italy; *[2]Pisa University Hospital, Bariatric Surgery Unit, Pisa, Italy*; *[3]Pisa University Hospital, Neuro-rehabilitation Unit, Pisa, Italy*

Aim: Diabetes Mellitus (DM) and Obesity (OB) condition motion strategy. Our study aimed to identify differences in gait biomechanical aspects determined by DM and OB.

Method: we recruited all patients admitted for bariatric surgery with body mass index (BMI) between 38 and 47 kg/m^2, stratified them according to presence (Group 1) or absence (Group 2) of DM and compared them with non-obese diabetic patients (Group 3) and healthy volunteers (Group 4). Subjects performed, before bariatric surgery, 3-D Gait Analysis walking barefoot at self-selected speed. Spatial-temporal and kinematic data were compared.

Results / Discussion: We enrolled 100 patients: 25 in each group: Group 1 (BMI 42.6 ± 2.7 kg/m^2), Group 2 (BMI 42.2 ± 2.3 kg/m^2), Group 3 (BMI 23.4 ± 1.6 kg/m^2) and Group 4 (BMI 22.8 ± 2.0 kg/m^2). Group 1 compared to 4 showed increased in stance duration ($p=0.04$), double support time ($p=0.02$) and step width ($0p<0.01$) and reduction in step length ($p<0.001$), stride length ($p<0.0001$), cadence ($p=0.015$) and walking velocity ($p<0.01$). Group 1 compared to 3 showed increased stride time ($p=0.04$). Step width in Group 1 was increased also compared to 3 ($p<0.01$). Kinematics data in Group 1 compared to 4 showed a significant reduction in ankle plantarflexion during push-off ($p<0.02$), knee ($p<0.001$) and hip peak flexion during swing ($p=0.001$) and knee dynamic excursion during normal walking ($p<0.001$).

Conclusion: Our data show that diabetic-obese subjects present gait features typical of both conditions. The specific worsening of dynamic joint impairment provides evidence of a synergistic effect on human ambulatory function.

OP002 DIFFERENT PATTERN OF FOOT STRUCTURAL CHANGES BETWEEN DIABETIC AND NON-DIABETIC PATIENTS AS A CONSEQUENCE OF WEIGHT LOSS IN SEVERE OBESITY

Nicola Riitano[1], Elisabetta Lacopi[1], Rosario Bellini[2], Caterina Tramonti[3], Francesco Giangreco[1], Carlo Moretto[2], Carmelo Chisari[3], Alberto Piaggesi[1]

[1]Pisa University Hospital, Diabetic Foot Section, Pisa, Italy; *[2]Pisa University Hospital, Bariatric Surgery Unit, Pisa, Italy*; *[3]Pisa University Hospital, Neuro-rehabilitation Unit, Pisa, Italy*

Aim: To evaluate modifications in foot structure in obese type 2 diabetes mellitus (DM) patients after weight loss.

Method: we studied all patients admitted for bariatric surgery between January and March 2019 with body mass index (BMI) between 40 and 48 kg/m^2 before and after the weight loss, dividing them according to presence (Group 1) or absence (Group 2) of DM. We compared changes in: skin temperature at first (ST1) and fifth (ST5) metatarsal joint, ultrasound skin and subcutaneous (US) and fascia (F) thickness and dorsal (DC) and ankle circumference (AC).

Results / Discussion: We enrolled 46 patients: 19 in Group 1 (M/F 11/8; age 48.2±10.3 yrs) and 27 in Group 2 (M/F 10/17, age 46.8±10.0). Time to reach expected weight loss was longer in Group 2 (461.5±131.3 days vs 334.2±106.4, $p=0.0011$). Foot and leg volumes significantly decreased in both groups, but more in Group 2: ΔDC 1.9±1.6 vs 0.7±1.4 cm ($p=0.02$), ΔAC 2.8±1.9 vs 1.2±1.7 cm ($p=0.01$). Also the reduction of ST was greater in Group 2: ΔST1 3.7±3.1°C vs 1.9±3.1°C ($p<0.05$) and ΔST5 4.8±3.6°C vs 1.8±3.8°C ($p<0.02$). US reduction was significantly greater in Group 1: dorsal (0.16±0.14 vs 0.04±0.14 cm, $p=0.009$) and plantar (0.10±0.18 vs 0.06±0.19 cm, $p<0.05$) as well as F (ΔF 0.05±0.01 vs 0.02±0.08 cm, $p=0.02$).

Conclusion: Our data confirm structural changes induced by weight loss in severely obese patients, but point out different patterns in DM patients compared to non-diabetic ones: tissue decrease in the former and volume reduction in the latter.

OP003 PREVENTION OF DEPENDENCY INJURIES IN CRITICAL PREGNANT WOMEN IN PRONE POSITION

Pía Molina Chailán[1], Daniela Gonzalez Naranjo[1]

[1]*Regional Clinical Hospital of Concepción, Concepción, Chile*

Aim: Prone position has decreased mortality in patients with severe pneumonia, in pregnant women this maneuver has developed favorable outcomes. This study aims to describe clinical, and care prevention protocol used in critical pregnant women with severe Covid-19 pneumonia.

Method: Cases studies, descriptive, prospective. There were nine pregnant women with mechanical ventilation for severe pneumonia between 2020-2021, five of them required prone protocol maneuver. The protocol consists of 3 phases: preparation, execution, and evaluation.

Results / Discussion: Mean age 32 years (23-42 years), mean pregnancy weeks 27 ± 2. All five pregnant women required 1 -3 prone sessions, mean 57,3 hours (24-85 hours). Preparation phase: clinical supplies implementation, "C" shape head pillow, viscoelastic large pillow, hydrophilic foam dressings, hyperoxygenated fatty acids compound and attachment of medical devices to avoid tubes or catheters displacement. Execution phase: manual proning maneuver with 5 professionals with specific duties during the procedure. Lead nurse ensuring head and endotracheal tube, nurse number 2 ensuring proper position and fixation of tubes and catheters. Physiotherapist control mechanical ventilation, two technical nurses place padding and sheets onto the patient. Evaluation phase: continuous maternal hemodynamics evaluation shown an increase in PaO2/FiO2 ratio, adequate blood pressure, decrease lung radiological compromise, adequate fetal cardiac range. In addition, there were no complications such as accidental removal of medical devices or skin injuries.

Conclusion: Protocolized prone maneuver, and expert interdisciplinary team has shown beneficial results in clinical parameters, prevent technical complications, and protect the skin from mechanical forces in pregnant women with severe pneumonia.

OP004 PODOLOGICAL FEATURES OF DIABETIC FOOT PATIENTS AT HIGH ULCERATIVE RISK IN PRIMARY AND SECONDARY PREVENTION

Laura Ambrosini Nobili[1], Lorenza Abbruzzese[1], Elisa Leporati[1], Nicola Riitano[1], Alberto Piaggesi[1]

[1]*Pisa University Hospital, Diabetic Foot Section, Pisa, Italy*

Aim: To compare diabetic foot patients (DFP) at high ulcerative risk in primary and secondary prevention from a podological point of view.

Method: A cohort of consecutive DFP attending the preventative outpatient clinic of the diabetic foot (DF) section of our hospital in primary (Group1) or secondary (Group2) prevention were prospectively blindly evaluated for the following parameters: condition of autonomy (A), hygiene (H), compliance (C), shoes (S) and nails (N); presence of new lesions)=(NL), hyperkeratosis (HK), fissurations (F), deformities (D); ABPI, skin hardness (SH) measured with a durometer at metatarsal-phalangeal joint (I-MPJ and V-MPJ) and heel, skin temperature (T) at the dorsum of the foot.

Results / Discussion: 102 DFP (64 Group1/38 Group2; age 74.1±10.5 yrs; DM duration 19.4±8.7 yrs; HbA1c 7.8±1.9%: 52% males) were studied. No significant difference emerged between the two groups for levels of A, H and C; S and N were superimposable as the number of NL (3 Group 1 vs 7 in Group 2), HK (57.8% vs 63.2%), F (3.1% vs 2,6%) and D (85.9% vs 84.2%). ABPI (1.22±0.28 in Group 1 vs 1.33±0.51 in Group 2) showed no differences as well as T (33.3±1.7 °C vs 32.7 ±1.9°C), while SH at I-MPJ (30.1±17.2 UI vs 41.5 ±21.3 UI p=0.003) V-MPJ (29.2±18.4 UI vs 38.2±20.9 UI p=0.025), and at heel (30.1±15.5 UI vs 37.4±14.3 p=0.018) were all significantly greater in Group 2 compared to Group 1.

Conclusion: SH is able discriminated between new and recurrent DFP at high ulcerative risk.

OP005 WOUND CARE, THE ROLE OF ADVANCED TECHNOLOGIES IN WOUND PREVENTION AND HEALING

Lenka Veverkova[1], Petr Doležal[2], Michal Reška[1], Petr Vlček[1], Jan Žák[1]

[1]Medical Faculty Masaryk University Hospital and St Ann's, First Department of Surgery, Brno, Czech Republic; [2]Consulting, Czech Republic, Consulting, Czech Republic, Brno, Czech Republic

Aim: Every year, many patients around the world develop surgical site infections (SSIs). The incidence of SSIs has significant social, health and financial implications. With the increasing average age of the population and multimorbidity, the number and especially the complexity of surgical procedures performed is also increasing. The main aim of this study was to define groups of patients at high risk of surgical wound site infection and to establish clinical guidelines for the prevention of SSIs in patients undergoing different types of surgery.

Method: In a 10-year retrospective analysis of 33,748 operated patients, the incidence of SSIs was found in 768 of them. All the findings of the analysis were statistically evaluated using PASW Statistics software.

Results / Discussion: The results of patients without and with SSIs were statistically significant in all variables. The group without SSI: The median LOS was 5 days, the mean operation time was 66 min, the age was 60 years, and the number of operations was one. In the SSI group, the median LOS was 21 days. The number of operations per patient doubled and the operation time increased to 85 min. The critical combination for the development of SSI was an operative time of 107 min in a patient with an ASA of 3 or higher. These variables predict that a patient will acquire infection more than 47% of the time. The financial burden of patients with SSI is 2.5 times higher than in the non-SSI group.

Conclusion: Based on our results, we know the groups of risk factors and implement a scoring system before each surgery to use local perioperative preventive agents.

FREE PAPER SESSION: DIABETIC FOOT 1

OP008 KEEPING FEET IN REMISSION AFTER HEALING OF DIABETIC FOOT ULCERS - A QUALITATIVE STUDY OF PATIENTS´ EXPERIENCES

Ylva Wessman[1], Magdalena Annersten Gershater[1]

[1]Malmö University, Faculty of Health and Society, Department of Care Science, Malmö, Sweden

Aim: Re-ulceration is common after healing of a diabetic foot ulcer and people living with a diabetic foot ulcer in remission often suffer from comorbidities and other diabetes-related complications. The aim was to explore experiences of people with diabetes regarding keeping feet in remission after healing of foot ulcers.

Method: A qualitative explorative study was performed. Forty-nine people with a healed diabetic foot ulcer (m:43/f:15; age 63 years (46-78), minor amputation: n=6) took part in participant driven group sessions inspired by problem-based learning. The sessions were recorded, transcribed, and analyzed by content analysis.

Results / Discussion: The overarching theme "Feelings of frustration when losing self-determination in the footsteps of diabetes" was substantiated by four categories: 1) deeper insights of the need of prevention 2) vulnerability to external factors 3) reminders of daily limitations 4) recurring dependence on others.

Conclusion: People living with diabetes and feet in remission expressed feelings of frustration. They experienced loss of self-determination in their lives and should be offered various educational interventions to adapt to daily challenges. Health care professionals in diabetes have an essential role in meeting these people's complex and individual needs throughout life and feelings of frustrations should be taken into consideration when performing interventions to assist self-care and educational activities for patients, next of kin and health care provider.

OP009 ANALYSES OF TRANSCUTANEOUS OXYGEN PRESSURE VALUES STRATIFIED FOR FOOT ANGIOSOMES TO PREDICT DIABETIC FOOT ULCER HEALING. A 2-YEAR FOLLOW-UP STUDY

Mateo López Moral[1], Marta García-Madrid Martín de Almagro[1], Raul Molines Barroso[1], Yolanda García Álvarez[1], Aroa Tardáguila García[1], José Luis Lázaro Martínez[1]

[1]UCM: Faculty of Nursing, Physiotherapy and Podiatry, Diabetic Foot Unit, Madrid, Spain

Aim: To compare the potential healing prognosis of transcutaneous oxygen pressure ($TcPO_2$) differentiated for diabetic foot ulcers (DFU) in different angiosome locations.

Method: $TcPO_2$ measurements were performed at baseline by placing the electrode on the dorsal zone of the foot between the first and the second metatarsal bones (dorsalis pedis angiosome) and between the navicular bone and the tibial malleolus (posterior tibial angiosome). Main outcome was establishing the effectiveness of TcPO2 measurements (dorsalis pedis angiosome and posterior tibial angiosome) for predicting DFU healing in a 2-years prospective study design.

Results / Discussion: Healing patients (n = 50, 61.72%) at 24 weeks showed higher $TcPO_2$ than non-healing patients. $TcPO_2$ placed in the dorsum of the foot (dorsalis pedis angiosome) yielded a sensitivity (S) of 95% and specificity (SP) of 73%, and an area under the curve (AUC) of 0.902 (p <0.001 [0.84-0.96]) for ulcers located in the forefoot and toes; while $TcPO_2$ placed in the posterior tibial angiosome yielded an S of 100% and SP of 85% and an AUC of 0.894 (p <.001 [0.822-0.966]) for DFU located in the midfoot and heel. In the logistic regression analyses, $TcPo_2$ performed in the dorsalis pedis angiosome was the only variable associated with wound healing at 24 weeks in patients with DFU located in the dorsalis pedis angiosome (P <.001; 95% CI,1.11–1.46), while TcPo2 performed in the posterior tibial angiosome was the only variable associated with wound healing at 24 weeks in patients with DFU located in the posterior tibial angiosome (P= .003; 95% CI,1.06–1.32).

Conclusion: This study suggests that angiosome-guided $TcPo_2$ contributes to a prognosis of successful foot ulcer healing.

OP010 UNDERSTANDING THE RELATIONSHIP BETWEEN DIABETIC FOOT COMPLICATIONS AND DEPRESSION

Cynthia Formosa[1], Alfred Gatt[1], Nikolaos Papanas[2]

[1]University of Malta, Faculty of Health Sciences, Malta; [2]University of Thrace, Greece

Aim: To identify any difference in mental health status and quality of life in lower limb amputees with diabetes compared to individuals without lower limb amputation.

Method: A prospective, matched, non-experimental study was conducted at a diabetic foot ward. Subjects were divided into two groups. Group 1: 38 participants undergone a minor amputation and group 2: 38 participants without amputation /history of amputation. Participants were interviewed twice using two questionnaires to screen for mental health status and quality of life. These included the SRQ 20 and EQ-5D-5L. Interviews occurred one week post amputation and after 6 months.

Results / Discussion: The mean SRQ 20 score for group 1 at time 0 [1 week post amputation] was that of 8.50, whilst for group 2 was that of 1.34. Since a threshold level of 8 or more suggests psychological distress, the results are indicative that group 1 showed positive presence of mental health disorder. At Time 1 the mean SRQ 20 for group 1 decreased to 5.42 indicating a decrease in psychological distress after six months. Significant differences in the mean values for each dimension of the EQ 5D 5L between group 1 and group 2 indicated that amputees had poorer quality of life than individuals without amputation at time 0 and time 1.

Conclusion: Mental health and quality of life are negatively affected after minor lower limb amputation. Routine screening for depression is recommended. Mental health matters MUST NOT be relegated to the bottom of priorities in national health systems.

OP011 REULCERATION RATES AND ITS RELATION WITH MICROCIRCULATION IMPROVEMENT AFTER HEALING IN PATIENTS WITH NEUROISCHEMIC DIABETIC FOOT ULCERS TREATED WITH SUCROSE OCTASULFATE IMPREGNATED DRESSINGS. A ONE-YEAR PROSPECTIVE STUDY

José Luis Lázaro Martínez[1]

[1]*Universidad de Complutense de Madrid, 28040 MADRID - SPAIN, Unidad de Pie Diabetico, MADRID, Spain*

Aim: To evaluate recurrence after a 1-year follow-up period of healed diabetic foot ulcers after treatment with sucrose octasulfate impregnated dressing.

Method: Forty-four patients with neuroischaemic DFU after the healed with sucrose octasulfate impregnated dressing were prospectively follow-up during 1-year. Patients were assessed monthly in the specialized out-patient clinics following the International Working Group Guidelines. Reulceration, minor, major amputation and death were recorded during this period. Additionally, $TcpO_2$ value was measured using TCM400 device (Radiometer, Copenhagen) after 1 year of healing.

Results / Discussion: During the follow-up period 14 patients (28%) suffered from a reulceration event, of whom 7 (14%) required a minor amputation, and 4 (8%) required major amputation. Additionally, 7 (14%) patients died. Patients with impaired microcirculation at inclusion (<30mmHg) showed an increase of $tcpO_2$ values from day 0, 20.20 ± 5.38mmHg to healing, 31.28 ± 13.74mmHg, (p=0.023) and these $tcpO_2$ increasing remained constant after 1 year of ulcer healing, 33.66 ± 13.83 mmHg (p=0.011). Those patients who suffer a reulceration in the follow-up had $tcpO_2$ values lower 27.90 ± 17.35 mmHg compared to non-reulceration patients 41.63 ± 12.81 mmHg, (p=0.048).

After adjusting the analyses, we observed that neuroischemic patients that had impaired microcirculation after the 1-year follow-up period resulted in more reulceration events, 8 (57.1%) compared with neuroischemic patients with normal microcirculation status, 6 (42.9 %), (p=0.013).

Conclusion: This study suggests that the application of a sucrose octasulfate impregnated dressing may improve clinical characteristics of the foot in patients with impaired microcirculation status and thus, it could prevent further reulceration events.

FREE PAPER SESSION: DIABETIC FOOT 6

OP012 VALIDATION OF THE FAST-TRACK MODEL: A NEW DIABETIC WOUND ASSESSMENT FOR PRIMARY CARE

Marco Meloni[1], Juan Pedro Sanchez Rios[2], Elisabetta Iacopi[3], Raju Ahluwalia[4], Benjamin Bouillet[5], Chris Manu[6], Jose Luis Garcia Klepzig[7], Claas Lüdemann[8], Julien Vouillarmet[9], Jérôme Guillaumat[10]

[1]*University of Rome Tor Vergata, Diabetic Foot Unit, Rome, Italy*; [2]*Hospital Fundació*n Alcorcón, Diabetic Foot Unit, Vascular Surgery Department, Madrid, Spain; [3]*University of Pisa, Diabetic Foot Section, Pisa, Italy*; [4]*King's College Hospital, Department of Trauma and Ortophaedic Department, London, United Kingdom*; [5]*University Hospital Center, Endocrinology Department, Dijon, France*; [6]*King's College Hospital, Diabetic Foot Unit,, London, United Kingdom*; [7]*Hospital Clinico San Carlos De Madrid, Internal Medicine Department, Madrid, Spain*; [8]*Franziskus Krankenhaus Berlin, Angiologie, Berlin, Germany*; [9]*University Hospital Center, Endocrinology Department, Lyon, France*; [10]*University Hospital of Caen, Vascular department, Caen, France*

Aim: International Diabetic Foot Care Group and D-Foot International developed a fast-track model to define the severity of diabetic foot ulcer (DFU). The authors aimed to validate the association between the grade of DFU severity proposed by the fast-tack model and outcomes.

Method: Consecutive patients with a new DFU were included. Patients were managed according to IWGDF guidelines[2]. The fast-track model identifies three levels of DFUs severity: *uncomplicated DFUs* including superficial, not infected and not ischaemic wounds; *complicated DFUs* including ischaemic, infected, and deep ulcers (muscle, tendons or bone) and any wound in patients on dialysis or with heart failure; *severely complicated DFUs* including abscess, wet gangrene, necrotizing fasciitis or patient with fever or sepsis. Healing, healing time, minor and major amputation, hospitalization and survival after 24 weeks of follow-up were reported according to the grade of DFU severity.

Results / Discussion: Three-hundred sixty-seven patients were included, 35(9.6%) with uncomplicated DFUs, 210(57.2%) with complicated DFUs, 122(33.2%) with severely complicated DFUs. The mean age was 69±13years, 208(56.7%) were male, 344(93.7%) had T2 diabetes with a mean duration of 19±10years. The outcomes for uncomplicated, complicated and severely complicated DFUs were respectively: healing 97.1%, 86.2%, 69.8% (p<0.0001), healing time (weeks) 4.4±3.3, 9.7±6.4, 13.3±8.3 (p<0.0001), minor amputation 2.9%, 20%, 66.4% (p<0.0001), major amputation 0%, 2.9%, 16.4% (p<0.0001), hospitalization 14.3%, 55.7%, 89.3% (p<0.0001), survival 100%, 96.7%, 89.3% (p=0.003).

Conclusion: The study shows an association between the grade of DFU severity and outcomes, and fast-track model may be useful to be assess wound severity in primary care.

FREE PAPER SESSION: DIABETIC FOOT 1

OP013 MICROCIRCULATION IMPROVEMENT IN DIABETIC FOOT PATIENTS AFTER THE TREATMENT WITH SUCROSE OCTASULFATE IMPREGNATED DRESSINGS

José Luis Lázaro Martínez[1], Marta García-Madrid Martín de Almagro[1], Esther Alicia Garcia Morales[1], Serge Bohbot[2], Jose Luis Garcia Klepzig[3], Yolanda García Álvarez[1]

[1]Universidad de Complutense de Madrid, Unidad de Pie Diabético, Madrid, Spain; *[2]Laboratoires Urgo, Medical Affairs, Paris, France*; *[3]Hospital Clinico San Carlos de Madrid, Madrid, Spain*

Aim: Sucrose octasulfate impregnated (TLC-NOSF) dressing showed an increase in local Transcutaneous Oxygen Pressure ($TcPO_2$) in patients with neuro-ischaemic Diabetic Foot Ulcers (DFUs). The aim of this study was to demonstrate the patient´s microcirculation improvement after the treatment with this dressing.

Method: 50 patients with neuro-ischaemic DFUs were included in a prospective study between July 2019 and February 2022. $TcPO_2$ values were measured using TCM400 device on the dorsalis pedis or tibial posterior arteries angiosome according with ulcer location (forefoot or rearfoot). $TcPO_2$ values were assessed at day 0 and every 4 weeks during 20 weeks of follow-up or until wound healing. $TcPO_2$ values were analyzed in the total sample and in patients according microcirculation impairment and ulcer location.

Results / Discussion: $TcPO_2$ values with TLC-NOSF dressing showed an increase between day 0 and the end of the study, 33.04 ± 12.27mmHg and 40.89 ± 13.06mmHg respectively, ($p < 0.001$). Patients with impaired microcirculation showed an increase of TcPO2 values from 20.20 ± 5.38mmHg to 31.28 ± 13.74mmHg, ($p=0.02$). Patients with normal microcirculation also shown an increase from 41.60 ± 6.80 mmHg to 46.73 ± 8.53 mmHg ($p=0.007$). Furthermore, a significant increasing in $TcPO_2$ values was observed in forefoot DFU from 32.85 ± 12.76mmHg to 41.34 ± 12.02 mmHg ($p=0.001$) and in rearfoot DFU from 33.80 mmHg ± 10.66 mmHg to 39.25 ± 17.21 ($p=0.203$).

Conclusion: Local treatment with Sucrose octasulfate impregnated dressing improved microcirculation in patients with DFU regardless vascular status at baseline and in forefoot location.

FREE PAPER SESSION: RARE WOUNDS CASES

OP014 A CASE OF AN EMBOLIA CUTIS MEDICAMENTOSA (NICOLAU SYNDROME) CAUSED BY DICLOFENAC INJECTIONS

Mari Salmivuori[1], Lauri Tolkki[1], Leila Jeskanen[1]

[1]*Helsinki University Hospital, Dermatology and Allergology, Helsinki, Finland*

Aim: Describe a case of a Nicolau syndrome. Classically Nicolau syndrome, a livedoid and ischemic lesion, caused by intramuscular or local drug injections, has been associated with bismuth or beetalactam antimicrobials, but it has been associated as well with non-steroidal anti-inflammatory drugs, mostly with diclofenac.

Method: There is a 59-year-old male with migraine, Horton's neuralgia, high blood pressure, sleep apnea and obesity (BMI 45), non-smoker, with two pulmonary embolies in the history. Due to severe obesity warfarin was chosen for permanent anticoagulation. Against neurologist recommendation patient had used intramuscular diclofenac weekly. Within few days on the injection site, right lateral tight, developed a livedoid area turning into a necrotic wound (by admission size 7x4 cm).

Results / Discussion: First warfarin necrosis or calciphylaxis was suspected. Warfarin was changed to rivaroxaban. Patient was assessed by the multidisciplinary wound team. In the histopathology report there was thrombotic vessels in subcutis, ulceration, necrosis with inflammatory cells and no calcification in von Kossa staining, iron and alcian blue were also stained. The diagnosis was Nicolau syndrome. Repeated bed-side revisions were performed and AIH was used. After two months there was good epithelization (wound size 4x1 cm). Plastic surgeon decided to continue treatment conservatively. Patient was also referred to a neurologist.

Conclusion: In this case there was a possibility of warfarin necrosis, risk factors for non-uremic calciphylaxis, but the clinical signs, pathology report and history fit best for Nicolau syndrome. It is important to clinicians to be aware of this rare adverse reaction, not to miss it.

Figure 1. Clinical images of the wound.

OP015 TREATMENT OF APLASIA CUTIS WITH ADVANCED DRESSINGS: PREVENTION OF COMPLICATIONS OF THE CENTRAL NERVOUS SYSTEM AND HEALING

Biagio Nicolosi[1]

[1]*University Hospital Meyer, Anestesia e rianimazione pediatrica, Firenze, Italy*

Scopo: Aplasia cutis congenita (ACC) is a rare skin disease characterized by a localized absence of the skin, usually on the scalp, which can also affect other parts of the body. The purpose of this work is to illustrate one of the cases of aplasia cutis treated with advanced dressings.

Metodi: The treatment was aimed at a newborn of 35 + 5 weeks of gestational age, affected by aplasia cutis. The defect was assessed and initially managed with silver hydro-fiber, soaked every two hours with physiological solution. The subsequent specialist nursing evaluation considered the possibility of promoting a non-optimal humid environment, as well as the possible risk of infection, related to the frequent manipulation of the defect. Therefore, a bacterial and hydrogel uptake dressing was applied as the first dressing, and a conformable silicone dressing as the second.

Risultati: The aplasia resolved spontaneously within 29 days. The treatment strategy with bacterial uptake dressing and hydrogel not only ensured an adequately moist environment, to keep the dura mater hydrated, and safe against the risk of infection, but also avoided surgical treatment in the operating room.

Conclusioni: In infants with aplasia cutis, the secondary intention approach could represent an effective strategy to promote the spontaneous and protected resolution of the defect. This treatment could also be useful for postponing surgery, when this was unavoidable (for example for bone grafting).

19.03.2021

- Bacterial uptake gauze + Hydrogel.
- Conformable silicone

28.03.2021

02.04.2021

08.04.2021

17.04.2021

Healing

OP016 MARTORELL ULCER SUCCESSFULLY HEALS WITH A COMBINATION OF AUTOLOGOUS GROWTH FACTORS AND PUNCH SKIN GRAFTING

Clara Masó Albareda[1 2], Maria Rovira Dalmau[1 2], Marta Casals Zorita[1 2], Mònica Plans Díaz-Meco[1], Eva Bonjoch Jaques[1], Marta Otero Viñas[2 3], Joan Espaulella Panicot[1 4 5], Marta Ferrer Solà[1 2], Maria Carme Salomón Elcacho[1]

[1]Hospital Universitari de la Santa Creu de Vic, Clinical Wound Unit, Vic, Spain; [2]Institute for Research and Innovation in Life and Health Sciences in Central Catalonia (IrisCC), Tissue Repair and Regeneration Laboratory (TR2Lab), Vic, Spain; [3]University of Vic, Faculty of Science, Technology and Engineering, Vic, Spain; [4]Hospital Universitari de Vic (Consorci Hospitalari de Vic), Vic, Spain; [5]Institute for Research and Innovation in Life and Health Sciences in Central Catalonia (IrisCC), Central Catalonia Chronicity Research Group (C3RG), Vic, Spain

Introduction: Martorell hypertensive ulcers are considered to be a rare cause of leg ulcers. The diagnosis of these wounds' etiology is clinical, following in-depth exclusion criteria, and unfortunately mostly belated. The heals response to conventional treatment takes time and is often unsatisfactory.

Case description: We present a case of an autonomous 82-year-old female that was referred for a 6,70cm^2 ulcer on the leg (wound age: 2 months). She reported intense pain that swiftly became severe requiring opioid treatment for its management. In addition, the ulcer had a fast progression increasing up to 346.88cm^2 in size affecting the Achilles tendon and rapidly turning into a necrotic lesion with purple-reddish edges. The ulcer was diagnosed as hypertensive etiology due to the normal kidney function, hypertension diagnosis, and the clinical picture. To promote wound healing, and reduce pain and opioid administration, the wound was treated with advanced therapy with autologous growth factors combined with punch skin grafting. Complete epithelialization was observed at 6 months.

Discussion: Martorell hypertensive ulcer resolution required the combination of various advanced therapies emphasizing the therapeutic difficulty of these lesions. Autologous growth factors combined with punch grafting enhanced wound healing, and interestingly they alleviate ulcer pain by the release of growth factors and other mediators.

Conclusions: Martorell hypertensive ulcers pose an important diagnostic and therapeutic challenge in clinical practice. An early prescription of advanced biological therapies for these ulcers is essential to mitigate the pain and cease the uncontrolled necrotic and the ulcer size increase.

OP017 ULCERATED TOPHACEOUS GOUT OF THE FOOT: A CASE REPORT AND RETROSPECTIVE CASE SERIES

Laura Iglesias-Girard[1], Justine Lafleur-Careau[2], Jérôme Patry[2]

[1]Université de Sherbrooke, Canada; [2]Laval University, Canada

Aim: Ulcerated tophaceous gout is an uncommon presentation of wounds on the lower limbs. Treatment of these wounds can be a challenge, as their optimal management remain to be determined.

Method: A retrospective analysis of electronic medical charts between 2015 and 2021 was conducted at a wound clinic of a university-affiliated hospital to determine the characteristics of patients treated with tophaceous wounds, their evolution and treatment.

Results / Discussion: We present a case series of five patients with ulcerated tophaceous gout of the foot (Table 1). At baseline, all patients had either a soft tissue infection or osteomyelitis. All progressed well with local wound care, including conservative sharp debridement of the tophi and rapid initiation of urate-lowering therapy.

Conclusion: A diagnosis of tophi should be considered in the presence of an ulcer over the first metatarsophalangeal joint or other

Table 1. Patients' characteristics of the cohort.

	N	Range	Median	Mean
Number of patients	5 2 females 3 males			
Age (years)		68-97	77	78.8
Comorbidities - Hypertension - Type-2 Diabetes - Dyslipidemia - CAD - Atrial Fibrillation - PAD - CKD - eGFR (ml/min/1.73 m²) - Pre-existing diagnosis of gout - Peripheral neuropathy	 5 (100%) 3 (60%) 5 (100%) 4 (80%) 3 (60%) 2 (40%) 4 (80%) 2 (40%) 0 (0%)	 18-73 	 34 	 38.6
Serum urate at onset (micromol/L)		382-654	496	500
Ulcerated tophaceous gout - Microscopy performed and urate crystals demonstrated - Unruptured tophi on contralateral foot	 3 (60%) 1 (20%)			
Radiological signs - pathologic fracture - soft tissue radiodensities - joint erosions	5 (100%) 1 (20%) 3 (60%) 3 (60%)			
Wound size area at onset (cm²)		0.06-9.6	0.63	2.34
Wound location - 1st MTP joint - Toes	 3 (60%) 2 (40%)			
Infectious status at onset - Non infected - Soft tissue infection - Osteomyelitis	 0 (0%) 2 (40%) 3 (60%)			
Vascular status at onset - Valid ABI with compressible vessels (ipsilateral) - Valid toe pressures (on ipsilateral hallux) (mmHg)	 2 (40%) 5 (100%)	 0.64-1.0 48-101	 0.82 70	 0.82 75.4
Pharmacological treatment at onset - Allopurinol - Colchicine	 5 (100%) 5 (100%)			
Wound healing status - Ulcer healed - Ulcer improved - Ulcer did not healed/ deceased	 3 (60%) 1 (20%) 1 (20%)			

Abbreviations: ABI: ankle brachial index, CAD: coronary artery disease, CKD: chronic kidney disease, eGFR: estimated glomerular filtration rate, MTP: metatarsophalangeal, PAD: peripheral artery disease.

toes when whitish-chalky material is present, even if the patient is not previously known to have gout. Tophi ulceration is a rare complication, but prompt diagnosis and management are important to avoid destruction of the underlying bone structures.

OP019 NOVEL COMBINATION OF LOCAL AND SYSTEMIC THERAPY AS A TOOL FOR THE TREATMENT OF PYODERMA GANGRENOSUM

Giammarco Granieri[1], Flavia Manzo Margiotta[1], Alessandra Michelucci[1], Giorgia Salvia[1], Agata Janowska[1], Marco Romanelli[1]

[1]*University of Pisa, Dermatology, Pisa, Italy*

Aim: Pyoderma Gangrenosum (PG) is a neutrophilic dermatosis that represents a clinical challenge because of the frequent occurrence of the disease. The aim of our work was to evaluate the effectiveness of a combination of local and systemic therapy in achieving and maintaining therapeutic response.

Method: A 38-year old woman was admitted to our clinic in September 2022 with circumferential left lower limb lesions diagnosed as PG. The patient was affected by Systemic lupus erythematosus (SLE) and recalcitrant PG, previously remitted with Rituximab, but reactivated during the years of the COVID-19 pandemic.

Results / Discussion: At the first visit, the wound was painful and surrounded by a lilac ring, with an adherent fibrinous layer and signs of major colonization by Pseudomonas Aeruginosa. Corticosteroids were initially administered 1 mg/ kg / day then progressively tapered to total daily 8 mg. Local management was based on the principles of PG-TIME and consisted of silver hydrofiber and antiseptic polyurethane foam, which led the wound bed to move from a green color, hallmark of Pseudomonas aeruginosa colonization, to a yellow fibrinous one. After an enzymatic debridement, Negative Pressure Wound Therapy (NPWT) with polyurethane foam and compression bandage was applied. After obtaining granulation tissue, we performed an homologous skin graft which resulted in complete wound healing.

Conclusion: Our case report shows that a combined approach based on the association between systemic and local therapy is the best therapeutic strategy for the management of recurrent PG and it emphasizes the importance of proper wound bed management.

OP020 INHIBITION OF JAK 1/2 AS A POTENTIAL TARGET IN THE TREATMENT OF RECALCITRANT PYODERMA GANGRENOSUM: A CASE REPORT

Flavia Manzo Margiotta[1], Alessandra Michelucci[1], Giammarco Granieri[1], Giorgia Salvia[1], Agata Janowska[1], Marco Romanelli[1]

[1]*University of Pisa, Dermatology, Pisa, Italy*

Aim: Pyoderma Gangrenosum (PG) is a neutrophilic dermatosis that represents a clinical challenge because of the frequent recurrence of the disease. The aim of our work was to evaluate the use of Baricitinib, an oral JAK1/2 inhibitor, as a third-line biologic agent for the treatment of a multi-refractory PG case.

Method: A 70-year old woman was admitted to our clinic in February 2022 with right foot lesions diagnosed as PG. The patient was affected by chronic lymphoid leukemia in remission and was unsuccessfully treated with Guselkumab, Adalimumab and cyclophosphamide. Because of the absence of clinical improvement, Baricitinib 8 mg/day and Prednisone 25 mg/die were started (T0). Proper local wound management was carried out and at T7 we performed an homologous graft. At each visit, Wound Bed Score (WBS) was assessed and pain was evaluated with Numerical Rating Scale (NRS).

Results / Discussion: At T0 the Wound Bed Score (WBS) was 8, while pain measured through the Numerical Rating Scale (NRS) was assessed at 9. At T7 there was an improvement of pain and a similar wound severity (WBS 8; NRS pain 6), while at T21 pain was further reduced (NRS pain 5) and no signs of clinical worsening appeared at the graft site.

Conclusion: In clinical cases of multi refractory PG, homologous graft combined with Baricitinib and Prednisone therapy could represent a further therapeutic choice which, in our short experience, allows better management of local pain and determines an arrest of the inflammatory component.

FREE PAPER SESSION: LEG ULCERS & DEVICES AND INTERVENTIONS

OP021 CENTRAL FACIAL RECONSTRUCTION WITH SKIN FLAPS AND DONOR-SITE APPLIED DECELLULARIZED INTACT FISH SKIN

Salvatore Pacella[1]

[1]*Scripps MD Anderson Cancer Center, Plastic & Reconstructive Surgery, San Diego, United States*

Aim: Resection of large skin cancers in the periorbita/midface can result in significant cosmetic and functional deformities. Laterally-based skin flaps are often preferable to avoid secondary cicatricial deformities, however, can lead to cosmetic defects of the donor site in the lateral preauricular/temporal area. We evaluated the utility of a decellularized, intact fish skin xenograft* for improved appearance of flap donor site.

Method: From 2021 to 2022, cervicofacial rotational-advancement flaps were used for reconstruction of midface/periorbital defects greater than 2 cm after skin cancer resection. A preauricular and/or temporal donor site was left open to prevent central flap tension. Decellularized fish skin was sutured to the donor site. Wound healing dimensions, time, and patient satisfaction were evaluated at daily intervals.

Results / Discussion: Table 1 demonstrates full patient data. Average donor site defect was 8.1 cm^2 (1.1-23.1 cm^2) in 7 patients. After immediate application, average epithelization was achieved in 20.9 days (10-33 days). Final scar demonstrated substantial width contraction to an average of 0.5 cm (0.2-1.0 cm). All patients expressed satisfaction with the appearance of the donor site. Figures 1 and 2 illustrates sample case photographs.

Conclusion: Decellularized fish skin can be utilized successfully to repair donor sites in facial flap reconstruction with minimal healing time. Eventual scar width and cosmesis can be improved over skin grafting or secondary intention healing.

TABLE 1: PATIENT DATA/OUTCOMES IN APPLICATION OF DECELLULARIZED FISH SKIN TO LATERAL FACIAL DONOR SITE

	DONOR SITE DIMENSIONS IN LATERAL FACE			TIME TO FULL EPITHELIZATION	FINAL SCAR DIMENSIONS IN LATERAL FACE DONOR SITE	
PATIENT	LENGTH (CM)	WIDTH (CM)	AREA (CM^2)	(DAYS)	LENGTH (CM)	WIDTH (CM)
1	6.2	1.5	9.3	22	5.9	0.7
2	4.3	1.2	5.2	18	4.2	0.5
3	10.5	2.2	23.1	33	9.8	1.0
4	4.2	1.5	6.3	18	2.8	0.4
5	2.2	0.5	1.1	17	2.2	0.2
6	8.3	1.2	10.0	28	8.0	0.4
7	1.8	0.8	1.4	10	1.5	0.2
MEAN:	5.4	1.3	8.1	20.9	4.9	0.5

FIGURE 1: APPLICATION OF DECELLULARIZED INTACT FISH SKIN TO LATERAL FACIAL DONOR SITE

FIGURE 2: APPLICATION OF DECELLULARIZED INTACT FISH SKIN TO LATERAL FACIAL DONOR SITE

* Kerecis Omega3 Wound is a decellularized intact fish skin (Keracis LLC, Arlington, Va.)

OP022 A NEW COMPRESSION STOCKING WITH A WELL-DEFINED PRESSURE - A RANDOMIZED CONTROLLED PILOT STUDY

Ulrika Källman[1 2], Melina Fallenius[3], Carina Bååth[4 5]

[1]Södra Älvsborg Hospital, Research Department, Borås, Sweden; *[2]Gothenburg University, Institute of Health and Care Sciences, Gothenburg, Sweden*; *[3]Södra Älvsborg Hospital, Dermatology Department, Borås, Sweden*; *[4]Karlstads University, Faculty of Health, Science and Technology, Karlstad, Sweden*; *[5]*Østfold University *College, , Faculty of Health, Welfare and Organisation, Fredrikstad, Norway*

Aim: To evaluate a new compression stocking class I, with predetermined uniform pressure, regarding oedema reduction and interface pressure in comparison to a graduated compression stocking system class III. Another aim was to evaluate the stockings regarding comfort, functionality, compliance, and symptom relief.

Method: Two-arm, prospective, randomized, controlled, non-blinded pilot study was used. The sample size included 20 participants (50 to 88 years) with chronic venous disease, divided in two groups; n = 10 received the new class I compression stocking and n =10 received the compression stocking system class III. Measurements of leg circumferences, interface pressure between stocking and skin, and experiences by the patient was collected at baseline and at follow-up after 14 days. The primary outcome was oedema reduction.

Results / Discussion: Both stockings significantly reduced oedema from baseline to follow up. There was however no significant difference in volume reduction between the two groups. The class I stocking lost marginally interface pressure from baseline to follow-up, and less in comparison to the class III stocking. Participants in both groups significantly perceived improvement regarding leg heaviness, leg swelling and tingling. All participants used the stockings every day and most of the participants experienced the stockings as comfortable. Participants in the class I stocking group felt improvement regarding ankle mobility, walking ability and less pain.

Conclusion: The class I stocking seems to offer similar benefits as the class III stocking and delivered a well-defined uniform compression pressure over time. Larger and prolonged study is however required.

OP024 INCORPORATING CLUES FROM IMAGED WOUND DRESSING IN HIGH BACTERIAL LOADS & INFECTION TREATMENT PLANNING

Charles Andersen[1], Katherine McLeod[1], Rowena Steffan[1]

[1]*Madigan Army Medical Center, Joint Base Lewis-McChord, United States*

Aim: Chronic wounds frequently harbour asymptomatic bacterial load in/around the wound bed; our group monitors this with point-of-care fluorescence (FL) imaging*. We also regularly find bacterial loads evidenced on non-biological elements (dressings, wicks, socks and shoes, orthotics, probes, etc) in contact with the wounds. We designed a prospective study to evaluate the impact of evaluating non-biologicals FL signals in treatment planning.

Method: A prospective observational study of 461 consecutive wounds seen for routine outpatient chronic wound care. We analysed detailed questionnaires completed by clinicians at each assessment including FL-imaging findings of the wound, peri-wound and non-biological elements. Clinicians also recorded the impact of FL-imaging findings on the therapeutic decisions ultimately made.

Results / Discussion: A total of 461 consecutive wounds were imaged. 28% (129) of those were positive for bacterial FL. Of those, 102 (79%) had one or more therapeutic changes derived from FL-imaging findings; in total, 164 therapeutic decisions were influenced by FL-imaging. Of those, 92/164 were based on wound/peri-wound findings, 42/164 were based on FL from the wound and the non-biological elements that were in contact with it, and 30/164 were based solely on FL-imaging found on the non-biological elements. Successful healing case-examples involving non-biologicals assessment will be provided.

Conclusion: 80% of our therapeutic decisions were helped by positive FL-imaging findings in the wound, peri-wound, and/or non-biologicals. Considering the bacterial loads found in elements that are in contact with the wound derived more successful and proactive treatments and greater patient adherence.

*MolecuLight i:X & D:X ®

OP025 A NEW MULTICOMPONENT COMPRESSION SYSTEM IN ONE BANDAGE FOR THE TREATMENT OF PATIENTS WITH VENOUS LEG ULCERS (VLU): RESULTS OF A EUROPEAN, PROSPECTIVE, SINGLE-ARM, CLINICAL TRIAL ("FREEDOM")

Patricia Senet[1], Joachim Dissemond[2], Anne Sauvadet[3], Olivier Tacca[3]

[1]*Tenon Hospital, Department of Dermatology, Paris, France*; [2]*University Hospital Essen, Department of Dermatology, Venerology and Allergology, Essen, Germany*; [3]*URGO Research Innovation and* Development, Clinical Development Department, France

Aim: Evaluate the efficacy and acceptability of a new multicomponent compression system in one bandage for the treatment of VLUs.

Method: This international, prospective, non-comparative clinical trial was conducted in France and Germany. Patients were treated with a new monolayer multicomponent compression system, worn day and night, providing high working pressure and moderate resting pressure (UrgoK1). The primary endpoint was the relative wound area reduction (RWAR) after six weeks. Secondary endpoints included wound closure rate, oedema resolution, change in patient's health-related quality of life (HRQoL), adherence to compression therapy, local tolerance, and physician's overall satisfaction with the system.

Results / Discussion: Fifty-two patients (mean age 75.4±13.0 years old) with VLU, including oedema for 58% of them, were recruited from 22 centres. VLUs lasted for 5.6±4.9 months and had a mean area of 5.7±4.3 cm^2. After six weeks, a median RWAR of 91% was achieved. Wound closure was reported in 35% of the patients. At the final visit, oedema present at baseline was resolved in 57% of the patients. HRQoL improved with a decrease of pain, discomfort, anxiety and depression. Comfort was 'very good'/'good' for 79% of patients. Compared to previous compression, half of the patients expressed easier shoe wear, greater satisfaction and comfort. Nine non-serious adverse events related to the device occurred in seven patients. At final visit, most of physicians were 'very satisfied'/'satisfied' with the new system.

Conclusion: The new multicomponent compression system in one bandage promoted rapid healing of VLUs, oedema reduction, improved HRQoL, and was well tolerated and accepted.

OP026 STATIC STIFFNESS INDEX OF NEW MULTICOMPONENT BANDAGE COMPRESSION SYSTEM: RESULTS OF A RANDOMIZED CONTROLLED TRIAL ON HEALTHY VOLUNTEERS

Jean Patrick Benigni[1], Olivier Tacca[2]

[1]Vascular physician, France; [2]Urgo Research Innovation and Development, Preclinical and Clinical Research Department, France

Aim: Evaluate technical performances & acceptability of a new multicomponent compression system in one bandage. **Method:** In this randomised, mono-center controlled trial, compression bandages were randomly applied on both legs of 2 series of 25 healthy volunteers, with either a new generation of compression system in one bandage or an established SSB (Short Stretch Bandage) plus wadding as control (series 1), or the new bandage associated with wadding or the SSB+wadding (series 2). For homogeneity, left & right legs were randomized. All systems were worn day and night during 72h. The primary endpoint was the percentage of subject with a SSI≥10mmHg after 48h. Secondary endpoints included SSI sustainability, slippage (cm), subject comfort and preference. Working and resting interfaces pressures were measured, and SSI were calculated, immediately after application at 4h, 24h, 48h and 72h.

Results / Discussion: After 48 hours, the new system (with or without wadding) showed a superior percentage of subjects with an SSI≥10 mmHg compared to the SSB+wadding (p=0.004). (Series 1: 60% vs 20%, p=0.002 and series 2: 80% vs 40% p=0.002). Results are similar after 72 hours (Series 1: 60% vs 16% and series 2: 76% vs 16%). The new system presented good holding properties, was well tolerated, was perceived as significantly more comfortable and was preferred to the control system by most of the volunteers. **Conclusion:** The new compression system achieved better stiffness performance & acceptability than the SSB, a potential asset for compliance. These promising results need to be confirmed with Venous Leg Ulcer patients.

OP027 PROSPECTIVE CONTROLLED RANDOMIZED TRIAL ON THE EFFECTIVENESS, QUALITY OF LIFE AND COST-EFFECTIVENESS OF THE BLUE LIGHT PHOTOBIOMODULATION TREATMENT FOR LEG ULCERS

Valentina Dini[1], Alessandra Michelucci[1], Flavia Manzo Margiotta[1], Antonella Vietina[1], Giorgia Salvia[1], Giammarco Granieri[1], Agata Janowska[1], Marco Romanelli[1]

[1]University of Pisa, Dermatology, Pisa, Italy

Aim: Photobiomodulation has been studied in animal models and in humans where it has elicited stalled wounds' inflammation overcoming and stimulated tissue regeneration. The aim of this clinical trial is to evaluate the use of the Blue Light Photobiomodulation in terms of healing rate, quality of life and cost-effectiveness in patient with venous or mixed leg ulcers.

Method: As primary objective, the trial aims to compare the healing rate between the control group, treated twice a week with standard of care (SoC) only, and the experimental group, treated once a week with Soc and Photobiomodulation therapy over a follow-up of 16 weeks. Blue Light treatment is performed for 60 seconds on the entire lesion's area with a portable, rechargeable medical device (EmoLED) that uses Blue LED Light. For primary and secondary objectives, the lesion size, the pain (VAS scale), quality of life as well as the direct (health and non-health) and indirect costs are prospectively collected. Patients from Pisa, Italy, are considered for these results.

Results / Discussion: We observed a reduction in the bacterial colonization levels of the wound bed and perilesional skin by 67% and 57.15% for group A and 71.16% and 61.54% for group B. We obtained a reduction in Numerical Rating Scale (NRS) for pain of 65% and 67% for group A and group B, respectively.

Conclusion: Currently, 23 patients (12 control group, 11 treated group) have been analyzed. Preliminary data show that the results of the ulcers treated with blue light (50% size reduction; 88% pain reduction) and the control ulcers (57% size reduction; 80% pain reduction) can be considered equivalent.

FREE PAPER SESSION: INFECTION & ANTIMICROBIALS

OP028 RESULTS OF A MULTICENTER, PROSPECTIVE REAL-LIFE STUDY ON THE PROPERTIES OF TWO ANTIMICROBIAL WOUND DRESSINGS WITH TLC-AG WOUND HEALING MATRIX* IN THE TREATMENT OF PATIENTS AT RISK OR SHOWING SIGNS OF LOCAL INFECTION

Arthur Grünerbel[1], Steffen Lützkendorf[2], Michael Dietlein[3], Udo Möller[4], Elisa Becker[4], Joachim Dissemond[5]

[1]Diabetes Center Munich South, Diabetologist, Munich, Germany; [2]Surgical Practice, Surgeon, Helbra, Germany; [3]Diabetology Practice, Diabetologist, Stadtbergen, Germany; [4]URGO GmbH, Medical Affairs and Clinical Research Department, Sulzbach, Germany; [5]University Hospital, Dermatologist, Essen, Germany

Aim: The aim of this real-life study was to evaluate the efficacy and safety of two wound dressings containing TLC-Ag wound healing matrix* in the local treatment of outpatients with wounds at risk of or showing signs of local infection in everyday practice.

Method: Prospective, multicenter observational study with two different antimicrobial TLC-Ag wound dressings* in the treatment of different wound etiologies. The study was conducted between May 2020 and May 2021 in a total of 39 centers in Germany. Evaluation criteria included wound development, clinical signs of wound infection, and tolerability and acceptability of the wound dressings.

Results / Discussion: In total, data from 728 patients with different wound etiologies and wound infection status could be analyzed. During the entire study period, all wound infection parameters decreased continuously, resulting in a 78.9% reduction in the number of local wound infections and a 72.0% reduction in clinical signs of wound infection at the final visit. 92.1% of wounds healed or improved during the study period, 3.2% remained unchanged, and 1.7% worsened (data missing for 3.0%). The wound dressings were very well accepted by the majority of patients, and physicians rated them as very useful in terms of antimicrobial efficacy in the majority of cases.

Conclusion: These results confirm the evidence from previous clinical studies on TLC-Ag wound dressings. They demonstrate the good efficacy, good tolerability and usefulness of these antimicrobial dressings in the treatment of patients with wounds at risk or showing signs of local infection, in combination with appropriate standard treatment.

OP029 A TEMPORAL ANALYSIS OF DIABETES RELATED FOOT ULCERS THAT TRANSITION FROM BEING UN-INFECTED TO INFECTED USING WHOLE GENOME SHOTGUN SEQUENCING

Matthew Malone[1], Stephen Kwong[1], Michael Radzieta[1], Slade Jensen[1]

[1]Western Sydney University, Infectious Diseases and Microbiology, School of Medicine, Australia

Aim: The aim of this project is to better understand the bacteria associated with the onset of infections within DRFUs, specifically by identifying key taxa and potential metabolic functions which are associated with infections and could be targeted with therapy.

Method: As part of a larger genomic based study exploring DRFU trajectories, we identified six patients who transitioned from having an un-infected wound to that of a clinical infection. The levine swab technique was used to collect samples from DRFUs following cleansing and debridement. The following timepoints were collected: baseline (initial presentation of the ulcer, non-infected), infection onset and infection resolution. Swabs were stored in DNA/RNA shield to preserve DNA integrity and stored at -80 degrees Celsius. DNA was isolated from thawed swabs using the ZymoBIOMICS DNA isolation kit (Zymo Research) according to the manufacturer's instructions. Host DNA was then removed using the NEBNext Microbiome DNA enrichment kit (New England Biolabs) according to the manufacturer's instructions. Enriched DNA was then used for Illumina library preparation (2x150bp) and sequenced on a NovaSeq 6000 S4 flow cell. Reads generated from sequencing were first quality trimmed using BBDuk prior to the removal of remaining host contamination using BBMap and a masked version of the hg19 human genome. Non-host reads were then used as input to the SqueezeMeta pipeline for taxanomic and functional annotation using the Refseq and KEGG databases respectively.

Results / Discussion: We are currently finalizing the data analysis and will present the full dataset at the conference.

Conclusion: TBC.

OP030 DIABETIC HAND INFECTIONS; AN UNDERESTIMATED COMPLICATION OF DIABETUS MELLITUS

Mehmet Akkurt[1], Kursat Yildirim[2], Cem Aydin[2], Cagla Cicek[2], Gaye Filinte[3]

[1]*Kartal Dr* Lütfi Kirdar City Hospital/Burn Center, Plastic Surgery, Istanbul, Turkey; [1]*Kartal Dr* Lütfi Kirdar City Hospital/Burn Center, Plastic Surgery, Istanbul, Turkey; [3]*Turkey, Plastic Surgery, Istanbul, Turkey*

Aim: Diabetic foot ulcer infections are one of the mostly seen presentations of diabetic hospitalizations. However, as damaging but more mortal is diabetic hand infections and ulcers. The diabetic hand often presenting with silent infectious parameters, results in minor amputations and sometimes death very fast. Diabetic infections should be treated promptly, to avoid catastrophizing complications.

Method: Nineteen diabetic patients with only upper extremity infections and ulcers are enrolled in this study. The operation rates, the amputation levels, hospitalization periods and various complications (nephropathy and sepsis) were reviewed retrospectively.

Results / Discussion: All of the diabetic patients with hand infections and ulcers required operations. The operations were frequently debridements, and graft application. Ulcers seemed to localize however fasciitis were usually beyond at least 1 joint communicating. Minor amputations and fasciotomies were among other operations. Tendons were frequently exposed and flap surgery was required. Overall the hospitalization periods were longer than the diabetic foot ulcer patients (27 days compared to 13,5 days). One patient was lost 7 days after hospitalization.

Due to the sophisticated structure of the hand musculature the intrinsic and extrinsic muscles are in communication with each other through various tunnels and compartments. This a little bit different from the leg which has 3 compartments with quite bigger muscles than hand. Hand infections are easily spread to the forearm.

Conclusion: We think that especially health professionals are aware of the leg ulcers however very few are known about hand ulcers of diabetic patients. Both patients and professionals underestimate its importance and morbidity and mortality which is higher than leg ulcers.

Figure legends: Pre and postoperative view after debridement

OP031 AN UNPRECEDENTED APPROACH BASED ON PEPTIDE-IONIC LIQUID CONJUGATES TOWARDS THE DEVELOPMENT OF NEW TOPICAL TREATMENTS FOR INFECTED WOUNDS

Ana Gomes[1], Iva Fernandes[1], Lucinda Bessa[1 2], Cátia Teixeira[1 3], Ermelindo Leal[4], Jessica Silva[4], Inês Teixeira[4], Daniela Calheiros[4], Chantal Fernandes[4], Ricardo Ferraz[5], Paula Gameiro[1], Nuno Mateus[1], Eugénia Carvalho[1], Paula Gome[1]

[1]LAQV-REQUIMTE, Departamento de Química e Bioquímica, Faculdade de Ciências, Universidade do Porto, Porto , Portugal; [2]CIIEM, Egas Moniz - Cooperativa de Ensino Superior, Almada, Portugal; [3]Gyros Protein Technologies,Tucson, AZ 85714, United States of America; [4]Centro de Neurociências e Biologia Celular (CNC), Universidade de Coimbra (UC), Coimbra, Portugal; [5]CQBM, Escola Superior de Saúde, Politécnico do Porto, Portugal, Porto, Portugal

Aim: Development of an innovative topical treatment for infected wounds that provides antimicrobial action at the wound and speeds wound healing. The strategy behind this unprecedented approach is based on the conjugation of an ionic liquid with intrinsic antimicrobial action to a collagen-boosting peptide, used in the cosmetics industry as an antiaging agent able to promote a strong extracellular matrix for improved cell migration and therefore faster healing.

Method: The building blocks, an ionic liquid and a collagen-inducing peptide, were covalently linked through a selective "click" reaction. The resulting peptide-ionic liquid constructs (PILCs) were evaluated for their antimicrobial and collagen-boosting action *in vitro* and wound closure kinetics in a wound healing diabetic mice model.

Results / Discussion: The new constructs present: i) bactericidal activity in susceptible and multidrug-resistant (MDR) strains of relevant pathogens as *S. aureus*, *E. coli*, and *P. aeruginosa* with minimal bactericidal concentration (MBC) against susceptible strains in a range of 5-19 µM and an MBC against MDR strains of 19-38 µM; ii) retained activity in simulated wound fluid against *S. aureus*; iii) antifungal activity against three *Candida spp.* with a minimal fungicidal concentration of 2-5 µM; iv) collagen-inducing effects in human dermal fibroblast, and v) faster wound closure on diabetic mice. These findings as well as those arising from ongoing studies will be communicated.

Conclusion: PILCs have an unprecedented chemotype and show *in vitro* and *in vivo* effects that make them promising leads towards the development of a topical formulation for the treatment of infected wounds.

OP032 ANTIMICROBIAL HYDROGELS FOR WOUND CARE

Saba Atefyekta[1]

[1]Amferia AB, BioventureHub, AstraZeneca, Mölndal, Sweden

Aim: Control of bacterial bioburden in wounds is an important step for minimizing the risk of wound infection. An antimicrobial hydrogel wound dressing is produced out of soft polymeric hydrogels in the form of solid sheets that contain antimicrobial peptides (AMPs). The goal of this work is to investigate the antimicrobial efficacy of the antibacterial Hydrogels through a set of in-vitro and in-vivo studies.

Method: AMPs are permanently bonded onto a soft nanostructured polymer via covalent attachment and physical entanglement. This improves stability, rapid antibacterial activity and prevents leaching of the AMPs.

Results / Discussion: Antimicrobial analysis of the antimicrobial hydrogels using in-vitro wound models confirmed >99% killing efficiency against multiple bacterial strains including MRSA, MDR, E. Coli. Furthermore, the hydrogel retained its antibacterial activity for up to 4 days when exposed to 20% human serum. Tests confirmed no release of AMPs, and it was also proven non-toxic to mammalian cells. An in-vivo study on human intact skin showed a significant reduction of the bacteria for the part of the subject skin treated with antibacterial hydrogels. A similar result was detected through a qualitative study in veterinary trials on different types of surgery wounds in cats and dogs.

Conclusion: Antimicrobial hydrogels wound dressings developed by permanent attachment of AMPs can effectively and rapidly kill bacteria that comes to contact with them. Such antibacterial hydrogels are non-toxic and do not release any antibacterial substances into the wound.

OP033 THERAPEUTIC POTENTIAL OF RIFAMPICIN-PROTEINASE K COMBINATIONS AGAINST PROTEIN ADHESIN BIOFILMS PRODUCED BY STAPHYLOCOCCUS AUREUS DIABETIC FOOT INFECTION ISOLATES

Chloe Hobbs[1], Leanne Diviney[2], Teck Wee Boo[3], David Gallagher[4], Georgina Gethin[5], James O'Gara[1]

[1]School of Biological and Chemical Sciences, University of Galway, Galway, Ireland; [2]Podiatry, University Hospital Galway, Galway, Ireland; [3]Bacteriology, University Hospital Galway, Galway, Ireland; [4]Infectious Diseases, University Hospital Galway, Galway, Ireland; [5]School of Nursing and Midwifery, University of Galway, Galway, Ireland

Aim: This project evaluated the repurposing of currently licensed antibiotics as combinations for the treatment of biofilms formed by *Staphylococcus aureus* strains isolated from patients with diabetic foot infections.

Method: The biofilm characteristics of *S. aureus* isolates obtained with consent and ethical approval from patients with diabetic foot infections (DFIs) were characterized using 24 hour biofilm assays followed by treatment with the dispersal agents proteinase K, which degrades protein adhesin-type biofilms and sodium metaperiodate which degrades polysaccharide-type biofilms.

The activity of antibiotic combinations for the eradication of 24 hour biofilms grown in 96 well microtiter plates was examined using Resazurin cell viability assays and biofilm colony forming unit (CFU) enumeration.

Results / Discussion: DFI *S. aureus* biofilms were highly antibiotic tolerant, up to 1000-fold higher than the antibiotic concentration that would eradicate planktonic-grown bacteria.

The clinical isolates produced both polysaccharide-type and protein-type biofilms. The latter was common among the DFI clinical isolates and these biofilms were significantly eradicated by a combination of rifampicin and proteinase K. Other antibiotic combinations were found to be largely ineffective. Furthermore the rifampicin-proteinase K was ineffective in the eradication of polysaccharide type biofilms. These data reveal a new combination therapy with the potential to improve DFI treatment options and also highlight how an understanding of the biofilm characteristics of DFI pathogens will be needed to properly evaluate potential new antibiotic therapies.

Conclusion: Combinations of rifampicin and the biofilm dispersal enzyme proteinase K may have potential to improve the treatment of DFIs involving *S. aureus* isolates producing protein-type biofilms.

FREE PAPER SESSION: DIABETIC FOOT 6

OP034 COMPARISON BETWEEN 16S RRNA NEXT GENERATION SEQUENCING AND CONVENTIONAL CULTURE METHOD ASSOCIATED WITH THE TREATMENT OUTCOME OF DIABETIC FOOT ULCERS

Sik Namgoong[1 2], In Jae Yoon[2], Hyun Jyung Oh[2], Jeong-An Gim[3], Ji Won Son[2], Seung-Kyu Han[2]

[1]Korea University College of Medicine, Seoul, Plastic Surgery, Seoul, Korea, Rep. of South; [2]Korea University Guro Hospital, Plastic Surgery, Seoul, Korea, Rep. of South; [3]Korea University Guro Hospital, Korea, Rep. of South

Aim: Effective treatment of wound-site infections in diabetic foot ulcer (DFU) patients is crucial for a good prognosis. Recently, 16S rRNA next-generation sequencing (NGS) has been the main focus of research for accurately detecting wound-site microbes, which is vital in optimal antibiotic treatment. We compared the conventional culture-based detection method to the 16S rRNA NGS method to predict the DFU treatment outcomes.

Method: Wound-site samples from 47 DFU patients who were treated at Korea University Guro Hospital from February 2021 to November 2021 were analyzed with both conventional culture and NGS methods. We set the primary outcome as the healing status of each patient, which was assessed using the SINBAD score and amputation status, and the secondary outcomes as wound-site ischemia and infection control.

Results/Discussion: The NGS method detected a broader range of microbial species (Shannon index=1.369 ± 0.755, Simpson index=2.987 ± 1.383) compared to the conventional culture method (Shannon index=0.693, Simpson index=1.269). Sixteen species were found using the two methods, which were all anaerobes. The most significant discordance of detected species was found in the SINBAD≥3 group (40.79%), and within that group, the patients with an absence of ischemia but poor infection control had the largest discordance (85.22%). Among the microbes detected significantly different between the two methods, *B.fragilis, S.agalactiae, S.aureus, and S.constellatus* were associated with poor prognosis, which were mainly detected in NGS than culture.

Conclusion: Early studies now suggest that 16S rRNA NGS may be an effective diagnostic tool for treating diabetic foot infection. We look forward to larger pivotal studies to confirm these initially promising findings.

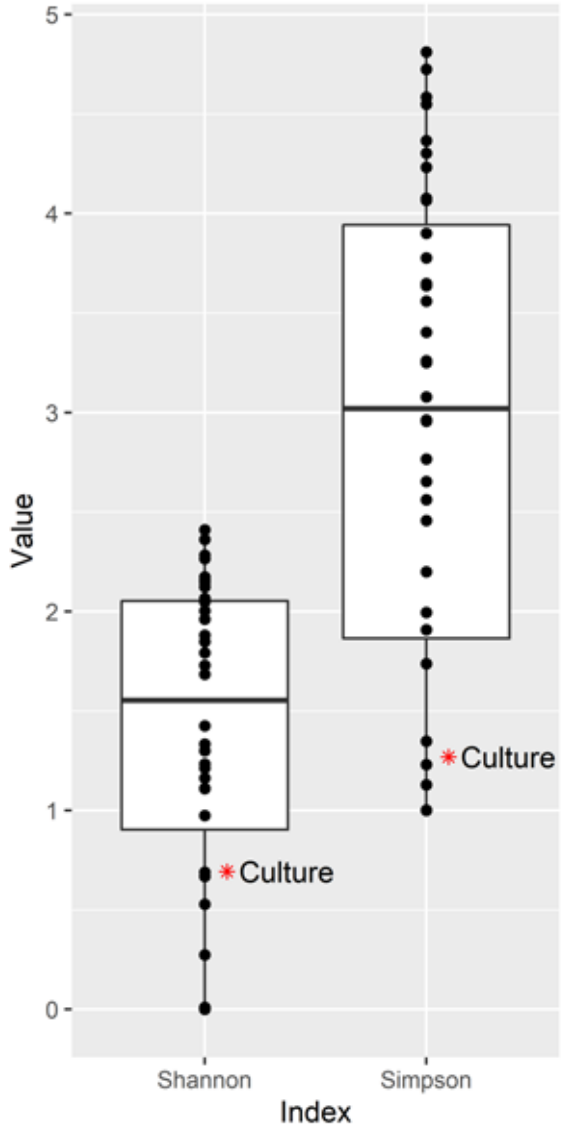

Value
Index
Shannon
Simpson
Culture
Culture
0
1
2
3
4
5

Fig 1.

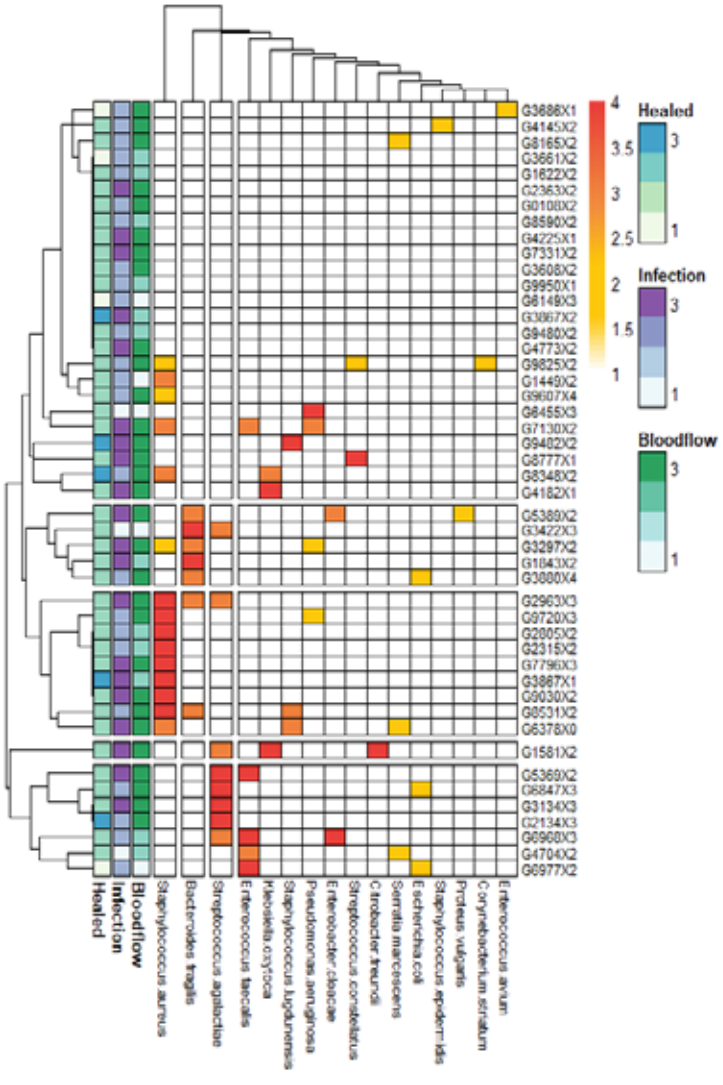

Healed
Infection
Bloodflow
Staphylococcus aureus
Bacteroides fragilis
Streptococcus agalactiae
Enterococcus faecalis
Klebsiella oxytoca
Staphylococcus lugdunensis
Pseudomonas aeruginosa
Enterobacter cloacae
Streptococcus constellatus
Citrobacter freundii
Serratia marcescens
Escherichia coli
Staphylococcus epidermidis
Proteus vulgaris
Corynebacterium striatum
Enterococcus avium

Fig 2.

FREE PAPER SESSION: DIABETIC FOOT 2

OP035 INFLUENCE OF ADEQUATE DEBRIDEMENT & PLACENTAL-DERIVED ALLOGRAFTS IN THE MANAGEMENT LOWER EXTREMITY DIABETIC ULCERS

William Tettelbach[1 2], Shawn Cazzell[3], R Forsyth[4], Alexander Reyzelman[5]

[1]Duke University - Main Campus, Durham, United States; [2]MountainStar Healthcare, Salt Lake City, United States; [3]Limb Preservation Platform Inc., Fresno, United States; [4]San Diego State University, San Diego, United States; [5]UCSF Center for Limb Preservation, San Francisco, United States

Aim: Evaluate the impact of the frequency of debridement along with the concurrent use of a skin substitute in the management of chronic lower extremity diabetic ulcers (LEDUs).

Method: Debridement adequacy in the prospective RCTs was adjudicated by three wound care specialists (Figure 1). Treatments included two placental-derived allografts compared with standard of care (SOC). Additionally, a retrospective analysis of 2015–2019 Medicare claims for LEDUs that received routine debridement at intervals ranging from every 1–7 days, 8–14 days, and every 15 days or greater was performed.

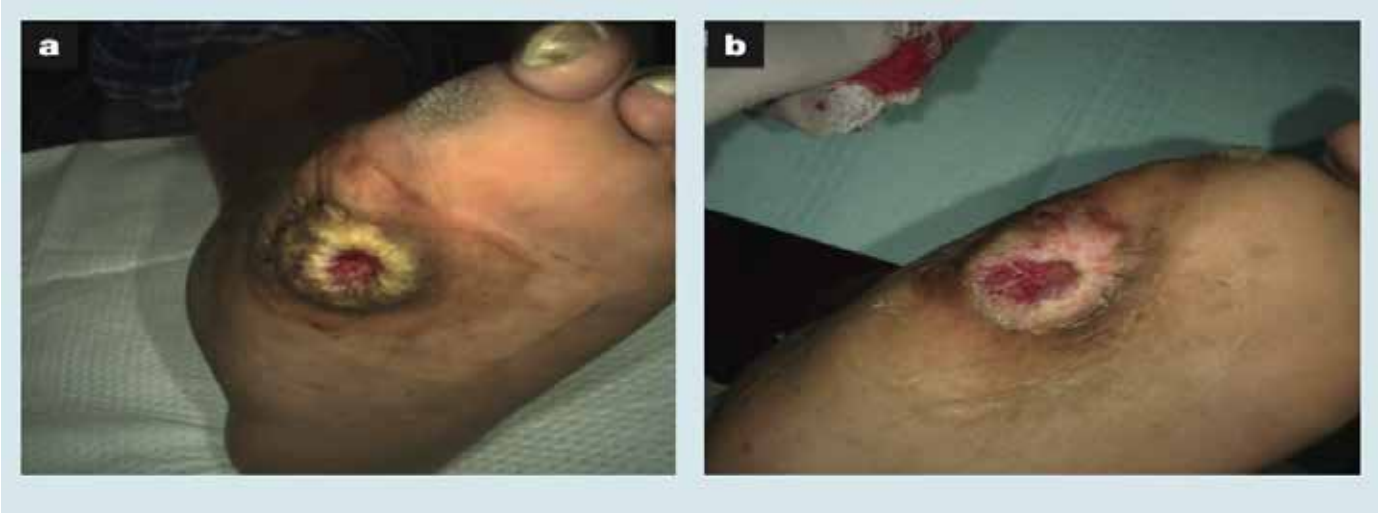


Figure 1.

Examples of inadequate debridement: significant callous and epibole present (a) and adequate debridement: evidence of pairing of callous and removal of epibole (b).

Results: Within the RCTs, adequate debridement occurred in 202/265 (76%) of patients, 90/110 (82%) SOC ulcers, 45/54 (83%) of DHACM* treated ulcers, and in 67/101 (66%) of DHUC† treated ulcers. Closure occurred in 74% of adequately debrided ulcers, and in only 21% of ulcers without adequate debridement, p<0.0001. Debridement was the most significant factor for closure even when controlling for other clinical characteristics (Table 1).

Table 1. Cox Regression Model Results

Variables	Parameter estimate	SE	Chi-squared	p-value	HR	95% CI for HR	
						Lower	Upper
Debridement: adequate versus inadequate	1.793	0.297	36.345	<.0001	6.006	3.353	10.756
Treatment: PDA versus SOC	0.715	0.172	17.283	<.0001	2.045	1.459	2.865
BMI, <30kg/m^2	0.398	0.166	5.722	0.017	1.489	1.075	2.064
Baseline wound size, <2.8cm^2	0.731	0.197	13.705	0.000	2.076	1.410	3.057
DFU position: non-plantar	0.528	0.176	8.999	0.003	1.695	1.201	2.393
History of amputations, no versus yes	0.419	0.218	3.684	0.054	1.521	0.991	2.333
DFU location: toe versus hindfoot	0.775	0.329	5.548	0.019	2.170	1.139	4.134
DFU location: forefoot versus hindfoot	0.674	0.279	5.830	0.016	1.963	1.135	3.393
DFU location: midfoot versus hindfoot	0.444	0.317	1.969	0.161	1.559	0.838	2.900

SE—standard error; HR—hazard ratio; CI—confidence interval; PDA—placental-derived allograft; SOC—standard of care; BMI—body mass index; DFU—diabetic foot ulcer

Within the Medicare claims data 21% of episodes treated with SOC only had debridement intervals of ≤7 days. Short debridement intervals in combination with the use of DHACM demonstrated statistically better outcomes than SOC including 65% fewer major amputations (p<0.0001).

Conclusion: Prospectively collected data examining the quality of debridement and retrospectively analyzed data examining the frequency of debridement supports routine adequate debridement, particularly at intervals of seven days, as an essential component of wound care.

*DHACM=Dehydrated Human Amnion Chorion Membrane

†DHUC=Dehydrated Human Umbilical Cord

OP036 EFFECT OF LOW-FREQUENCY CONTACT ULTRASONIC DEBRIDEMENT WITH AND WITHOUT SUCTION ATTACHMENT IN THE CLINIC ENVIRONMENT. AN OBSERVATIONAL STUDY IN PATIENTS WITH DIABETIC FOOT ULCER

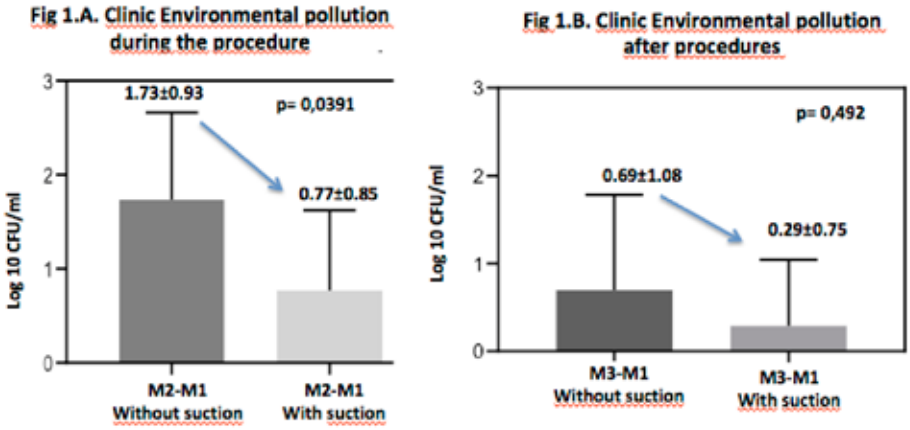
Francisco Javier Álvaro Afonso[1], Sebastian Flores Escobar[1], Mateo López Moral[1], Marta García-Madrid Martín de Almagro[1], Aroa Tardáguila García[1], José Luis Lázaro Martínez[1]

[1]*Diabetic Foot Unit, Universitary Clinic, Complutense University of Madrid, Madrid, Spain*

Aim: To evaluate the dispersal of solution and microbes (aerosol) in the clinic environment during treatment with low-frequency contact ultrasonic debridement (LFCUD) in patients with diabetic foot ulcer (DFU).

Method: This was a prospective, observational study where we performed 20 treatments with LFUD involving 10 outpatients with DFU. Half of these treatments were conducted with and without suction attachment such that each patient was their own control. The distance between the applications of one debridement modality (with and without suction) in each patient was one week. The total number of colony forming units (CFU/ml) was identified for use of LFCUD in both modalities in air sampling across each treatment (before-M1, during-M2, and after-M3).

Results / Discussion: Figures 1.A and 1.B depict the clinic environmental pollution during and after the LFCUD debridement respectively.



The procedure without suction attachment causes significantly more immediate contamination of the clinic environment than the suction attachment procedure. Not significant differences were observed among procedures in the contribution to clinic environmental pollution after wound debridement.

Conclusion: Based in our results we recommend the use of personal protective equipment required to protect the staff member and the patient during treatment with LFCUD in addition to the use of suction attachment where clinically possible to reduce clinic environmental pollution.

OP037 RAPID INVESTIGATION OF DIABETIC FOOT ULCERS REDUCES THE RISK OF AMPUTATION

Ane Joergensen[1]

[1]Odense Universitetshospital, Universitycenter of Woundhealing, Odense C, Denmark

Aim: To investigate whether our fast-track pathway resulted in patients with a diabetic foot ulcer (DFU) and peripheral arterial disease (PAD) receiving angiography on the same or subsequent weekdays and to explore whether this resulted in reconstructive vascular surgery and the impact on wound healing and amputation.

Method: The study was conducted as a quality assurance project. The data set runs from 1 January 2018 to 1 March 2020. Permission was obtained to collect data retrospectively from the patients' records regarding diabetes, gender, age, e-GFR, distal blood pressure values, angiography, reconstructive vascular surgery and amputation. Data were entered and analyzed using IBM SPSS.

Results / Discussion: Sixty-three patients with DFU and PAD were identified, with 70% men and 30% women aged 41-98 years. Seven out of the 63 patients were referred directly for vascular surgical assessment when recent angiography was available. Seventeen out of 63 patients were referred for angiography, and 81 % of them underwent angiography on day 0-1 and were assessed by a vascular surgeon within 1-19 days (median 4 days). Fourteen out of 24 patients (61%) were offered vascular surgery, with 8 receiving it 0-21 days after the assessment. Four patients ended up undergoing a major amputation.

Conclusion: The study shows that the fast-track pathway ensures investigation for PAD at the first consultation and a faster mapping of the extent of PAD with angiography. Moreover, the fast-track pathway allows patients with DFU to receive prompt vascular surgical assessment and treatment, thereby reducing the risk of amputation.

OP038 INNOVATIVE ARTIFICIAL INTELLIGENCE HYPER-PERSONALIZED SKIN REGENERATION

Dr. Jeehee Kim[1]

[1]ROKIT Healthcare INC., Hyper-Personalized Skin Regeneration SBU , SEOUL, Korea, Rep. of South

Aim: To confirm the efficacy of the new treatment technology using a novel 3D-bioprinting, we performed 6 clinical studies of 100 patients with Wagner Grade 1-2 non-healing diabetic foot ulcers (DFUs) and 20 patients with 2nd-3rd degree burns.

Method: In this longitudinal study, 111 DFUs patients enrolled; 63% were in the test group. As a new indication trial, 20 burn patients enrolled. After wound debridement, the wound area was detected with AI software which converts the image into a file and sends it directly to 3D-bioprinter Dr. INVIVO (ROKIT Healthcare, Korea). Autologous adipose tissue was harvested from the patient's abdomen by liposuction and micronized immediately. With a 3D-bioprinter, the personalized adipose patch was manufactured in the operating room and applied to the wound. After a single treatment, patients received standardized offloading and non-adherent gauze dressing for patients. They were followed for up to 12 weeks of healing.

Results / Discussion: We conducted 6 clinical studies of DFUs in five countries, India, Korea, Turkey, USA, and Malaysia. The complete wound healed rate at week 12 shows 87% in ROKIT's treatment group, compared to 38% in conventional treatment. All test group patients represent the acceleration of epithelialization with > 70% of wound healed rate. Burn-clinical results showed epithelization within 4 weeks.

Conclusion: A new treatment method is tailored to patients with chronic diseases that are difficult. The convergence between cell biology, AI-detecting, and 3D-bioprinting technologies represents a potential paradigm shift in customized care for chronic skin disease. Through clinical studies results, transplantation of adipose-derived pluripotent cells is feasible through a New-Technology, and safety is secured through transplantation of autologous fat, enabling treatment without side effects.

OP039 DIABETIC FOOT SYNDROME (DFS) AND CANCER: METAPHORE OR REALITY?

Chiara Goretti[1], Alessandro Prete[2], Alex Brocchi[2], Alberto Piaggesi[2]

[1]Diabetic Foot Section, Department of Medicine-University Hospital of Pisa, Pisa, Italy; [2]Diabetic Foot Section, Department of Medicine-University Hospital of Pisa, Pisa, Italy

Aim: Diabetes Mellitus (DM) is associated with an higher incidence of many forms of cancer, while DFS is characterized by high cardiovascular mortality and morbidity, but its propensity to cancer has not be ascertained so far. Our Aim was to measure the prevalence of cancer in DFS and check for possible associations between the two conditions.

Method: we retrospectively searched the databases of our Department for all the consecutive patients admitted in the Medical department of our hospital between January of 2019 and December of 2021 with a admission diagnosis of DM with (DFS+) or without (DFS-) DFS. We compared the prevalence of cancer between the groups and we checked for possible correlations between the two conditions not influenced by other known possible predictors (familiariaty, age, sex, smoking, rena insufficiency, anaemia).

Results / Discussion: Comprehensively 222 DFS + and 223 DFS - controls were studied. Overall cancer prevalence was 15.3% and in DFS+ was significantly higher than both DM (11.7% p=0.008) and controls (13.3%, p=0.031). Univariate regression showed a significant association between cancer and DF (p = 0.007), age at admission(p = < 0.001), years of diabetes(p = 0.017) and hemoglobin(p = 0.03). At multivariate regression only DF(p=0.021), and age at admission (p < 0.001) persisted as independent predictors.

Conclusion: DFS is characterized by a higher prevalence of cancer compared to both DM patients and non diabetic controls and can be considered as an independent risk factor for neoplasms.

OP041 DIABETIC FOOT RISK CHARACTERIZATION AND ITS ASSOCIATION WITH LEVEL OF FOOT SELF-CARE

Herlander Rodrigues[1 2], Maria Sousa[1 3], Vanusa Rocha[2], Rui Pereira[4 5 6], Matilde Soares[1 7]

[1]CINTESIS - Centro de Investigação em Tecnologias e Serviços de Saúde, Porto, Portugal; [2](UniCV), Praia, Cape Verde; [3]Higher School of Nursing of Porto, Porto, Portugal; [4]UICISA: E - Unidade de Investigação em Ciências da Saúde: Enfermagem, Coimbra, Portugal; [5]University of Minho - Campus of Gualtar, Nursing School, Braga, Portugal; [6]University of Minho - Campus of Gualtar, Centre for Nursing Research, CIENF, Braga, Portugal; [7]Escola Superior de Saúde da Cruz Vermelha Portuguesa - Lisboa, Lisboa, Portugal

Aim: To characterise the level of risk for developing DFUs according to the IWGDF classification - version 2019 and assess foot self-care habits among patients with diabetes followed in primary health care.

Method: A cross-sectional study was conducted including people with diabetes attending primary health care centres in Santiago Island. It consecutively included 586 people with diabetes between August 2018 and January 2019. After physical examination and according to the degree of risk they were classified into four risk categories.

Results / Discussion: The sample was mostly female, and 98% with type 2 diabetes and a median duration of diabetes of 6 years. According to the IWGDF-2019 classification, most were between low and moderate risk and 16% at high risk. Regarding podiatric self-care practice, the majority had adequate self-care and only 11% had appropriate footwear. The distribution of years of diagnosis with diabetes had a statistically significant effect on the risk category with χ^2 kw (3) = 30.71; p=<0.001. Foot deformities and peripheral arterial disease also showed a statistically significant association with the risk category p=<0.001. Regarding the attitudes and behaviours for self-care practices, it is possible to verify that there is a statistically significant association between perceived risk of disease and foot care and risk category.

Conclusion: Diabetic foot is a growing problem in primary care and immediate revisions in action protocols are needed to detect early people at risk and the creation of multidisciplinary teams for an integrated approach to the person with diabetes.

FREE PAPER SESSION: WOUND ASSESSMENT

OP042 WOUND ASSESSMENT: SIMPLE OR COMPLICATED?

Terry Swanson[1 1]

[1]*Wound Education Research Consultancy (WERC), Warrnambool, Australia*

Aim: The aim of this presentation is to review the latest evidence regarding wound assessment and challenge the notion that it is simple.

Method: A literature review and succinct summary of wound assessment tools will be provided and the challenges that the following variables impose: tissue type and identification, skin colour, level of exudate, type of dressing and time provided for a wound dressing procedure will be explored.

Results / Discussion: There are many validated tools (eg., Bates-Jensen Wound Assessment Tool (WAT)) and many non-validated tools (e.g.,TIMERS, TIME CDST) but many wound services are still not using a structure approach to wound assessment. Key criteria or indicators for assessment included the following: Type of wound, location, level of exudate, tissue type, signs of infection, size (LxWxD). Other criteria found is the wound edges, pain, odour, trending (improved, unchanged, deteriorated or healed) referrals, diagnostics, and treatments. What many do not address is differentiation of healthy vs unhealthy tissue or incision line. Ousey et al (2018) revealed that 40% of participants in their survey were aware of WATs but didn't use them.

Barriers frequently cited are lack of time, confidence in assessment and ease of documentation.

Conclusion: The search continues to find a WAT that is simple and used in all sectors.

OP043 WOUND ASSESSMENT USING INDOCYANINE GREEN DYE

HanGyu Cha[1], Eunsoo Park[1]

[1]*Soonchunhyang University Bucheon Hospital, Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South*

Aim: Indocyanine green (ICG) is a nontoxic near-infrared fluorescent dye that has been used in medical diagnostics since late 1950s. The introduction of new clinical applications has been especially rapid during the last few years especially in the areas of plastic and reconstructive surgery. We have applied the ICG fluorescence imaging in wound assessment, flap assessment, and free flap assessment with expectation of lowering postoperative complications.

Method: From December of 2020 to November of 2022, the ICG fluorescence imaging has been used in cases of mastectomy, diabetic foot reconstruction, and free flap reconstruction. ICG was injected intravenously and detected by near-infrared camera system after 2 minutes. Postoperative flap necrosis was investigated and correlated with the ICG fluorescence imaging.

Results / Discussion: Among 83 patients who underwent nipple/skin sparing mastectomy, there were 4 cases of false positive and 2 false negative in ICG fluorescence imaging. There was no partial flap necrosis (false negative) in free flap reconstruction (36 cases) and diabetic foot reconstruction (13 cases).

Conclusion: The use of ICG fluorescence imaging have lowered the postoperative flap necrosis rate after nipple/skin sparing mastectomy and free flap reconstruction. It is also useful to demarcate tissue viability in diabetic foot reconstruction. However, as there are rare cases of false negative/positive, higher sensitivity and specificity must be obtained.

OP044 SKIN PIGMENTATION IMPACTS THE CLINICAL DIAGNOSIS OF WOUND INFECTION: IMAGING OF BACTERIAL BURDEN TO OVERCOME DIAGNOSTIC LIMITATIONS

Jonathan Johnson[1], Alton Johnson Jr[2], Charles Andersen[3], Martha Kelso[4], Alisha Oropallo[5], Thomas Serena[6]

[1]Comprehensive Wound Care Services and Capital Aesthetic & Laser Center, Washington, United States; *[2]University of Michigan School of Medicine , Division of Metabolism, Endocrinology and Diabetes-Podiatry, Ann Arbor, United States*; *[3]Madigan Army Medical Center, Vascular/Endovascular/Limb Preservation Surgery Service, Joint Base Lewis-McChord, United States*; *[4]Wound Care Plus, LLC, Blue Springs, United States*; *[5]Northwell Health , Comprehensive Wound Healing Center and Hyperbarics, Hempstead, United States*; *[6]SerenaGroup Research Foundation, Cambridge, United States*

Aim: A lack of diverse representation in medical education and providers' implicit racial bias drives inequities in wound care, such as disproportionally poor outcomes for Black patients. Diagnostic indicators of infection (e.g. erythema, inflammation) can present differently depending on skin pigmentation. We investigated how reporting of clinical signs/symptoms of infection (CSS) differs based on skin tone, and whether fluorescence (FL) imaging* of wound bacteria can offer a more objective diagnostic solution.

Method: Post-hoc analysis of chronic wounds from the 350-patient multicenter FLAAG clinical trial. Participants were grouped by skin tone (low, medium, high) as measured by the Fitizpatrick Skin Phototype Classification (FSPC) scale. CSS (including erythema) and total bacterial load (TBL) were compared across FSPC groups, along with sensitivity to detect TBL >10^4 CFU/g using CSS alone and CSS + FL-imaging.

Results / Discussion: Erythema was reported less often with increasing FSPC score (p=.05), from 13.4% (low), to 7.2% (medium), to 2.3% (high), despite comparable bacterial loads (median=1.8x10^6 CFU/g; p=.38). CSS sensitivity in the high group (2.9%) was 4.8-fold to 8.4-fold lower than the low (p=.003) and medium groups (p=.04). FL-imaging improved the detection of high bacterial load in each group (p<.001); peaking in the high group at 12-fold over CSS alone.

Conclusion: Disparities in assessment of CSS, mainly erythema, affect chronic wound patients with high skin pigmentation, potentially leading to delayed treatment, increased complication risk, and disproportionally poor outcomes. Fluorescence-imaging is poised to fill this gap, at least in part, serving as a more sensitive and equitable indicator of wound bacteria.

*MolecuLight

OP045 A METHOD TO HARVEST VIABLE CELLS FROM DISCARDED WOUND DRESSINGS

Qi Qin[1], Daijiro Haba[1], Chihiro Takizawa[1], Mao Kunimitsu[1], Takeo Minematsu[2 3], Hiromi Sanada[1 2 4], Gojiro Nakagami[1 4]

[1]The University of Tokyo, Graduate School of Medicine, Department of Gerontological Nursing/Wound Care Management, Tokyo, Japan; [2]Ishikawa Prefectural Nursing University, Ishikawa, Japan; [3]The University of Tokyo, Graduate School of Medicine, Department of Skincare Science, Tokyo, Japan; [4]The University of Tokyo, Graduate School of Medicine, Global Nursing Research Center, Tokyo, Japan

Aim: Wound fluid has been well studied for exploring protein biomarkers contained in it. However, cells in wound fluid have not received much attention due to the difficulty of their collection. Our study aimed to establish a method to collect viable cells from discarded wound dressings.

Method: A protocol was designed to wash out non-adherent cells and detach adherent cells from silicon-faced foam wound dressings using trypsin-EDTA. The optimal concentration and incubation time of trypsin-EDTA for collecting equivalent proportions of different cell types to the original cell population were determined *in vitro*. Then, cell composition and gene expression changes in monocytes, lymphocytes, neutrophils, fibroblasts, and keratinocytes were confirmed using immunocytochemistry and RNA-sequencing *in vivo*. Full-thickness wounds were created on 9 weeks-old male C57BL/6J mice. Wound fluid was collected, and a half was applied to the wound dressings. The original cell population in wound fluid and the collected cell population from wound dressings were compared.

Results / Discussion: In the in-vitro study, 0.25% of trypsin-EDTA and 2.5 minutes incubation time were considered optimal for collecting adherent cells from wound dressings. In the in-vivo study, the four cell types besides CD3+ lymphocytes had no significant differences in cell proportion (Figure 1). The relative gene expression of five selected cells had no significant changes (p-value > 0.05, |log2 fold change| < 1.5, differential gene expression analysis) (Figure 2).

Conclusion: Viable non-adherent cells and adherent cells were collected from wound dressings without altering the gene expression and could be used in future studies for cell population analysis of wound fluid.

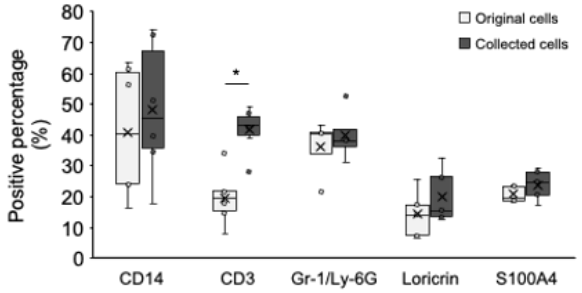


Figure 1. Comparison of positive percentages of 5 types of cells. * p < 0.05 Mann-Whitney's U test.

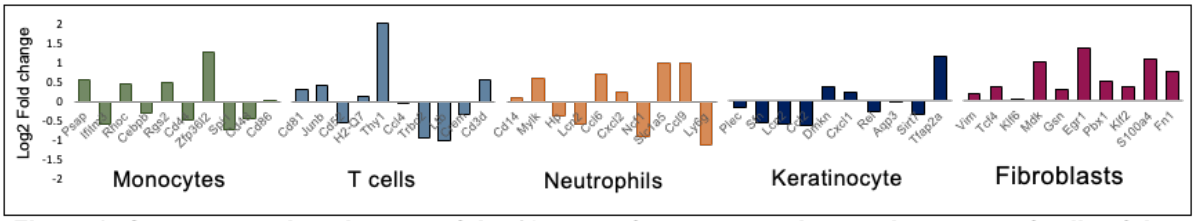


Figure 2. Gene expression changes of the 10 most often expressed genes in 5 types of cells of the collected cell population compared to the original cell population. The relative gene expression had no significant changes (p-value > 0.05, differential gene expression analysis).

OP046 USE OF A BACTERIAL FLUORESCENCE IMAGING DEVICE FOR BACTERIAL DETECTION AND GUIDANCE OF WOUND DEBRIDEMENT

Rosemarie Derwin[1], Declan Patton[2 3 4], Zena Moore[2 5 6 7 8 9 10]

[1]Royal College of Surgeons in Ireland, School of Nursing and Midwifery, Dublin, Ireland; *[1]Royal College of Surgeons in Ireland, School of Nursing and Midwifery, Dublin, Ireland*; *[3]Fakeeh College of Health Sciences, Health Sciences, Jeddah, Saudi Arabia*; *[4]University of Wollongong, , Faculty of Science, Medicine and Health, Australia*; *[5]Griffith University, School of Nursing & Midwifery, Queensland, Australia*; *[6]Ulster University, School of Health Sciences, Northern Ireland*; *[7]Cardiff University, School of Nursing and Midwifery, Cardiff, United Kingdom*; *[8]Fakeeh College for Medical Sciences, Medical Sciences, Saudi Arabia*; *[9]Ghent University, Faculty of Medicine and Health Sciences, Belgium*; *[10]Lida Institute, Shanghai, China*

Aim: This quantitative non-comparative, prospective study investigated the clinical utility of using fluorescence imaging to assess bacterial burden and guide subsequent wound debridement.

Method: Twenty-six participants with 27 wounds of varying aetiologies were observed twice weekly for two weeks. Wounds were treated with cleansing, repeated guided sharp debridement, and topical cadexomer iodine. Wound bacterial burden (fluorescence imaging), pH (pH indicator strips), temperature (infrared camera), and size (ruler method) was monitored at each visit.

Results / Discussion: At the study baseline, 78% (n=21) of the participants had bacteria loads of clinical concern in their wounds; following two weeks of inflammation management this decreased to 26% (n=7). The wound size (range: 70mm^2 to 455mm^2) reduced by 39% (mean difference 383mm^2, 95% CI: -10.45 to 87.05; p=0.12), equating to a 39% reduction. The findings indicate that an increased rise in pH and temperature from the previous pattern is indicative of bacterial burden and should raise concerns with the clinician.

Conclusion: This feasibility study showed that fluorescence imaging accurately visualizes bacterial burden and guides debridement. Non-invasive techniques, such fluorescence imaging, pH, and temperature measurement allow changes in wound status to be monitored and hence can facilitate early detection of potential problems.

OP047 NOVEL SAMPLING AND CULTIVATION METHOD MAINTAINING 2D ORGANIZATION OF MICROBES IN CHRONIC WOUNDS

Anne Kristine Iversen[1], Mads Hansen[1], Blaine Fritz[1], Klaus Kirketerp-Møller[2], Tim Holm Jakobsen[1], Thomas Bjarnsholt[1], Mads Lichtenberg[1]

[1]Costerton Biofilm Center, University of Copenhagen, Denmark, Institute for Immunology and Microbiology, København N, Denmark; *[2]Copenhagen Wound Healing Center ,Bispebjerg University Hospital, Copenhagen, Denmark, Department of Dermatology, Denmark*

Aim: To construct a reliable method for cultivation of surface microbes from chronic wounds maintaining 2D organization.

The current gold standard for cultivation from chronic wounds involves sampling by swabbing a 1cm2 surface area (the Levine technique). Research has found that biofilms are not uniformly distributed within chronic wounds and that the distribution varies in relation to surface and depth of the tissue. Alternative swabbing techniques (e.g. Z-technique) has the possibility of covering a greater surface area but suffer the same pitfall as all swabbing techniques; little to no information about the 2D organization of bacteria. We aimed to develop a culture method using a filter paper instead of a swab. The method is called "Imprint".

Method: Two filter types were tested *in vitro* for 1) their ability to transfer bacterial colonies and 2) their ability to maintain 2D geography by transferring colonies in distinct patterns. The filter type that performed the best was tested *in vivo* on 12 patients with chronic ulcers for 1) the ability of Imprint to identify the same microbes as swab and 2) the clinical feasibility of performing Imprint.

Results / Discussion: *In vitro* testing concluded that the nylon 5 µm filter was able to transfer bacteria maintaining 2D organization. *In vivo* testing concluded that Imprint was fast and feasible and able to identify a higher number of unique bacterial species with a fair ability to identify the same species as swab.

Conclusion: Imprint is a novel method for culturing bacteria with maintained 2D structure. Imprint identifies a higher number of unique bacterial species with a fair ability to identify the same species as swab.

FREE PAPER SESSION: TRANSLATIONAL SCIENCE

OP048 BARRIERS AND FACILITATORS TO TRANSLATION OF WOUND EVIDENCE INTO WOUND PRACTICE

Emily Haesler[1 2], Keryln Carville[1]

[1]Curtin University, Wound Healing and Management Collaborative, Bentley, Australia; [2]La Trobe University, Australian Centre for Evidence Based Aged Care, Bundoora, Australia

Aim: Evidence based wound practice (EBWP) is a process by which health professionals make clinical decisions informed by evidence, patient preferences, and their clinical experience. There is a large body of wound care evidence to support clinical decisions; however, this evidence is often poorly translated into practice. The aim of this project was to explore facilitators and barriers to implementing evidence based wound practice across clinical settings.

Method: The project used a phenomenological framework to explore the experiences of wound professionals related to facilitators and barriers to EBWP across clinical settings. The goal was to determine perceived or actual benefits of EBWP by clinicians. Data was collected using semi-structured interviews with 12 clinicians from a range of wound-related settings that were recorded and transcribed. Interviews were analysed using a four-stage process of comprehending, synthesising, theorising and recontextualising to identify key themes.

Results / Discussion: Identified themes addressed system factors, organisation factors and individual experiences that influenced the translation of evidence into practice in different clinical settings. Access to education, opportunities for collaboration and perceived ability to influence practice were all factors that influenced a wound professional's translation of evidence into practice. At the individual level, length of experience appeared to influence both confidence and ability to influence clinical practice in different wound care contexts.

Conclusion: Through the understanding of factors influencing the process of translating evidence to practice, peak bodies, organisations and individual wound professionals can work on strategies to overcome barriers and capitalise on facilitators.

OP049 EFFECT OF AUTOLOGOUS PLATELET-RICH PLASMA FROM PATIENTS WITH CHRONIC WOUNDS IN CELL VIABILITY, MIGRATION, AND ANGIOGENESIS

Verónica Salgado Pacheco[1 2], Cristina Martin-Mancera[1 2], Marta Casals Zorita[1 3], Clara Masó Albareda[1 3], Marta Ferrer Solà[1 3], Marta Cullell-Dalmau[2 4], Elisabet Sarri-Plans[1 5], Marta Otero Viñas[1 2]

[1]Institute for Research and Innovation in Life and Health Sciences in Central Catalonia (IrisCC), Tissue Repair and Regeneration Laboratory (TR2Lab), Vic, Spain; [2]University of Vic – Central University of Catalonia, Biosciences, Vic, Spain; [3]Hospital Universitari de la Santa Creu de Vic, Vic, Spain; [4]Institute for Research and Innovation in Life and Health Sciences in Central Catalonia (IrisCC), Bi-Squared, Vic, Spain; [5]Fundació d'Estudis Superiors en Ciències de la Salut, Medicina, Vic, Spain

Aim: Autologous platelet-rich plasma (PRP) therapy produces satisfactory results in chronic wounds. There is a lack of knowledge about the mechanism of action of PRP from patients with chronic wounds in stimulating cell activity and its correlation with clinical effectiveness. In this study, we determined the viability, migration, and differentiation activity in cell cultures treated with PRP.

Method: PRP was obtained by centrifugation of blood from 5 patients receiving PRP therapy for chronic wounds. Platelet-released Factors (PRF) were prepared by activating platelets from PRP. Platelet-poor plasma (PPP) was used as an internal control for each patient. The effect of PRF and PPP were tested in vitro to assess viability and tube formation in human umbilical vein endothelial cells (HUVEC), and migration in human dermal fibroblast (HDF).

Results / Discussion: The five samples included in the study showed variable results. Nonetheless, viability and differentiation to angiogenesis was different in HUVEC stimulated with PRF (1% and 5%), compared to PPP from the same patient. Wound closure assay in HDF was faster in cells incubated with PRF, compared to PPP. PRF did not increase in vitro the probability to wound closure at 24h post-incubation versus PPP.

Conclusion: Platelet-released factors stimulate differentiation to angiogenesis in cultured HUVEC and reduce the wound healing time of HDF model. These results might reflect the new blood vessel formation observed in the early stages of clinical therapy application, and a decrease in healing time, that might reduce wound complication.

OP050 EBC-1013 INDUCES AN ACUTE INFLAMMATORY RESPONSE IN SKIN RELEVANT CELL TYPES, PROMOTING INNATE IMMUNE CELL RECRUITMENT AND SUBSEQUENT CLOSURE OF CHRONIC, INFECTED WOUNDS

Jason Cullen[1 2], Glen Boyle[1 2 3], Pei-Yi Yap[1], Carly Pierce[1], Jenny Johns[1], Alberto Pagani[4], Giovanni Appendino[4], Victoria Gordon[5], Paul Reddell[5], Peter Parsons[1 2]

[1]QIMR Berghofer Medical Research Institute, Herston, Australia; [2]The University of Queensland, School of Biomedical Sciences, Saint Lucia, Australia; [3]QUT Gardens Point Campus, School of Biomedical Sciences, Brisbane City, Australia; [4]University of Eastern Piedmont, Vercelli, Italy; [5]QBiotics Group Ltd, Brisbane, Australia

Aim: Chronic, infected skin wounds, including VLU and DFU, are a major public health issue with limited treatment options. We have recently identified a class of small molecules, known as the epoxytiglianes, with the potential to treat these wound types.

Method: Here, we assessed the ability of our current lead, EBC-1013, to treat non-healing veterinary wounds and a physiologically relevant preclinical mouse model (*db/db*) of chronic wounds that spontaneously develops a biofilm infection. The indirect antimicrobial and wound healing associated effects of EBC-1013 were also studied *in vitro*/*in vivo* (microarray, qPCR, respiratory burst, NETosis and cytokine bead assays) using human dermal fibroblasts (HDF), keratinocytes (HEK), blood-derived neutrophils (PMNL), peripheral blood mononuclear cells (PBMCs) and the aforementioned *db/db* model.

Results / Discussion: EBC-1013 promoted wound closure in both veterinary cases and the *db/db* model detailed above. In terms of mechanism, EBC-1013 induced respiratory burst and NETosis in PMNL, and promoted the secretion of TNF, IL-1β and IL-8 from PBMCs. EBC-1013 treatment of HEKa/HDFa also led to the upregulation of innate immune defence genes encoding host defence peptides (*DEFB4*, *DEFB103A*, *DEFB104A*, *RNASE7*), various pro-inflammatory cytokines/chemokines (*TNF*, *IL1B*, *IL6*, *IL8*, *CXCL12*, *CCL20*), ECM components (*LCE/KRT/SPRR* genes, *TNC*, *FN1*, *LAMC1*) and pro-resolution molecules (*IL1RN*, *IL1F5*, *SLPI*) in these cell types. Consistent with the *in vitro* data, EBC-1013 also significantly upregulated several of these genes (*Defb3*, *Defb14*, *Rnase6*, *Camp*, *Tnf*, *Il1b*, *Il6*, *Il1rn*, *Cxcl2*, *Sprr2e*, *Lce3d*, *Tnc*) in *db/db* mouse wounds, together with promoting PMNL recruitment to these lesions *in vivo*.

Conclusion: EBC-1013 can help resolve chronic, infected wounds through inducing an acute inflammatory response, which helps clear bacterial infection and resets the wound microenvironment.

OP051 IN VITRO ASSAYS TO EVALUATE THE SAFETY AND BIOCOMPATIBILITY OF ELECTROSPUN FIBERS AS WOUND DRESSINGS

Kaisa Põhako[1], Kairi Lorenz[1], Kelli Randmäe[1], Marta Putriņš[1], Külli Kingo[2], Tanel Tenson[3], Karin Kogermann[1]

[1]University of Tartu, Institute of Pharmacy , Tartu, Estonia; [2]Tartu University Hospital, Dermatology Clinic , Tartu, Estonia; [3]University of Tartu, Institute of Technology, Tartu, Estonia

Aim: Chronic infected wounds in combination with ineffective treatment methods are a significant burden on the healthcare systems. Therefore, novel approaches for wound cure are constantly sought. One solution is the use of electrospun (ES) fibers as wound dressings. ES is a fiber production method, which enables to incorporate antimicrobial agents into the fibers, making ES fibers a desirable wound dressing material. With such novel materials, it is important to test their safety and biocompatibility before administrating them to patients. The aim of this work was to develop *in vitro* assays to evaluate the safety and biocompatibility of ES fibrous wound dressings.

Method: The study had all relevant ethical committee permissions. Baby hamster kidney cells (BHK-21) and human primary fibroblasts (PF) were seeded onto ES dressings and incubated at 37°C up to 48 h. After incubation, modified MTS cell proliferation assay and real-time cell analysis (RTCA) were used to evaluate the effect of the ES dressings on eukaryotic cells. The fiber morphology and biocompatibility with eukaryotic cells were evaluated with scanning and transmission electron microscopy (SEM/TEM) and confocal microscopy together with cell staining.

Results / Discussion: According to MTS, RTCA and microscopy all tested ES fiber dressings were safe and biocompatible, no cytotoxicity was observed. Cells preferred to adhere and grow on fiber dressings compared to the controls.

Conclusion: All tested ES fiber dressings are safe to eukaryotic cells and developed assays enabled to evaluate their safety and biocompatibility as wound dressings.

OP052 IMPLEMENTABILITY OF REMOTE EXPERT WOUND NURSE CONSULTATIONS FOR PRESSURE INJURY PREVENTION AND MANAGEMENT: A FEASIBILITY STUDY

Suzanne Kapp[1], Marie Gerdtz[1], Charne MIller[1], Amit Gefen[2], William Padula[3], Lauren Wilson[4], Michael Woodward[5], Sally James[6], Carla Bondini[6], Nick Santamaria[1]

[1]The University of Melbourne, Department of Nursing; *[2]Tel Aviv University, Faculty of Engineering*; *[3]University of Southern California, Leonard D. Schaeffer Center for Health Policy and Economics*; *[4]Regional Wounds Victoria (Barwon)*; *[5]Austin Health, Heidelberg Repatriation Hospital*; *[6]Regis Aged Care, Australia*

Aim: Aged care residents are at high risk of pressure injury (PI) development. Evidence of the implementability of remote expert wound nurse consultations (intervention) for PI prevention and management can inform the design of future research, optimize intervention success and minimise research waste.

Method: A non-randomised feasibility study was conducted in three residential aged care homes in Australia. The study sought to evaluate the acceptability, feasibility and fidelity of the intervention and research processes in preparation for a pilot RCT.

Results / Discussion: Nurses (n=30) were trained and residents at risk of PIs (n=16) and who had PIs (n=24) received a total of 132 remote CNC consultations (via videoconferencing) together with nurses during their 12 week intervention period. Organisational support was high, nurse engagement was variable, family member attendance at consultations was adhoc, and information technology issues were problematic. Fidelity of CNC care plan implementation by nurses was high. A wound imaging system was successfully utilised to quantify wound healing. Refinements to the intervention and processes were made and our pilot RCT is currently underway.

Conclusion: Implementation research can help to identify approaches that support translation of evidence into practice. This presentation will discuss the findings of the feasibility study and the essentialness of implementation research in wound management.

FREE PAPER SESSION: BASIC SCIENCE 1

OP053 CONTROLLED RELEASE OF VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF) IN ALGINATE AND HYALURONIC ACID (ALG–HA) BEAD SYSTEM TO PROMOTE WOUND HEALING IN PUNCH-INDUCED WOUND RAT MODEL

Hwanjun Choi[1], Yongseon Hwang[1]

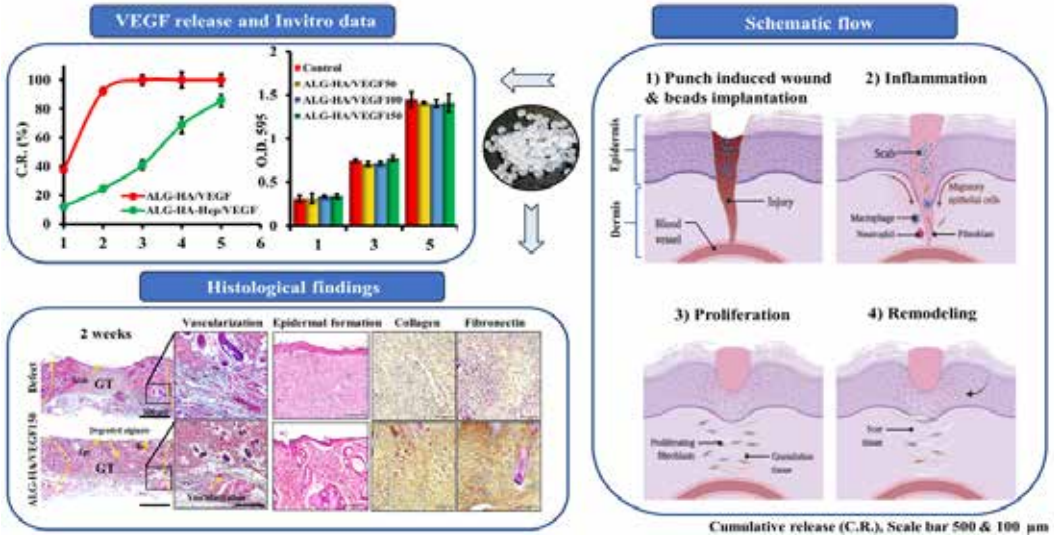
[1]*Soonchunhyang University Cheonan Hospital, Plastic and Reconstructive Surgery, Cheonan, Korea, Rep. of South*

Aim: Wounds with compromised vascularity and hypoxia may be healed with the additional growth factor to promote vascularity. Among the different angiogenic growth factors, vascular endothelial growth factor (VEGF) is a crucial and important candidate.

Method: To address this issue, a combination of two different polymers, alginate (ALG) and hyaluronic acid (HA) in 80:20 ratio composition is used to optimize the bead system along with the 5 IU heparin (Hep) by crosslinking into calcium chloride (CaCl2). Encapsulation of Vascular endothelial growth factor (VEGF) in the bead system shows delayed cumulative release in phosphate buffer saline (PBS).

Results / Discussion: For in vitro studies, ALG–HA/VEGF150 improves endothelial Vascular cell adhesion protein 1 (VCAM1) and endothelial nitric oxide synthase (eNOS) expression markers in CPAE cells. In vivo evaluation of the bead system shows around 68 % of wound closure 2 weeks post-implantation in 8 mm punch wound models. The treatment group shows decreased epithelial gap between the ends of the wound and neo-epidermal regeneration.

Conclusion: The objective of our study is to fabricate a dual polymer bead system for wound dressing that can be degraded in 5 to 6 days; the beads could be slowly releasing VEGF growth factor and to investigate the effect of VEGF incorporation into the bead system to improve wound healing. From clinical aspects, our bead system might be reducing pain and lowering dressing cost for the patient and convenience for the healthcare provider in future.



OP054 THE EFFECT OF BOTULINUM TOXIN-A ON WOUND HEALING IN STREPTOZOCIN-INDUCED DIABETIC RATS

Bariş Hazir[1], Volkan Tumer[2], Mert Ertunc[2], Fatma Mert[3], Oya Evirgen[3], Hakan Uncu[1]

[1]Ankara University Faculty of Medicine , General Surgery , Ankara, Turkey; [2]Hacettepe University Faculty of Medicine, Pharmacology, Ankara, Turkey; [3]Ankara University Faculty of Medicine , Histology, Ankara, Turkey

Aim: Although botulinum toxin type A (BTX-A), having therapeutic effects on wound healing, its impact on diabetic wounds remains unknown. In this study, we evaluated the potential restorative effect of BTX-A on wound healing in Streptozocin-induced diabetic rats.

Method: The experimental procedures were performed on 72 female Wistar rats. Diabetes model was induced by streptozocin (60 mg/kg, i.p., single dose) injection. Rats with blood glucose levels; 200 mg/dl and greater were diagnosed with diabetes mellitus (DM) 3 days after injection. Thirty-one diabetic rats, surviving after a week, were divided into DM (Group 1, n=9), DM+Chlorhexidine (CGC) (Group 2, n=10) and DM+BTX-A (Group 3, n=12) groups. A one cm diameter incision was made on each subject.

The Controls (n=17) and Group 1 dressed using only gauze patches. Wound dressings (0.5% CGC) were placed in Group 2, and BTX-A (20IU, 1 ml, single dose) was administered around the wounds of the Group 3 and dressed in a gauze patch.

The wound diameters were calculated on Day 5 and additionally on Day 7 in which the rats were euthanized. The wound tissues were excised, including skin, subcutaneous and muscular tissues, and were evaluated histologically.

Results/Discussion: On Day 5 and Day 7, the wound healing percentage of Group 3 was higher than the others ($p<0.001$). Apart from Group 1, all others had similar wound healing at each time point.

In the histologic assessment, Group 3 displayed better-wound closure with re-epithelization exhibiting keratohyalin granules within the cytoplasm of granular stratum cells indicating epidermal maturation.

Conclusion: BTX-A injection for diabetic wounds is an effective treatment option. Nevertheless, future clinical trials are needed to strengthen our argument.

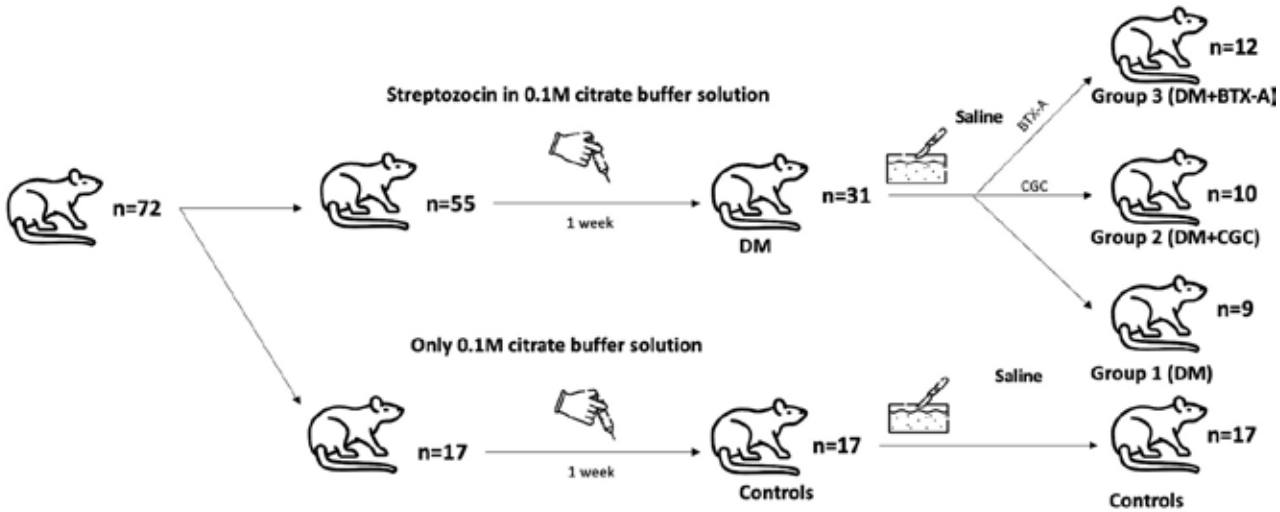


Figure 1. The distribution of subjects throughout the study and the operations performed. BTX-A: Botulinum toxin- A, CGC: Chlorhexidine gluconate cloths, DM: Diabetes Mellitus

OP055 CELL MECHANOBIOLOGY IN THE CONTEXT OF WOUND HEALING

Daphne Weihs[1]

[1]*Technion - Israel Institute of Technology, Biomedical Engineering, Haifa, Israel*

Aim: Closure of small gaps and larger wounds in damaged tissue requires coordination between multiple cell types, which interact with their neighbours and microenvironment. The mechanical interactions of cells with their microenvironment affect capacities required for wound healing, and are evaluated here for different cell types under varying external conditions.

Method: We used mouse, fibroblasts (3T3), myoblasts (C2C12), embryonic preadipocytes (3T3-L1), and human monocyte (THP-1) cell lines; the latter were also differentiated, respectively, to adipocytes and macrophages. Cell morphology was monitored during migration and differentiation and under external mechanical strains. Concurrently, cells were seeded on physiological stiffness (2.4 kPa) gels to evaluate cell-applied forces, using traction force microscopy. **Results / Discussion:** Fibroblast-like preadipocytes applied a wide range of total traction forces (100-800 nN), especially during migration, typically at the edges of their elongated shape, while adipocytes were smooth-surfaced and round and applied smaller forces (<200 nN) along their perimeters. We also show that migration rates of fibroblasts and myoblasts into small gaps are accelerated by external stretching (3-6% strain), where the gap shape and size affected migration rate. External stretching also affected attained macrophage morphologies following differentiation and potentially also reduced particle internalization, indicating changes to functional phagocytotic uptake, especially under large deformations (10% strain).

Conclusion: Mechanical interactions of cells with their microenvironment affect the cell morphology, force application capacity, migratory rate, and other functions, which can affect the progression of different stages of wound healing.

OP056 IMPROVED HEALING AND MACROPHAGE POLARIZATION IN ORAL ULCERSTREATED WITH PHOTOBIOMODULATION (PBM)

Nam Kyu Lim[1], Jong Hyun Park[1]

[1]*Dankook University Hospital, Plastic and reconstructive surgery, Cheonan, Korea, Rep. of South*

Aim: The effect of photobiomodulation (PBM) treatment on wound healing and macrophage polarization was investigated in vivo. Animal models of oral ulcers were simulated through chemically induced oral ulcers in rats.

Method: PBM treatment using an infrared pulsed laser was used to treat oral ulcers in the animal models. Twelve Sprague–Dawley rats were randomly divided into four groups depending on set absorbed energy: Group1(control), Group2(30J), Group3(60J), and Group4(100J). Laser treatment was performed every other day for 8 days after ulcer confirmation. Parameters used were as follows: wavelength 808nm, power output 50mW, spot size 10mm, frequency 10Hz, and pulse duration 1 millisecond. Ulcers were measured to determine the effect of the treatments over time. Histology, immunostaining, and real-time polymerase chain reaction analyses were performed to evaluate the effect of PBM treatment on macrophage-related (IL-6/IL-10) and wound-healing-related (TNF-α/TGF-β/MMP-2) cytokine expression.

Results/Discussion: Histological examinations indicate that the PBM treatment stimulated a higher level of wound recovery after 8 days of treatment at 60J absorbed energy compared to other treatment groups. Analyses of relative gene expression of proinflammatory, anti-inflammatory, and tissue remodeling cytokines indicate that the macrophages in the tissue samples were predominantly characterized as M2 subtypes (alternatively activated), which possibly accounts for the accelerated tissue repair in the animal model of oral ulcer.

Conclusion: This preliminary study stands as a proof of concept regarding the potential use of infrared laser PBM treatment for oral ulcers which have not been previously investigated upon. PBM treatment affects macrophage polarization and enhances wound healing. Further experimentation will be conducted to expand the understanding of how PBM treatment affects the healing mechanism of ulcers.

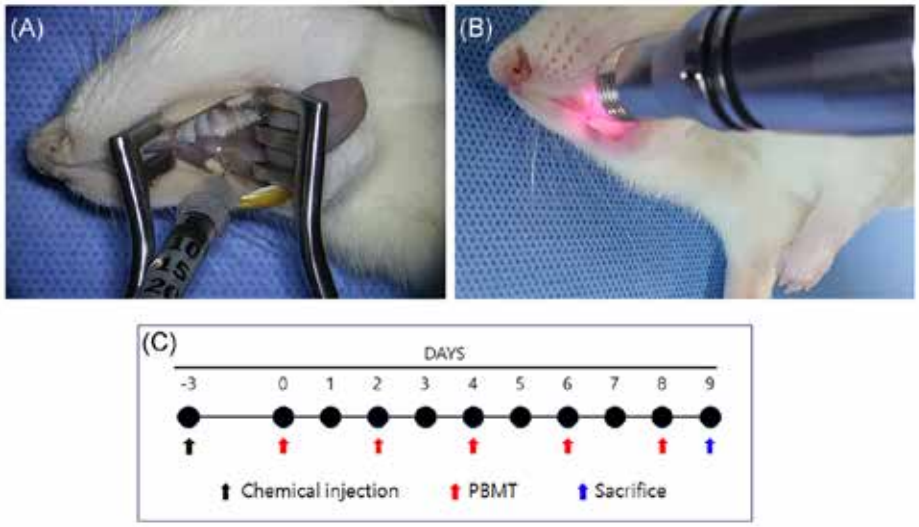


FIGURE 1 Image of rat (A) with a chemical-induced oral ulcer. PBMt (B) was applied on the oral ulcer using a laser handpiece bed on the scheduled treatment days (C)

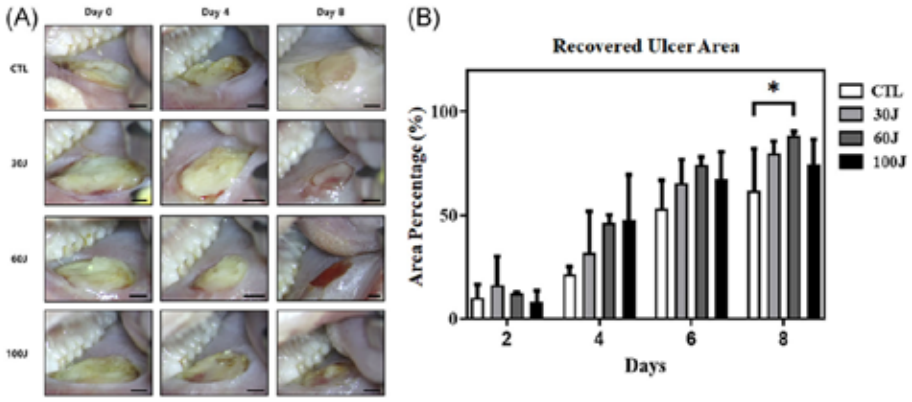


FIGURE 2 (A) Photographs of oral ulcer on Days 0, 4, and 8. The chemical-induced oral ulcer was formed 3 days after injection (Day 0). On Day 8, considerable improvement was seen in 60 J (scale bar: 1 mm). (B) Recovery rate of the oral ulcer area was measured starting from Day 0 (%) until Day 8. All treatment groups have shown the improvement compared with the control group however at Day 8, only 60 J group had shown a significant difference compared with the control group ($p < 0.05$) ($n = 3$)

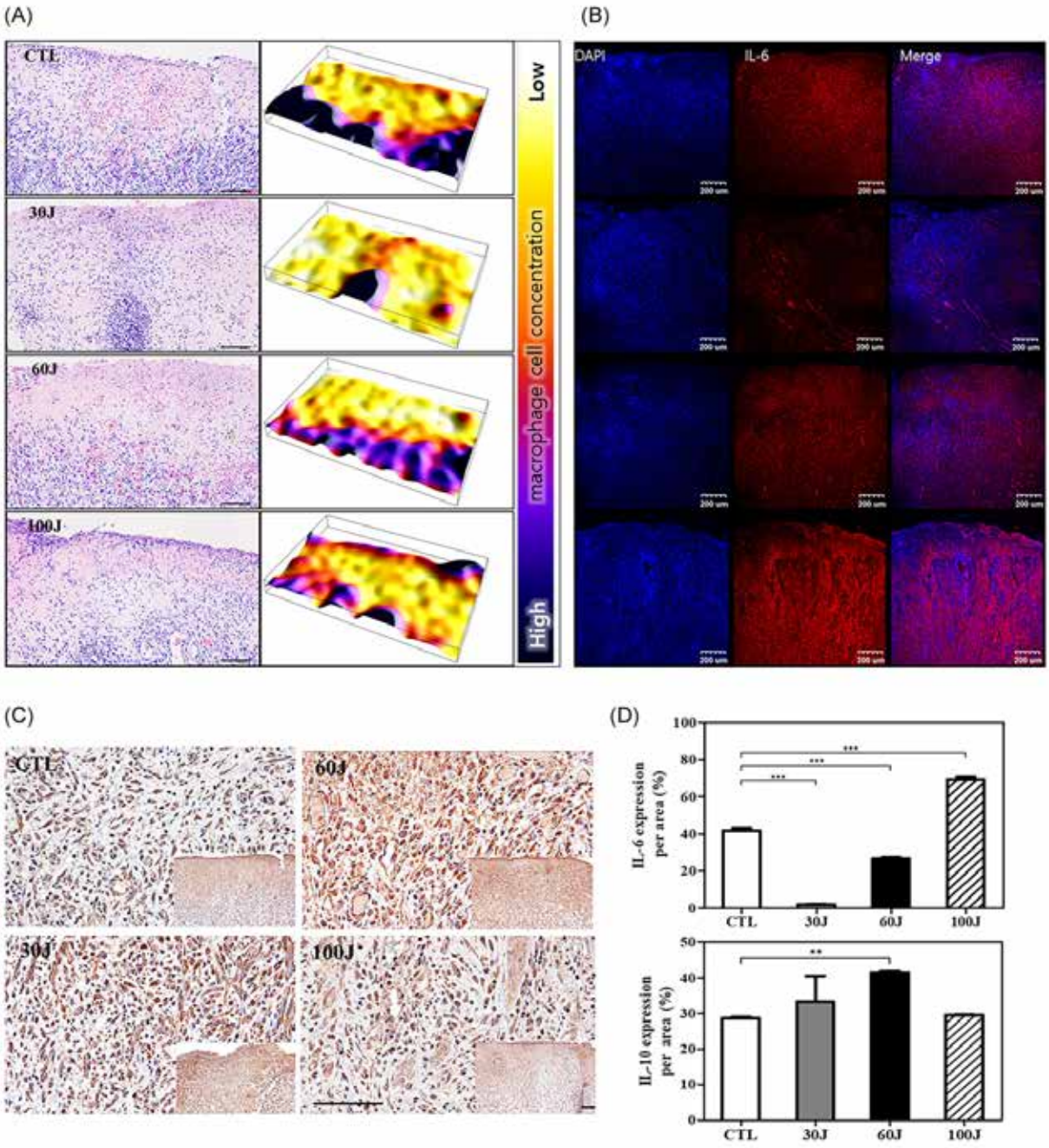


FIGURE 3 (A) Micrographs of H&E stained oral ulcer tissue samples with corresponding 3D density plots. The darker areas showed higher cell densities, with inflammatory cells being highest in the 60 J group compared to the control group. (B) Confocal images showing tissue sections with IF staining for interleukin 6 (IL-6) and micrographs of sections stained for (C) anti-IL-10 taken from day 8 post-PBMt. (scale bar: 100 μm) (D) Histomorphometric analysis of sections IF stained for IL-6 shows a significant difference of expression across all treated groups. Both 30 and 60 J has lower expression while 100 J had the highest expression of IL-6 compared to the control. Only 60 J showed a significantly higher expression of IL-10 relative to the control. (**$p < 0.01$, ***$p < 0.001$, $n = 3$) (scale bar: 100 μm). 3D, three-dimensional; H&E, hematoxylin and eosin; IF, immunofluorescence

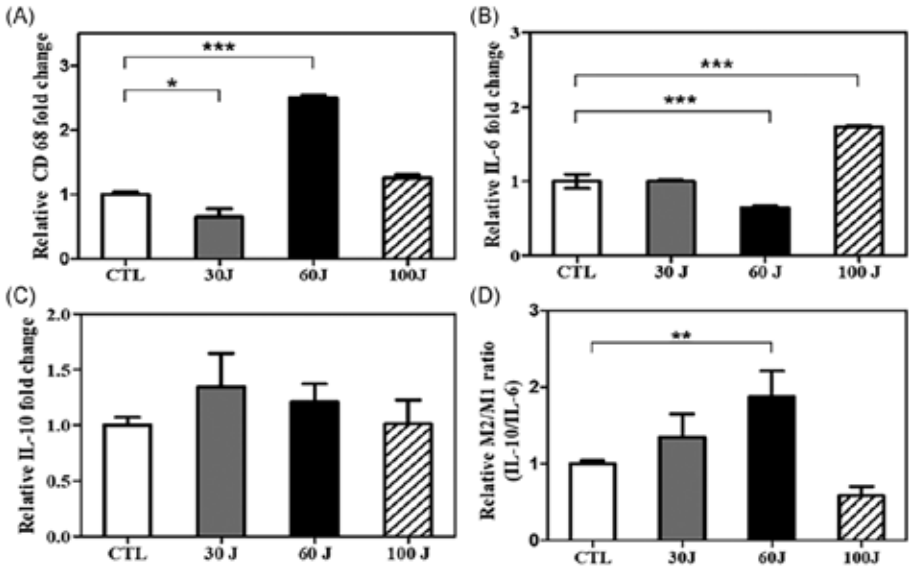


FIGURE 4 Relative gene expression of (A) CD68 (B) IL-6, (C) IL-10 in oral ulcers treated with PBMt after 8 days. Expression of CD 68 was highest in 60 J while 30 J was relatively lower compared to the control. Gene expression of IL-6 was lower for 60 J and higher for 100 J relative to the control. No significant difference was observed in terms of IL-10 gene expression among treated animals. (D) The ratio of M2/M1 was the highest in the 60 J group compared to the control group. Data are expressed as mean ± SD with statistical significance of $*p < 0.05$, $**p < 0.01$, $***p < 0.001$ relative to the control group ($n = 3$). CD68, CD68, cluster of differentiation 68; IL, interleukin

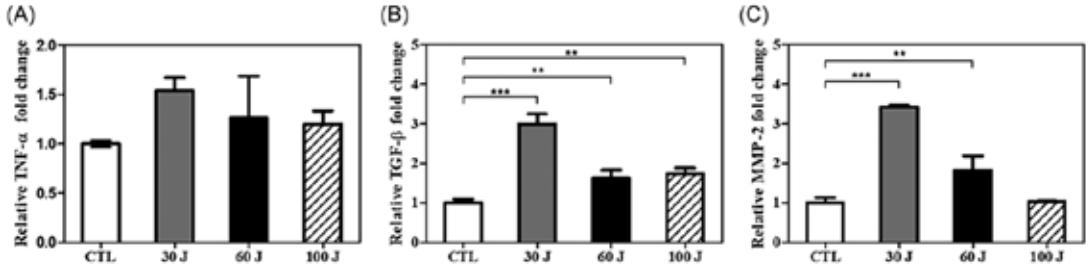


FIGURE 5 Relative gene expression of (A) TNF-α, (B) TGF-β, (C) MMP-2 in oral ulcers treated with PBMt were also observed. No significant difference was observed across all groups for TNF-α expression. Statistical analyses indicate a significant increase in TGF-β expression in all treatment groups while MMP-2 was highest in 30 J followed by 60 J. Data are expressed as mean ± SD with statistical significance of $*p < 0.05$, $**p < 0.01$, $***p < 0.001$ relative to the control group ($n = 3$). MMP-2, matrix metalloproteinase-2; TGF-β, transforming growth factor-β; TNF-α, tumor necrosis factor-α

TABLE 1 Photobiomodulation therapy parameters in each group

Group parameters	Group 1 (Control, $n = 3$)	Group 2 ($n = 3$)	Group 3 ($n = 3$)	Group 4 ($n = 3$)
Wavelength (nm)	-	808	808	808
Power output (mW)	-	50	50	50
Energy output (J/s)		0.05	0.05	0.05
mW/cm^2	-	63.69	63.69	63.69
Spot size (mm)	-	10	10	10
Frequency (Hz)	-	10	10	10
Pulse duration (ms)	-	1	1	1
Duration of irradiation (s)	-	120	240	400
Pulse energy per session (J)	-	6	12	20
Pulse energy density per session (J/cm^2)	-	7.64	15.28	25.48
Number of session	-	5	5	5
Total irradiated energy (J)	-	30	60	100
Total energy density (J/cm^2)		38.2	76.4	127.4

TABLE 2 Primer sequences for the real-time polymerase chain reaction

Gene	Forward primers	Reverse primers
GAPDH	TTCAACGGCACAGTCAAGG	CTCAGCACCAGCATCACC
IL-6	CCCTGCAGCTGGAGAGTGTGG	TGTGCTCTGCTTGAGAGGTGCT
IL-10	CAGCAAAGGCCATTCCATCC	GCCTGGGGCATCACTTCTAC
CD68	ACTGGGGCTCTTGGAAACTACAC	CCTTGGTTTTGTTCGGGTTCA
TNF-α	GACCCTCACACTCAGATCATCTTCT	TGCTACGACGTGGGCTACG
TGF-β	CTGAACCAAGGAGACGGAAT	GGTTCATGTCATGGATGGTG
MMP-2	GTCTTCCCCTTCACTTTTCTG	CGGAAGTTCTTGGTGTAGGTG

Note: sequence: 5′ to 3′.

Abbreviations: CD68, cluster of differentiation 68; GAPDH, glyceraldehyde 3-phosphate dehydrogenase; IL, interleukin; MMP-2, matrix metalloproteinase-2; TGF-β, transforming growth factor-β; TNF-α, tumor necrosis factor-α.

OP057 AN IN VITRO INVESTIGATION ON PHOTOBIOMODULATION EFFECTS OF BLUE LED LIGHT IN HEALTHY HUMAN AND KELOID-DERIVED FIBROBLASTS

Giada Magni[1], Federica Cherchi[2], Martina Banchelli[1], Elisabetta Coppi[2], Francesca Tatini[1], Marco Fraccalvieri[3], Anna Maria Pugliese[2], Domenico Alfieri[4], Francesca Rossi[1]

[1]Istituto di Fisica Applicata "Nello Carrara", Consiglio Nazionale delle Ricerche, Sesto Fiorentino, Italy; [2]Università Degli Studi di Firenze, Dipartimento di Neuroscienze, Psicologia, Area del Farmaco e Salute del Bambino, Firenze, Italy; [3]Città Della Salute e Della Scienza di Torino, SCDU Chirurgia Plastica, Torino, Italy; [4]EmoLED srl, Sesto Fiorentino, Italy

Aim: To investigate the photobiomodulation effects of blue LED light on cellular metabolism, and proliferation, in cultured keloid-derived fibroblasts (KFs), in fibroblasts isolated from perilesional keloids (PKFs) and in healthy fibroblast cells (HFs).

Method: In all the experiments, we used a blue LED light device emitting in the visible range (410 - 430 nm) on primary cultures. Six different fluence doses (3.43 – 6.87 – 13.7 – 20.6 – 30.9 – 41.2 J/cm^2) were applied. Cell metabolism, proliferation and viability were evaluated using three different biochemical assays: WST-8, Sulforhodamine B and Trypan Blue. All the tests were performed 24 and 48 h after the irradiation.

Results / Discussion: The blue LED light decreases cell metabolism and proliferation of KFs and PKFs in a dose-dependent manner. HFs exhibit a biphasic metabolic dose-response of photobiomodulation: the low doses increase cell metabolism while the higher doses reduce it. Similarly, also cell proliferation decreases at the increase of fluences applied; this effect is evident after 24 h and becomes more pronounced after 48 h from the irradiation. Cell viability experiments demonstrated that KFs and PKFs were more sensitive to blue light irradiation (41.2 J/cm^2 applied) when compared to HFs.

Conclusion: The blue LED light directly affects KFs and PKFs, reducing cell viability, metabolism and proliferation. The effect on cell viability was not shown in HFs. However, HFs showed an increase in cell metabolism when low doses of blue light were applied.

FREE PAPER SESSION: NEGATIVE PRESSURE WOUND THERAPY

OP058 CONSERVATIVE MANAGEMENT OF L-VAD DRIVELINE INFECTIONS: FROM HOSPITALIZATION TO OUTPATIENT CLINIC

Igor Belluschi[1], Lina Ognibene[2], Giulia Vidotto[2], Sara Lupi[2], Cristina Barlassina[1], Mariachiara Calabrese[1], Teodora Nisi[1], Andrea Giacomini[1], Ornella Forma[2], Alessandro Corsi[2], Elisabetta Lapenna[1], Silvia Ajello[3], Anna Mara Scandroglio[3], Michele De Bonis[1]

[1]San Raffaele Hospital, Cardiac Surgery, Milano, Italy; [2]San Raffaele Hospital, Wound Care , Milano, Italy; [3]San Raffaele Hospital, Intensive Care Unit, Milano, Italy

Aim: The purpose of this study is to report our experience about the conservative treatment of L-VAD driveline infections (DLI).

Method: In this single-center observational study, n=146 patients underwent LVAD implant (78% as destination therapy) from February 2009 to August 2022. Periodic follow-ups were carried out. ISHLT Infection Disease Working Group Classification and the DLI classification by Sharp Memorial group were adopted.

Results / Discussion: Cumulative days of L-VAD support were 171.788 (93% male, mean age 68±10 years). DLI was detected in 38 cases (26,03%) and affects 26/64 alive patients. Twenty-seven patients had preservation of the original exit site. Of these, 14 patients with early stage (I or II) DLI were treated with bacteria-binding or silver wound dressings twice a week. Stage III cases (n=13) were treated by negative wound pressure therapy (NWPT), with a good late outcome. Eleven patients (stage IV-V) underwent driveline surgical debridement associated to instillation-NPWT, due to deep tissue infection and skin-to-driveline fistulae, but a successful outcome was generally observed. In the last two years, only two patients required surgical manipulation of deep DLI. Overall DLI-related re-hospitalization rate was 42.1%, lowering in the last years. Antibiotics have been upgraded to specific drugs after specimen bacteria identification (52.6% S. aureus). Overall remission rate was 42.1%, of which a half by NPTW only. One patient has died due to deep DLI, despite surgical debridement and prolonged NPWT.

Conclusion: Conservative management with NWPT is becoming a less invasive and effective tool for the treatment of both superficial and deep DLI, reducing re-hospitalization rate and the need for pump exchange. Diagnostic and treatment protocols standardization will result in outcomes improvement.

OP059 META-ANALYSIS OF RANDOMIZED CONTROLLED STUDIES OF CLOSED INCISIONAL NEGATIVE PRESSURE WOUND THERAPY VERSUS STANDARD WOUND DRESSINGS IN THE PREVENTION OF SURGICAL SITE INFECTIONS FOR PATIENTS UNDERGOING SURGERIES FOR LOWER EXTREMITY FRACTURES

Hsu-Tang Cheng[1]

[1]Asia University Hospital, Plastic Surgery, Taichung City, Taiwan

Aim: Negative pressure wound therapy has recently been used over closed incisions to decrease surgical-site occurrences, including wound dehiscence and surgical-site infections (SSIs). A meta-analysis of randomized controlled studies was performed to evaluate the effectiveness of closed incision negative pressure therapy (ciNPWT) in lowering the incidence of SSIs compared to standard wound dressings for patients undergoing surgeries for lower extremity fractures.

Method: We conducted a literature search to find randomized controlled studies comparing ciNPWT to standard wound dressings for patients undergoing surgeries for lower extremity fractures. We used the RevMan 5.4 for meta-analysis. Results of the meta-analysis were assessed using risk ratio (RR) with 95% confidence intervals (CI) within a random effects model. The Mantel-Haenzsel method was used for dichotomous outcome. We explored variability in study outcomes by calculating statistical heterogeneity with chi-square and inconsistency (I2) statistics; I2value of 50% or more represented substantial heterogeneity.

Results / Discussion: The meta-analysis included 1222 patients/fractures randomized to ciNPWT and 1221 patients/fractures to standard wound dressings. The meta-analysis demonstrated that there was no statistically significant difference in SSIs (67/1222, 5.48% versus 97/1221, 7.94%; RR=0.61, 95% CI, 0.35 to 1.06; P = 0.08) among patients with all lower extremity fractures. Studies were of low heterogeneity (I2 =45 %; P = 0.11).

Conclusion: Among patients who underwent surgeries for lower extremity fractures, the use of ciNPWT, compared to standard wound dressings, resulted in no significant difference in the rate of SSIs. The findings do not support the routine use of ciNPWT in this setting.

OP060 EFFECTIVENESS OF TRAUMATIC WOUNDS TREATMENT WITH NEGATIVE-PRESSURE WOUND THERAPY WITH INSTILLATION: PRAGMATIC RANDOMIZED CONTROL TRIAL

Dimas Milcheski[1], Rafael Santos Junior[1], Gustavo Clivatti[1], Carol Gonzalez[1], Araldo Monteiro Junior[1], Rolf Gemperli[1]

[1]*University of* São Paulo, Division of Plastic Surgery, Sao Paulo, Brazil

Aim: To compare clinical results and direct costs of soft tissue traumatic wounds treatment submitted to three different coverings.

Method: prospective and pragmatic randomized controlled trial evaluating adult patients with traumatic wounds, following CONSORT, approved by the ethics committee. 113 patients with 128 wounds were randomized to standard of care, mainly with layers of gauze (n=41), conventional NPWT (n=44), and NPWTi (n=43). Negative pressure was set at -125 mmHg in continuous mode, applied for two hours in the NPWTi group, followed by normal saline instillation with 20 minutes of dwell time.

Results / Discussion: Sample consisted of 113 patients from 135 screened for eligibility. The mean age was 37.5 (SD 15.1; min 16 max 86) years, primarily male (77%), with low Charlson Index (0.36 SD 1.0). Wounds were mainly degloving (58%) with a mean size of 189.5 cm^2 (min 14; max 1303; SD 229.0), affecting predominantly lower extremities (84.3%), caused by vehicle accidents. There were no statistical differences between groups regarding baseline data (age, Charlson index, wound area; $p>0.05$). Wound time of closure (in days) was lower in the instillation group (6.1 NPWTi; 10 NPWT; 12.4 Layering; $p<0,001$), as well as the number of surgical procedures (3 NPWTi; 3.5 NPWT; 6.7 Layering; $p<0.001$), and Length of stay in the plastic surgery service (in days) (11.7 NPWTi; 16.7 NPWT; 21.4 Layering; $p=0.013$). Costs (in $USD) were higher in the Gauze group ($5510 NPWTi; $5,643 NPWT; $7,162 Gauze; $p=0.873$).

Conclusion: Negative pressure with or without installation therapy was more effective and less costly than gauze therapy in treating complex traumatic wounds.

OP061 SINGLE-USE NEGATIVE PRESSURE WOUND THERAPY (SNPWT) VERSUS CONVENTIONAL DRESSINGS FOR THE REDUCTION OF SURGICAL WOUND DEHISCENCE (SWD): IN VITRO AND CLINICAL DATA

Ben Costa[1], Louise France[2], Georgia Melbourne[2], Runi Brownhill[3]

[1]*Smith and Nephew, Global Clinical and Medical Affairs, Hull, United Kingdom*; [2]*University of Hull, Medical Engineering, United Kingdom*; [3]*Smith and Nephew, Wound R&D, Hull, United Kingdom*

Aim: This study aims to understand how the underlying mechanistic effects of sNPWT (1) impacts clinical outcomes for SWD.

Method: To demonstrate the biological and mechanical tissue effects of sNPWT compared to a conventional dressing (2), in vitro studies were conducted using a porcine incisional wound model. Data pertaining to tissue moisture movement, force experienced at the incision and tissue displacement patterns were collected using a combination of sensor placements and computational analysis. A systematic literature review and meta-analysis was performed in April 2021 to identify comparative studies reporting on the use of sNPWT versus conventional dressings in SWD.

Results / Discussion: In vitro data demonstrated a wider zonal influence at the incisional site with regard to tissue displacement with sNPWT compared to conventional dressing (Figure 1). This zonal effect was also identified in the movement of moisture within the tissue with sNPWT compared to conventional dressing (Figure 2). sNPWT also demonstrates greater tissue forces that hold the incision together (Figure 3).

Seven studies (1,207 evaluable patients) met the inclusion criteria of the review. Meta-analysis of the SWD outcome identified a statistically significant decrease in the odds of developing SWD with the use of SNPWT versus conventional dressings (OR 0.63, 95% CI 0.43 to 0.92, $p=0.0158$) (Figure 4).

Conclusion: sNPWT results in biological and mechanical changes at the wound site and the surrounding tissue in surgical incisions compared to conventional dressings. These physical differences may explain the improved clinical outcomes observed with the use of sNPWT.

1. PICO™ single-use Negative Pressure Wound Therapy
2. AQUACEL® Surgical dressing

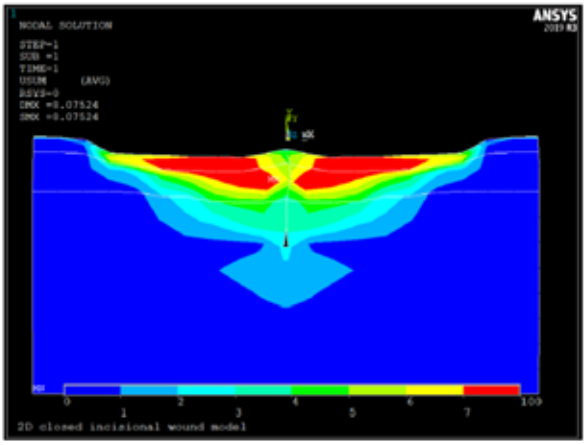


Figure 1. 2D incisional wound finite element analysis (FEA) model (ANSYS), validated with in vitro measurements, showing maximum and minimum displacement values (mm) with sNPWT.

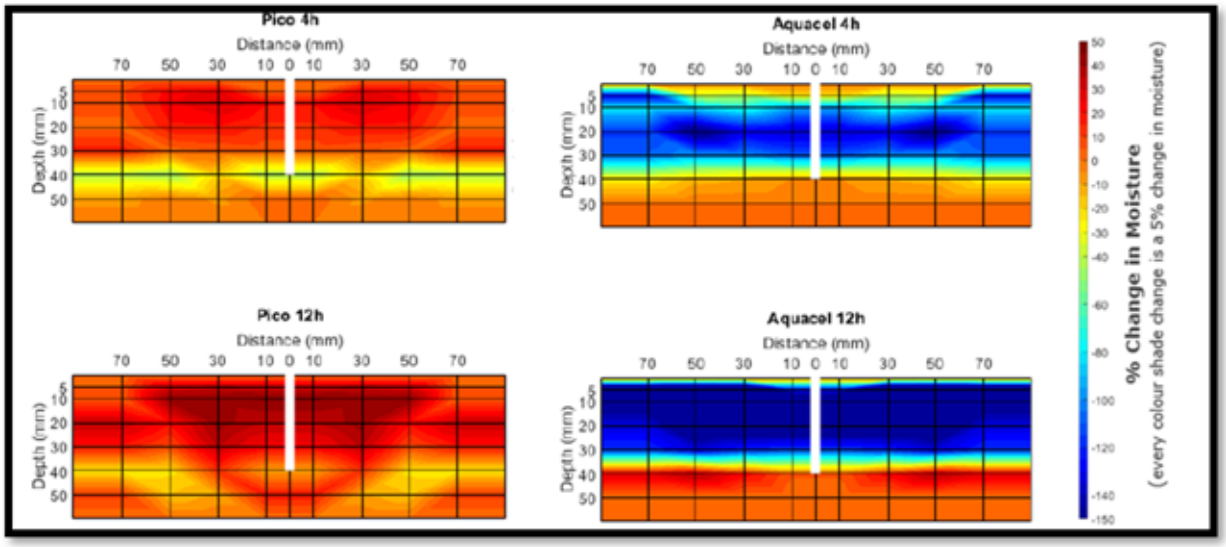


Figure 2. Inherent tissue moisture movement detected using sensors placed at various depths and locations. Blue regions indicate loss of moisture while red regions denote increases in moisture movement.

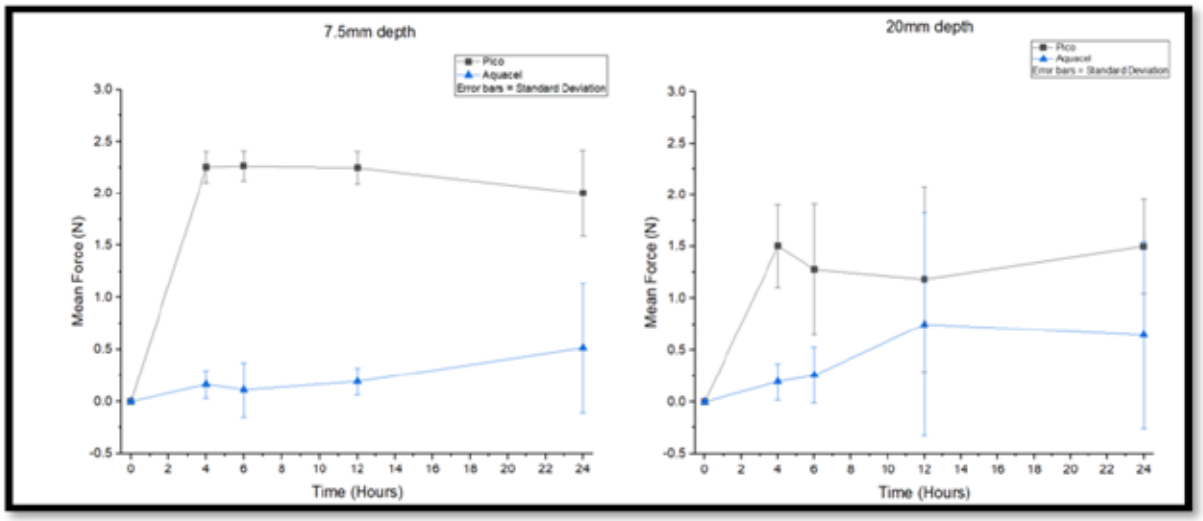


Figure 3. Incisional force recorded over time (measured using force sensors placed at two different depths at the incision site prior to suturing (Depth A (7.5mm) and Depth B (20mm)).

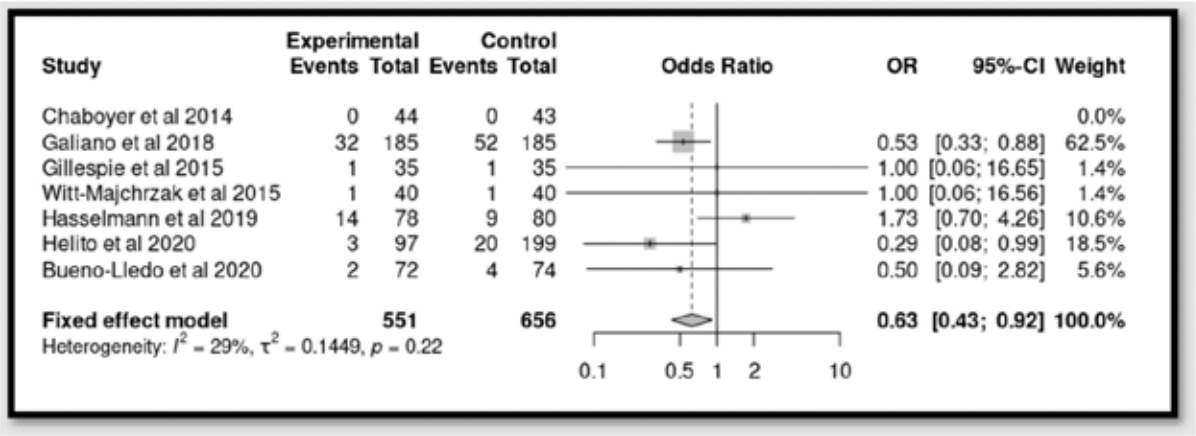


Figure 4. Forest plot showing the reduction in surgical wound dehiscence with the use of sNPWT versus conventional dressings.

FREE PAPER SESSION: PRESSURE ULCERS 1

OP062 PRESSURE ULCER PREVENTION IN MELANIN-RICH SKIN THROUGH EDUCATION FOR HEALTH CARE PROFESSIONALS IN MALMÖ HOME CARE ORGANIZATION

Ana Rusovan[1], Charlotte Hylèn[2], Magdalena Annersten Gershater[3], Zainaba Ismail Jones[4]

[1]Health Maintenance and Healthcare Administration, Department of Strategy and Development, Malmö, Sweden; [2]Health Maintenance and Healthcare Administration, Department Strategy and Development, Malmö, Sverige, Sweden; [3]Malmö University, Department of Care Science Faculty of Health and Society, Malmö, Sweden; [4]Health Maintenance and Healthcare Administration, Department Strategy and Development, Malmö, Sweden

Aim: Malmö, Sweden, is a multicultural society, and it is crucial that health care professionals in home care can early identify pressure injuries in patients with melanin-rich skin in clinical practice. In this review we aimed to highlight the knowledge about skin assessment and early identification of pressure injuries in melanin-rich skin.

Method: A literature review of the academic course literature in dermatology and wound management (2 books in Swedish) and the Municipality's internal educational material regarding prevention of pressure ulcers.

Results: There were no pictures or illustrations including people with melanin rich skin in any of the publications.

Discussion: Patients with melanin-rich skin are disproportionately affected by more severe pressure ulcers compared to patients with white skin. We therefore started lecturing health care professionals in Malmö home care organization about systematic skin assessment in melanin-rich skin. Images of melanin-rich skin and medical simulation dolls are included in all our courses and this has been an eye-opener for the publisher of the academic books as more diverse illustrations will be included in the next editions. The medical record system has been updated so that melanin-rich skin is represented in the skin assessment documentation.

Conclusion: Healthcare professionals must be aware of the reaction patterns in all skin tones in order to provide equal and safe treatment in a society where white skin is the norm. We work for equal care in our city, where all patients are included.

Key words: Equal Care, Health Education, Knowledge, Melanin-rich skin, Pressure Ulcers, Prevention.

OP063 DOES AGE AFFECT SUB-EPIDERMAL MOISTURE MEASUREMENTS TRENDS? A LONGITUDINAL SUBSTUDY

Wendy Chaboyer[1], Brigid. M Gillespie[1], Rachel Walker[1], Sharon Latimor[1]

[1]Griffith University, Gold Coast Campus, NHMRC Centre of Research Excellence in Wiser Wound Care, Southport, Australia

Aim: To assess the daily variation in sacral sub-epidermal moisture (SEM) over seven days and compare this variation between younger (< 65 years) and older (≥65 years) adults given age related skin and tissue changes.

Method: As part of a larger registered, randomised controlled trial, a longitudinal substudy was undertaken. Pressure Injury (PI)-free adults at risk of a PI with an expected hospital length of stay ≥24 hours and with no broken skin on the sacrum or incontinence were eligible. Sacral SEM delta measurements were undertaken daily for up to seven days. SEM value of ≥ 0.6 were considered abnormal, indicative of early tissue damage, and predictive of future PI.

Results / Discussion: A total of 392 consenting patients (178, 45.4% < 65 years; 214, 54.6% ≥65 years) were included. On average, patients had 3.9 (SD= 1.9, range 1-7) SEM measurements for a total number of SEM values of 1,511. Of these, 778 (51.5%) were abnormal (≥0.6), indicting early tissue damage. A total of 319 (81.4%) patients had at least 1 abnormal SEM during the seven days. SEM delta variation was identified over the duration of measurement, but it was not statistically significant. There was no difference in mean SEM values between younger and older patients.

Conclusion: When interpreting SEM results, this research suggests clinicians and researchers do not need to consider the influence of factors such as age may have had on SEM delta values. But further exploration of time trends is required given the variation we found.

OP064 EXPLORING THE CORRELATION BETWEEN SUB-EPIDERMAL MOISTURE, EPIDERMAL HYDRATION, TEMPERATURE, PAIN AND ULTRASOUND, IN THE EARLY DETECTION OF PRESSURE ULCERS, WITHIN AN ACUTE PATIENT POPULATION

Hannah Wilson[1 2 3 4], Declan Patton[1 4 5 6 7], Aglecia Vitoriano[1], Fiona Boland[8], Ciaran McDonnell[3 9], Himanshu Rai[2 3 10], Zena Moore[1 4 5 6 11 12 13 14 15]

[1]Royal College of Surgeons in Ireland (RCSI), University of Medicine and Health Sciences, School of Nursing and Midwifery, Ireland; [2]Cardiovascular Research Institute Dublin (CVRI Dublin), Ireland; [3]Mater Private Network , Ireland; [4]Skin Wounds and Trauma (SWaT) Research Centre, Ireland; [5]Fakeeh College of Health Sciences, Saudi Arabia; [6]Griffith University, School of Nursing and Midwifery, Australia; [7]University of Wollongong, Faculty of Science, Medicine and Health, Australia; [8]Royal College of Surgeons in Ireland (RCSI), University of Medicine and Health Sciences, Data Science Centre, School of Population Health, Ireland; [9]Mater Misericordiae University Hospital, Ireland; [10]Royal College of Surgeons in Ireland, University of Medicine and Health Sciences, School of Pharmacy and Biomolecular sciences, Ireland; [11]Monash University, Faculty of Medicine, Nursing and Health Sciences, Australia; [12]Ghent University, Department of Public Health, Faculty of Medicine and Health Sciences, Belgium; [13]Lida Institute, China; [14]University of Wales, United Kingdom; [15]Menzies Health Institute Queensland, National Health and Medical Research Council Centre of Research Excellence in Wiser Wound Care, Australia

Aim: Pressure ulcers (PU) often originate from the deeper tissues, yet early detection is complex in the absence of a visible skin injury. This study explores the correlation between sub-epidermal moisture (SEM), epidermal hydration (EH), temperature, pain, and ultrasound, in the early detection of PUs.

Method: Using a prospective cohort design, participants scheduled for elective surgery were included following ethical approval and written informed consent. Baseline and three-day postoperative follow-up with daily assessments of the visual skin, SEM, EH, temperature, pain, and ultrasound were undertaken at the sacrum, both heels and control site. Correlation analysis was undertaken using Pearson (R) or Spearman's (R_s) methods.

Results / Discussion: A total of 60 participants were included with 33.3% (n=20) of participants recruited equally into a cardiothoracic, orthopaedic, or general surgery cohort. The mean age of participants was 58 years (SD: 13.46) and 50% (n=30) were male. A statistically significant low to moderately positive correlation was identified between SEM and ultrasound across all anatomical sites. No clear evidence of a correlation was observed between SEM, EH, and pain. Low positive and negative correlations existed across two days at the sacrum, indicating both higher and lower temperatures correlated with abnormal SEM delta values. However, temperature is highly variable, and interpretation is complex in absence of a threshold. The correlation pattern indicates that SEM and ultrasound agreed in the presence of injury, however SEM detected abnormalities before ultrasound.

Conclusion: In this study a correlation exists between SEM and ultrasound, providing further evidence to support that PUs originate from the deeper tissues and migrate towards the skin surface.

OP065 "I AM JUST TRYING TO LIVE A LIFE!" - A QUALITATIVE STUDY OF THE IMPACT OF PRESSURE ULCERS IN PEOPLE WITH SPINAL CORD INJURIES

Knaerke Soegaard[1]

[1]Odense University Hospital, Research Unit for Plastic Surgery, Odense C, Denmark

Aim: The aim is to explore the perspectives and experiences of people with spinal cord injury of having a pressure ulcer and going through treatment for pressure ulcer.

Method: A qualitative study with ten individual semi-structured in-depth interviews were conducted. We used a phenomenological-hermeneutic approach inspired by Ricoeur's theory of interpretation in the analysis of the verbatim-transcribed interviews.

Results / Discussion: We identified three themes:
1. Trying to balance between pressure ulcer prevention and an active, meaningful life
2. Challenges and consequences of pressure relief and bedrest
3. Incoherent pressure ulcer treatment and a lack of staff commitment and competencies.

Conclusion: People with spinal cord injuries experience an unnecessary prolonged treatment of pressure ulcer, causing re-hospitalisations and deteriorated wounds. Pressure relief and bedrest is a part of wound treatment and puts the active life on hold for months or even years, which is challenging and causes decreased quality of life for people with spinal cord injuries.

Improving pressure ulcer treatment for this group of people is essential and would benefit both people with spinal cord injuries, the healthcare system and the economy.

OP066 ACQUISITION, USE AND ALLOCATION OF PRESSURE REDISTRIBUTING MATTRESSES IN SOUTH WALES CARE HOMES

Michael Clark[1], Maureen Fallon[1], Kirsty Mahoney[1]

[1]*Welsh Wound Innovation Centre, Ynysmaerdy, United Kingdom*

Aim: This project explored both mattress acquisition and allocation across a cohort of Care Homes in South Wales to identify opportunities for improvements in how pressure-redistributing (PR) mattresses are procured and used in the private care sector.

Method: Two questionnaires were developed covering structural and process questions. All questionnaires were completed over October to December 2019. A random sample of 20% of the beds in each Care Home was developed to allow completion of the process questionnaire.

Results / Discussion: Twenty-three Care Homes completed the questionnaires with resident demographic information gathered for 195 residents including all who had established pressure ulcers (n=12; 6.1%). Multiple manufacturer's products were found in Care Homes with 12 using up to 4 products from different manufacturers. Almost 70% (16/23) made *ad hoc* purchases of pressure relieving mattresses. Only one Care Home had full-time maintenance staff to service mattresses. Thirteen Care Homes had no structured training on the correct use of PR mattresses. Over 60% of residents were at very high risk of developing pressure ulcers with only 7 not at risk.

Conclusion: Three areas for improvement of mattress acquisition and use were identified.

1. Increase staff training on the correct use of PR mattresses.
2. Develop maintenance contracts to ensure safe operation of PR mattress stocks.
3. Establish a national procurement framework for PR mattresses.

OP067 GLOBAL MANAGEMENT OF PRESSURE ULCERS IN OLDER OUTPATIENTS: A EUROPEAN STUDY ON HEALTH CARE PROVIDERS PRACTICE

Hester Colboc[1], Serge Bohbot[2]

[1]*Hospital Rothschild, France*; [2]*Laboratoires Urgo, Medical Affairs, Paris, France*

Aim: Pressure ulcers (PUs) in older patients is frequent, and its prevalence and management well known in hospitalized patients. However, it remains poorly described in outpatients. The aim of this study was to assess the proportion of outpatients with PUs among patients treated by health care providers (HCPs) as well as the management of these PUs in older patients.

Method: HCPs working in private practice across three European countries (UK, France and Germany) answered a two-part online survey. First part reported the proportion of patients with PUs managed by the HCP, and the second part collected data on the last 4 PUs managed by each HCPs.

Results / Discussion: 340 HCPs participated, following a mean number of 39 patients with PUs each, representing 14.7% of their patients. Information on 1043 older outpatients, mean age 83, with stage II (60%) and III (40%) PUs were collected. 55% of the patients were female, 68% had major to complete dependence and 46% incontinence. Only 14% were underweight. PUs were usually located on the sacrum (52%) and the heel (44%). Limited number of patients benefit from a pressure relief device, such as air mattress (37%). Only 12% of these patients required a hospitalisation for the management of the PUs.

Conclusion: We describe a large cohort of older outpatients with PUs as well as the management of these wounds by HCPs working in private practice. Our results highlight the frequency of this pathology, the limited access to pressure relief devices and to hospital cares.

FREE PAPER SESSION: QUALITY OF LIFE

OP070 IMPACT OF ADHESIVE FREE WOUND DRESSING SYSTEM ON PATIENT QUALITY OF LIFE AND DRESSING-RELATED PAIN IN HIDRADENITIS SUPPURATIVA PATIENTS: PILOT STUDY

Suzanne Moloney[1], Davood Roshan[2], David Fitzgerald[3], Georgina Gethin[4]

[1]University of Galway, Business and Innovation , Galway, Ireland; [2]University of Galway, School of Mathematical and Statistical Sciences, Galway, Ireland; [3]Salford Royal Hospital, Salford, United Kingdom; [4]University of Galway, School of Nursing and Midwifery, Galway, Ireland

Aim: To investigate the impact of a novel wound care device on quality of life, pain, comfort, ease of use, time for dressing change in people with Hidradenitis suppurativa (HS).

Method: A 21-day single-arm, unblinded, pilot study. Participants were female, >18 years with HS affecting the axilla. A 7-item questionnaire and The Dermatology Quality of Life of Life Index (DLQI) questionnaire was completed on day at baseline and day 21.

Results: The mean DLQI score reduced from 19.3 to 4.53 (95%CI:12.1–17.5; p<0.001)

Dressing-related pain reduced, from 5.53 to 0.8 (95% CI: 3.6–5.9; p<0.001)

Patients reported the intervention being more comfortable than traditional dressings. Mean baseline score 8.1 (10=extremely uncomfortable), to 1.0 on day 21 (95% CI: 6.0–8.2; p<0.001)

The intervention was found to be easier to apply, adjust and remove than traditional dressings, with a 6.5 (10 being 'very difficult') at baseline to 0.6 (95% CI: 4.6–7.1; p<0.001)

Patients were found to have higher confidence in the trial dressing system's ability to retain exudate and remain securely in place (95% CI: 5.9–8.5; p<0.001)

Time tending to wounds, reduced from 6.9 (10 being 'very time-consuming') to 0.7 (95% CI: 5.2–7.4; p<0.001)

Conclusion: The improvement made to patients' day to day activities and quality of life when effective HS specific wound care products are provided was notable and warrants more robust evaluation in future randomised controlled trials.

*HidraWear is an adhesive free wound care system designed to treat difficult to dress areas of the body.

OP071 IMPACT OF PHYSIOTHERAPY ON PREVENTION OF DISABILITIES IN CHRONIC WOUNDS MANAGEMENT AT THE URBAN HEALTH AREA OF AKONOLINGA

Aaron Mbom[1], Dimitri Avougmo[2], Michel Ekoto[3], Eric Comte[4], Hubert Vuagnat[5], Armel Tasségning[6]

[1]ISSTAS Yaoundé , Physiotherapy, Yaounde, Cameroon; [2]District Hospital of Akonolinga , Physiotherapy, Akonolinga, Cameroon; [3]Association des Victimes de Plaies Chroniques en Afrique, Akonolinga , Cameroon; [4]Geneva University Hospital, GHF, Geneva, Switzerland; [5]Geneva University Hospital , Plaies et Cicatrisation, Geneva , Switzerland; [6]Centre International de Recherches, d'enseignements et de Soins, Health Promotion/Physiotherapy, Akonolinga, Cameroon

Aim: Chronic wounds are a real public health issue in low resource countries. They lead to high costs, multiple complications, affect participation, and quality of life. We aimed at assessing the physiotherapy impact on functional status and quality of life in people with healed chronic wounds.

Method: An analytical, transversal, non-experimental study, carried out in 2021, including 30 former chronic wounds patients healed in the past 5 years were recruited by simple random sampling. Standard WHODAS 2.0 and the WHOQoL-BREF assessment tools were used.

Results / Discussion: 57.14 % had a Buruli Ulcer diagnosis; wounds were on lower limbs in 83.33 %; 73.33 % choose Traditional Healers/family members/self-treatments as first referral. 70 % healed at hospital (among them, 52.38 % received physiotherapy management).

Prevalence of physical sequalae was lower in those who received physiotherapy compared to those without physiotherapy (54.55%; 6/11) versus 90% (9/10).

WHODAS 2.0 score was lower (low functional impact) in the physiotherapy (17.19 ± 6.99) and hospital care (21 ± 8.94) group compared to those without those treatments (respectively 25.3 ± 9.20 and 25.67 ± 8.79).

WHOQoL-BREF scores were significantly (P<0.05) greater for those who receives rehabilitation [Physical (85 ± 8.13); Psychological (75.55 ± 10.21); Social (79 ± 19.95); Environment (71.64 ± 7.95)] than the others [Physical (66.6 ± 22.21); Psychological (55.7 ± 23.55); Social (60.7 ± 25.89); Environment (53.2 ± 20.24)].

Conclusion: Physiotherapy interventions reduce the prevalence of sequelae, improves quality of life, and may reduce the functional impact of chronic wounds.

OP072 IDENTIFYING DISEASE-SPECIFIC DISTRESS IN ADULTS WITH VENOUS LEG ULCERS

Christina Parker[1 2], Jane O'Brien[3], Kathleen Finlayson[1 2], Mary Fenech[1], Ut Bui[1 2]

[1]Queensland University of Technology, Faculty of Health, School of Nursing, Kelvin Grove, Australia; [2]Centre for Healthcare Transformation, Queensland University of Technology, Kelvin Grove, Australia; [3]University of Tasmania, College of Health and Medicine, School of Nursing, Newnham, Australia

Aim: The study aimed to inform the development of a distress scale (by building on previous validation of distress themes) for people with venous leg ulcers (VLUs) involving consumers using cognitive interviews. Distinct from depression and anxiety, distress is the experience of feeling overwhelmed by the demands of living with and managing a chronic disease[1].

Method: Previous studies resulted in themes of distress (emotional distress; healthcare-related distress; interpersonal/social distress; treatment-related distress; and symptom-related distress). A modified Delphi survey of health professionals caring for people with VLUs confirmed the distress phases and items within. This phase of the development of the survey included a convenience sample of ten people with or who had had a VLU to participate in cognitive interviews. Cognitive interviewing involved the researcher asking consumers to think out loud with the incorporation of verbal probing to evaluate whether they understood and processed the questions as intended by the developers.

Results / Discussion: Cognitive interviews confirmed face validity and content validity of the five VLU-distress themes. Minor changes were made to the survey items after the cognitive interviews with the final draft survey determined.

Conclusion: Disease-specific distress in VLU has been identified and is distinct from anxiety and depression and development of a new VLU-distress scale is warranted. Further test-retest analysis will need to occur to finalise a distress survey.

[1]Dibley, L et al. (2018). Development and Psychometric Properties of the Inflammatory Bowel Disease Distress Scale (IBD-DS): A New Tool to Measure Disease-Specific Distress. Inflammatory bowel diseases. doi:10.1093/ibd/izy108

OP073 PATIENT PERSPECTIVE: HOW FLUORESCENCE IMAGING OF CHRONIC WOUND BACTERIA SUPPORTS PATIENT ADHERENCE AND EMPOWERMENT

Charles Andersen[1], Katherine McLeod[1], Rowena Steffan[1], Monique Rennie[2]

[1]Madigan Army Medical Center, Vascular/Endovascular/Limb Preservation Surgery Service, Joint Base Lewis-McChord, United States; [2]MolecuLight, Inc., Toronto, Canada

Aim: Treatment adherence and patient empowerment are fundamental in the path towards healing chronic wounds. No matter how judiciously clinicians cleanse or debride, self-hygiene and at-home preventative measures are essential for success. Clinical trials show that fluorescence (FL) imaging* for bacterial "hot-spots" can improve treatment planning and outcomes. Anecdotally, FL-imaging has improved patients' understanding of their wound-status and treatment, thereby engaging and encouraging them on their wound care journey. This pilot survey captures quantifiable data regarding patient perception of FL-imaging.

Method: A 10-item questionnaire was completed by 19 outpatients attending a hospital-based US wound clinic for DFU, VLU, surgical, or trauma wound care. Inspired by validated quality-of-care tools, the questionnaire was designed to assess patients' impressions, feelings, and impact on well-being owing to point-of-care FL-imaging. Responses spanned the 5-point scale from strongly agree to strongly disagree.

Results / Discussion: *Education:* all respondents agreed/strongly agreed that FL-imaging helped them better understand their wounds' status and the purpose behind their treatments (e.g. tissue removal, antibiotics). *Adherence:* most respondents (76%) agreed/strongly agreed that they were more likely to carry out at-home care plans and return for future appointments when FL-imaging was used during their wound care visits. *Empowerment:* nearly all respondents agreed/strongly agreed that FL-imaging improved their wounds' status (93%) and most reported that FL-imaging led to a greater sense of hope, lessened anxiety, and greater trust in their wound care provider.

Conclusion: Overall, FL-imaging enhanced patient perception of care. These results suggest a role for FL-imaging in patient education, adherence, and empowerment efforts.

*MolecuLight i:X & D:X®

FREE PAPER SESSION: BASIC SCIENCE 2

OP074 IN VIVO MONITORING OF INFLAMMATORY MEDIATORS DURING WOUND HEALING PROGRESSION USING DERMAL OPEN FLOW MICROPERFUSION

Elisabeth Hofmann[1 2], Anna-Lisa Pignet[1 2], Anna Schwarz[1 2], Andrzej Hecker[1 2], Marlies Schellnegger[1], Julia Fink[1], Anita Eberl[3], Reingard Raml[3], Thomas Birngruber[3], Lars-Peter Kamolz[1 4], Petra Kotzbeck[1 2]

[1]Joanneum Research Forschungsgesellschaft mbH, COREMED - Centre for Regenerative Medicine and Precision Medicine, Graz, Austria; [2]Medical University of Graz, Research Unit for Tissue Regeneration, Repair and Reconstruction, Division of Plastic, Aesthetic and Reconstructive Surgery, Department of Surgery, Medical University of Graz, Graz, Austria, Graz, Austria; [3]Joanneum Research Forschungsgesellschaft mbH, HEALTH – Institute for Biomedicine and Health Sciences, Graz, Austria; [4]Medical University of Graz, Division of Plastic, Aesthetic and Reconstructive Surgery, Department of Surgery, Medical University of Graz, Graz, Austria, Graz, Austria

Aim: Inflammatory reactions are essential for wound healing and a physiological response to injuries. Excessive inflammation delays the transition to the proliferation phase, thus representing one key aspect in the development of wound healing disorders. Here, we monitored inflammatory responses in physiological and delayed wound healing.

Method: Gene expression and dermal interstitial fluid (dISF) abundance of inflammatory and regeneration factors were monitored in superficial wounds of different healing stages in pigs. Inflammation was induced in some wounds by using resiquimod, a TLR7/8 agonist, to prolong the inflammatory phase for up to 6 days after wounding.

Results / Discussion: During physiological wound healing, pro-inflammatory cytokines (IL6, CXCL8) and prostaglandin E2 showed a peak of abundance in the dISF on day 2 after wounding and declined back to baseline on day 6. Wounds induced with resiquimod for 6 days showed only 20% healing rate as compared to 75% in control wounds. Further, resiquimod induction significantly increased gene expression, production as well as secretion of pro-inflammatory factors (IL6, CXCL8, PGE2). Gene expression levels of regeneration markers such as TGFB1 and HIF1A were also upregulated in inflamed wounds. Histological analysis demonstrated decreased re-epithelization in resiquimod induced wounds, but increased infiltration of immune cells. Resiquimod induction led to a sustained inflammatory response until at least day 6 post wounding.

Conclusion: This study gave insight into the time and location dependent expression, production and secretion of relevant cytokines, growth factors and markers of tissue regeneration in the context of physiological as well as delayed wound healing.

OP075 EFFICACY OF CORD LINING MESENCHYMAL STEM CELLS IN CUTANEOUS WOUND HEALING

Fui Ping Lim[1 2], Wen Choong Alvin Chua[3], Toan Thang Phan[1]

[1]Yong Loo Lin School of Medicine, Singapore, Singapore; [2]Alice Lee Centre for Nursing Studies, Singapore, Singapore; [3]Singapore General Hopsital, Singapore, Singapore

Aim: The aim of this study is to investigate the effect of Cord Lining Mesenchymal Stem Cells (CL-MSCs) in accelerating the healing of diabetic wounds.

Method: We utilised twenty-five db/db mice and created two excisional wounds (10 mm x 10 mm) onto the dorsal aspect of each mouse. In addition, we used six hyperglycemic-induced pigs, and created six full thickness dermal wound (5 cm x 5 cm) onto the dorsal aspect of each pig. All animals were randomly divided into three arms; with CL-MSCs delivered through either (i) topical route, or (ii) intraperitoneal (IP) route, while sham media were administered for (iii) control group.

Results / Discussion: Treated animals in both mice and pig models showed significant wound healing advancement when compared with the control counterpart, and the superiority is seen as early as POD 7 for mice ($p < 0.001$); while topical treated pigs demonstrated advancement from POD 14 ($p=0.019$) and IP treated pigs showed significant advancement from POD 21 ($p=0.006$). It is shown that CL-MSCs formed collagen fibres that are larger in diameter in both topical treated pigs ($p<0.001$) and IP treated pigs ($p=0.006$). Further, the anti-inflammatory marker IL-10 and IL-1ra were intensified at crucial time points (POD 7, POD 14, POD 21, POD 28), which corresponded with a lower intensity level of proinflammatory TNF-α in treated animals.

Conclusion: CL-MSCs accelerated wound healing in both diabetic (db/db) mice and hyperglycemic pigs. It also enhanced tissue structure to be architecturally more stable with collagen fibres that are larger in diameter. The ability to modulate inflammatory cells and regulate the immune responses might be key contributors to this process.

OP076 LOCAL LOW-FREQUENCY VIBRATION SUPPRESSED CELLULAR SENESCENCE IN KERATINOCYTES AND FIBROBLASTS

Chihiro Takizawa[1], Daijiro Haba[1], Qi Qin[1], Sanai Tomida[1], Gojiro Nakagami[1 2]

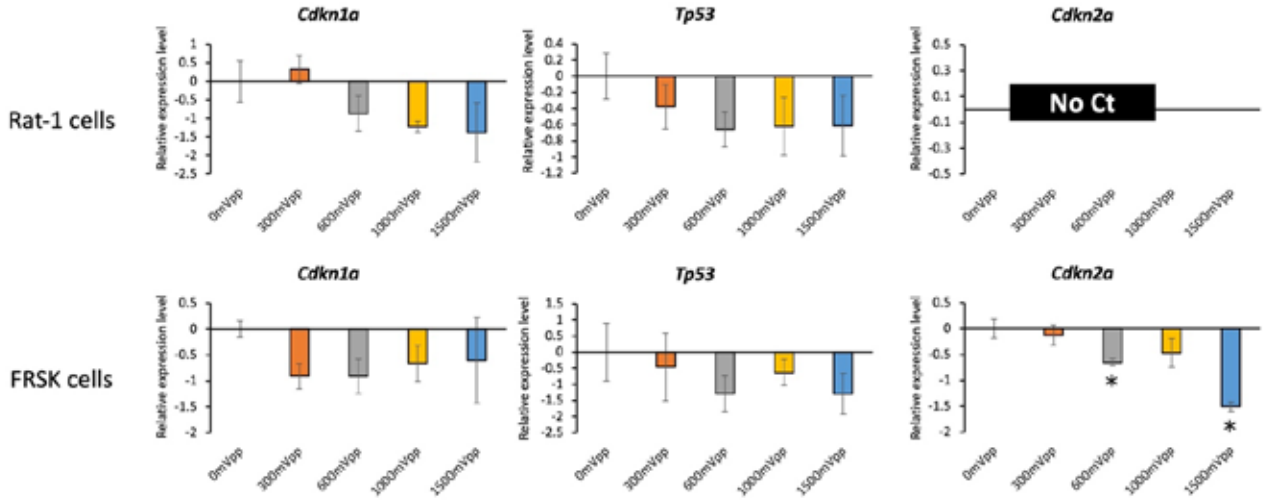
[1]Department of Gerontological Nursing/Wound Care Management, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan; *[2]Global Nursing Research Center, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan*

Aim: Cellular senescence causes hard-to-heal wounds with glycometabolism disorder. Recently, we reported that local low-frequency vibration (LLFV) promotes wound healing in diabetic rats with enhanced vasodilation and angiogenesis and suppressed inflammation as well as improved glycometabolism (Haba et al., 2022). Since glycometabolism disorder is related to cellular senescence and LLFV is easily transmitted to adherent cells, we hypothesized that LLFV could suppress cellular senescence in adherent cells along with improving glycometabolism. This study investigated the effect of LLFV on glycometabolism and cellular senescence in senescent keratinocytes and fibroblasts.

Method: Fetal rat skin keratinocyte cell lines (FRSK) at passage 43 and rat fibroblast-like cell lines (Rat-1) at passage 41 were used. LLFV was applied to the cells at 50 Hz for 40 min/day for five days by various intensities (0, 300, 600, 1000, or 1500 mVpp). We investigated the effect of LLFV on the gene expressions related to cellular senescence and 2-deoxyglucose (2-DG) uptake.

Results / Discussion: In FRSK cells, Cdkn1a (p21) and Tp53 (p53) tended to decrease and Cdkn2a (p16) expression was significantly downregulated. In Rat-1 cells, Cdkn1a (p21) and Tp53 (p53) tended to decrease but Cdkn2a (p16) was not expressed. 2-DG uptake was significantly increased by vibration at 1500 mVpp in Rat-1 cells. These results suggested that LLFV affected both p53/p21 and p16/RB pathways in FRSK cells and only p53/p21 pathway in Rat-1 cells with the improvement of glycometabolism.

Conclusion: LLFV suppressed the gene expressions related to cellular senescence in keratinocytes and fibroblasts.



OP077 EFFECTS OF FULL-THICKNESS ARTIFICIAL SKIN USING EPIDERMAL KERATINOCYTES AND EXTRACELLULAR MATRIX ON WOUND HEALING

Kyung-Chul Moon[1]

[1]Korea University Guro Hospital, Plastic Surgery, Seoul, Korea, Rep. of South

Aim: The purpose of this in vivo study was to report the efficacy and safety of a full-thickness artificial skin for wound healing.

Method: Forty-eight wounds on six pigs were created and randomly divided into the full-thickness artificial skin (n=16), artificial dermis (n=16), and control group (n=16). Full-thickness artificial skin with keratinocytes and ECM, artificial dermis composed of collagen were applied on wounds and traditional wet dressing were applied in the control group. We evaluated the efficacy of the full-thickness artificial dermis by assessing wound healing time. In the first and the second week after application, tissues on wounds were harvested and the histopathologic evaluation were compared. All possible adverse events were also recorded.

Results / Discussion: The wound reduction rate at 1 week post-treatment was 72.5±14.9% in the full-thickness artificial skin group, 56.8±19.1% in the artificial dermis group, and 7.1±6.3% in the control group. Complete wound healing was achieved after 2 weeks in 16 out of 16 wounds (100%) in the full-thickness artificial skin group, 13 out of 16 wounds (81%) in the artificial dermis group, and 9 out of 16 wounds (56%) in the control group. No serious adverse events related to full-thickness artificial skin were observed.

Cell therapy using epidermal keratinocytes and extracellular matrix (ECM) may hold great promise for treating diabetic wounds. Recent advancements in technology have led to the full-thickness artificial skin with epidermal keratinocytes layer on top of the three-dimensional printing of ECM.

Conclusion: These results demonstrate that full-thickness artificial skin using epidermal keratinocytes and ECM are superior to artificial dermis in terms of their effect on wound healing *in vivo*.

OP078 RADWOUNDS: EVALUATION OF THE DOSIMETRIC IMPACT OF DRESSINGS USED IN RADIOTHERAPY TREATMENT

Marisa Matos[1], Joana Lencart[1], Paulo Alves[2], Pedro Dias[1], João Santos[1], Jorge Freitas[1]

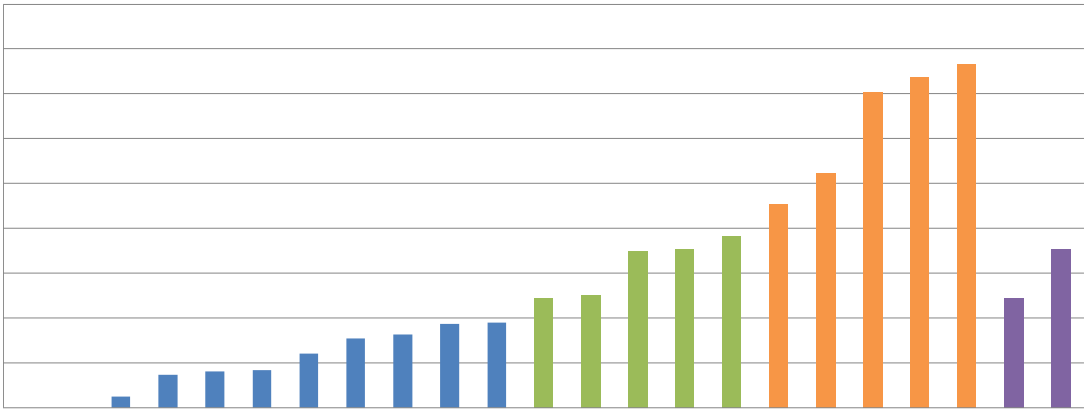
[1]Ipo, Radiotherapy, Porto, Portugal; [2]Instituto de Ciências da Saúde - Escola de Enfermagem | Universidade Católica Portuguesa, Porto, Portugal

Aim: The presence of any material on the patient's skin during irradiation can increase the dose on the skin (bolus effect). The aim of this study was to evaluate in which cases the increase dose caused by using dressings during the treatment is negligible, acceptable, or even favorable to treatment.

Method: 14 different materials were selected, including emollients, foams, alginates, hydrofibers and silicones, evaluated alone or in combinations usually used in the department. Dosimetry was evaluated in the original dressing, as well as saturated with saline (if applicable), to simulate saturation with exudate. Radiosensitive films were used to evaluate the increase dose to 1mm depth, caused by the introduction of those products on the surface of an equivalent soft tissue material, during irradiation with a beam of 6MV photons.

Results / Discussion: Of the 21 products/combinations evaluated, the increase dose at 1mm depth was: less than 20% in 11 cases; between 21% and 40% in 5 and between 41% and 80% in the rest. The results were compared with the increased dose resulting from the use of immobilization masks in RTE, which can differ between 30% and 90% (fig.1).

The materials that absorbed most were those saturated with saline solution. It was found that the addition of several materials can significantly influence the dose distribution and the amount of exudate absorbed can significantly change the result.



Conclusion: Depending on disease and fractionation of RTE, it may be considered beneficial the use of some evaluated dressings during irradiation due to patient comfort, treatment results and reducing toxicity.

EWMA RESEARCH GRANT SESSION

OP079 FRAILTY IN OLDER ADULTS WITH CHRONIC LEG ULCERS AND ITS ASSOCIATION WITH DIABETES: THE UNFOLD STUDY

Sezgin[1], Aideen McElvaney[1], Marion Cahill-Collins[1 2], Burcu Duluklu[3], Aaron Liew[4 5], Georgina Gethin[1]

[1]University of Galway, School of Nursing and Midwifery, Galway, Ireland; *[2]University Hospital Galway, Galway, Ireland*; *[3]Hacettepe Üniversitesi* Sıhhıye Kampüsü, Faculty of Nursing, Surgical Diseases Nursing , Turkey; *[4]Portiuncula University Hospital, Ballinasloe, Ireland*; *[5]University of Galway, Clinical Sciences Institute, Galway, Ireland*

Aim: To identify frailty in older adults with chronic leg ulcers and its association with diabetes.

Method: Data was collected from three clinics in Ireland. There were three participant groups, those: 1- with diabetes and a chronic leg ulcer (CLU); 2- without diabetes but with a CLU; 3- with diabetes but no CLU (reference group). A convenience sampling method targeted community-dwellers aged 65 and over who are able to walk, have had a CLU in the past 6 months (currently open or not), and belong to one of the three groups. Frailty status was identified using the Groningen Frailty Indicator (GFI) and Fried Frailty Phenotype (FFP).

Results: The pilot study results include data from 57 (25 female, 32 male) participants (mean age 77.3±6.9). Of these, 21 had a CLU (11 were currently open; wound duration: 8 weeks-40 years), 45 had diabetes (mean duration: 11.9±10.2 years). According to GFI, 80.7% of participants (n=46) were frail. The FFP identified 26.3% (n=15) frail and 59.6% (n=34) as pre-frail. Of those with CLU-only (no diabetes), 91.7% were frail according to GFI, and all were either frail or pre-frail according to FFP. There was no significant association between frailty and having both diabetes and a CLU ($p>0.05$) compared to having either diabetes or a CLU. When the diabetes-only and CLU-only groups were compared, the frailty status was not significantly different ($p>0.05$) for either frailty identification tool.

Conclusion: CLUs are associated with frailty; however, no significant difference was found in the frailty rates of participants with CLUs and diabetes, compared to those with only CLU or diabetes. This needs further investigation with a larger sample size.

OP080 PATIENT EXPERIENCES OF, AND PREFERENCES FOR, SURGICAL WOUND CARE EDUCATION

Georgia Tobiano[1], Rachel Walker[1], Wendy Chaboyer[1], Joan Carlini[1], Louise Webber[2], Sharon Latimer[1], Evelyn Kang[1], Anne Eskes[3], Tom O'Connor[4], Debra Perger[1], Brigid Gillespie[1]

[1]Griffith University, Centre of Research Excellence in Wiser Wound Care, Parklands, Australia; *[2]Wound Therapies, Wound Therapies, Sunshine Coast*; *[3]University of Amsterdam, Department of Surgery, Amsterdam*; *[4]Royal College of Surgeons in Ireland (RCSI) University of Medicine and Health Sciences, Skin Wounds and Trauma (SWaT) Research Centre, Ireland*

Aim: The aim of this study was to describe patients' experiences of, and preferences for, surgical wound care education and how these experiences predicted their ability to self-manage their surgical wound.

Method: Across two Australian hospitals, 270 patients completed a telephone survey 2-weeks after hospital discharge. The survey was co-developed with consumers, clinicians and academics. Descriptive statistics and logistic regression were used for analysis.

Results / Discussion: Most patients experienced receiving information about follow-up appointments (n=242, 89.6%) and who to contact in the community with wound care concerns (n=233, 86.6%), which was provided verbally, with opportunities for questions. Patients preferred verbal (n=255, 94.8%) and written wound education (n=178, 66.2%) from medical (n=229, 85.4%) and nursing staff (n=211, 78.7%) at discharge. Patients shared their experiences of participation; most patients (n=227; 84.4%) reported that medical and nursing staff discussed surgical wound related pain management options and 107 (40.1%) were invited to participate in wound care decision-making.

Using logistic regression, patients who perceived that they participated in surgical wound care decisions were 6.5 times more likely to state they were able to manage their wound at home. Also, patients who agreed that medical staff and/or nursing staff discussed wound pain management were 3.1 times more likely to report being able to manage their surgical wound at home.

Conclusion: These results uncovered patient preferences, which could be used to optimise discharge education practices. We found that patient participation in hospital could increase patient ability to manage their surgical wound once home. Increasing patient participation could provide a new avenue for enhancing hospital discharge education.

FREE PAPER SESSION: LEG ULCERS

OP081 PHYSICAL ACTIVITY LEVEL OF PATIENTS WITH CHRONIC VENOUS LEG ULCER

Cornelia Erfurt-Berge[1], Michael Siegling[1]

[1]Uniklinikum Erlangen, Hautklinik, Erlangen, Germany

Aim: Patients with chronic wounds are known to be severely restricted in their everyday lives. The extent to which the wound leads to a limitation in mobility and the level to which the activity of the patients is restricted has not yet been sufficiently investigated. With digital solutions, we aimed to analyse daily mobility, physical fitness and sleep quality.

Method: At a tertiary Wound Centre, 25 patients with venous leg ulcers were recruited for a comparative observational study. As a control group, 25 healthy volunteers were examined in an age- and gender-adapted manner. Participants with pre-existing physical immobility or mental illnesses were excluded. Questionnaires and tests as the Esslinger Transfer Scale and the Short Physical Performance Battery were used to collect data on the participant's daily activity, sleep and pain as well as physical capacity. In a digital, continuous recording of various health values by a smartwatch in the daily life of the test person further detailed findings were collected.

Results / Discussion: Significant differences between the two groups are observed. The average number of steps per day in the healthy group (n=6537) is significantly higher than in the wound group (n=4253). Specific mobility is also different in both groups. The mean sleep duration in the ulcer group is shorter than in the comparison group. There are higher pain scores for the ulcer group, especially during exercise (NRS 5.3/10).

Conclusion: The multimodal collection of mobility-relevant health data from persons with and without venous leg ulcers showed significant differences between both groups. Digital options offer the possibility of developing both preventive and interventional concepts that allow improved patient-adapted physical therapy.

OP082 A META-REVIEW OF THE IMPACT OF COMPRESSION THERAPY ON VENOUS LEG ULCER HEALING

Declan Patton[1], Pinar Avsar[1], Aicha Sayah[1], Aglécia Budri[1], Tom O'Connor[1], Simone Walsh[1], Linda Nugent[1], Denis Harkin[1], Niall O`Brien[1], Jonathan Cayce[2], Michael Corcoran[2], Mario Gaztambide[3], Zena Moore[1]

[1]Royal College of Surgeons in Ireland, Ireland; 2DeRoyal Industries, New Tazewell, United States; [3]DeRoyal International, Dublin, Ireland

Aim: To appraise and synthesise findings from existing systematic reviews that measured the impact of compression therapy on venous leg ulcers (VLU) healing.

Method: We searched five databases to identify potential papers; three authors extracted data, and a fourth author adjudicated the findings. The AMSTAR-2 tool was used for quality appraisal and the certainty of the evidence was appraised using GRADEpro. Data analysis was undertaken using RevMan.

Results / Discussion: We identified 12 systematic reviews published between 1997 and 2021. AMSTAR-2 assessment identified three as high quality, five as moderate quality, and four as low-quality. Seven comparisons were reported, with a meta analysis undertaken for 5 of these comparisons: compression versus no compression (Risk Ratio [RR]: 1.55; 95% Confidence Interval [CI] 1.34-1.78; p<0.00001; moderate-certainty evidence); elastic compression versus inelastic compression (RR: 1.02; 95% CI: 0.96-1.08; p<0.61 moderate-certainty evidence); 4 layer versus <4 layer bandage systems (RR: 1.07; 95% CI: 0.82-1.40; p<0.63; moderate-certainty evidence); comparison between different 4 layer bandage systems (RR: 1.08; 95% CI: 0.93-1.25; p=0.34; moderate-certainty evidence); compression bandage versus compression stocking (RR 0.95; 95% CI 0.87-1.03; p=0.18; moderate-certainty evidence).

Conclusion: The main conclusion from this review is that there is a statistically significant difference in healing rates when compression is used compared to no compression, with moderate certainty evidence. Otherwise, there is no statistically different difference in healing rates using elastic compression versus inelastic compression, 4 layer versus <4 layer bandage systems, different 4 layer bandage systems, or compression bandages versus compression stockings.

OP084 ASSESSMENT OF REGENERATIVE THERAPY IN HEALING OF VARIOUS OPEN WOUNDS

Mahmoud Sakr[1], Hossam Hamed[2], Hesham El-Torky[2], Xiang-ning Wang[3], Zi-jun Fu[4]

[1]Alexandria University, Department of Surgery, Faculty of Medicine, Egypt; *[2]Ahmadi Hospital, Surgical Division, Kuwait*; *[3]Yan'an People's Hospital, Burn and Plastic Department*; *[4]Yan'an People's Hospital, Burn and Plastic Department, China*

Aim: To assess efficacy and safety of regenerative therapy in healing of various open wounds.

Method: Consecutive patients (n=276) with various open wounds (n=376) treated at 3 hospitals, were randomized to receive either regenerative therapy (Group 1, n=141) or saline dressing (Group 2 controls, n=135). Data collected prospectively included demographics, clinical, biochemical and wound characteristics. Surface area (SA) and healing index (HI) were calculated and compared at two-week intervals for 12 weeks, and secondary amputations were recorded at 12 months post-treatment.

Results / Discussion: There was a significant increase in HI and reduction in SA starting two weeks after initiation of treatment with regenerative therapy. At 12 weeks, 66.3% (126/190) of wounds treated with regenerative therapy had complete healing as opposed to 22.6% (42/186) of those treated with saline (X^2=70.98, p<0.0001). None of the 190 patients receiving regenerative therapy had a HI of <0.5 at 12 weeks as compared to 38.7% (72/186) of controls (X^2=88.48, p<0.0001 – Fisher's exact probability=0.0000). No adverse effects were encountered. At 12-weeks post-treatment, the secondary amputation rate in patients with diabetic foot ulcers was significantly reduced by regenerative therapy as compared to controls (4.34% [2/46] versus 18.6%% [8/43], respectively) (X^2=3.21, p=0.0732 – Fisher's exact probability=0.045).

Conclusion: In addition to its safety, regenerative therapy promotes healing of open wounds with significant increase in HI and reduction of SA, starting two weeks post-treatment, with complete healing of approximately two-thirds of wounds by 12 weeks. At 12 months post-treatment, fewer secondary amputations were performed in patients treated with regenerative therapy than controls.

OP085 MAKE OMEGA-3-RICH FISH SKIN GRAFTS THE DIFFERENCE IN THE NON-HEALING DIABETIC FOOT? A SINGEL CENTER STUDY

Tigla Alexandru[1]

[1]Innklinikum Altötting, Vascular Surgery, Altötting, Germany

Aim: Ulcers are common complications of diabetes. Non-healing wounds often lead to a high risk of amputation. The aim was to make a retrospective analysis of patients, 2021 and 2021, with chronic wounds who failed to heal despite surgical debridement and regular dressings. However, partial closure of the wound was enforced by Omega-3-rich fish skin grafts.

Method: The study population included 12 patients. 9 men and 3 women were found. All patients had a diabetic foot. Non-healing wounds after minor amputation with exposed bone and tendons were covered with fish skin.

Results / Discussion: All patients had an ABI greater than 0.7 at fish skin application time. Vacuum therapy was applied over the fish skin for 5 days, after that for the next weeks were applicate regular dressings. Bone coverage was observed in 78% in 4 weeks. We achieved total wound closure in 12 weeks in 67%. At 90% we reduced significant the wound area.

Conclusion: This retrospective study shows that fish skin can be a successful alternative at least to reduce wounds in diabetic foot. It shows that bone coverage can be achieved in 4 weeks.

OP086 PREDILECTION SITES AND COMORBIDITIES OF PYODERMA GANGRENOSUM: RESULTS OF A BICENTER STUDY OF 170 PATIENTS

Maurice Moelleken[1], Cornelia Erfurt-Berge[2], Moritz Ronicke[2], Dorothee Busch[2], Ursula Hertha Hübner[3], Jens Hüsers[3], Mareike Przysucha[3], Joachim Dissemond[1]

[1]University Hospital of Essen, Dermatology, Venerology and Allergology, Essen, Germany; [2]University Hospital Erlangen, Dermatology, Germany; [3]Osnabrück University of AS, Health Informatics Research Group, Germany

Aim: Pyoderma gangrenosum (PG) can nowadays be reliably diagnosed with the validated PARACELSUS score. Based on this score, patients with clearly diagnosed PG should be evaluated with regard to the disease characteristics.

Method: In this study, data of patients from the University Hospitals of Essen and Erlangen from the last 20 years were retrospectively analysed, in which the diagnosis PG could be clearly confirmed with the help of the PARACELSUS score.

Results / Discussion: A total of 170 patients, 49 men (29%) and 121 women (71%) could be included in this analysis. The mean age at first manifestation was 55 years. The predilection sites were identified as the lower legs in 80.6% of the patients and here the extensor sides in 75.2%. Recurrences were seen in 28.8% of the patients, 38.8% in the same and 73.5% in another site. A pathergy phenomenon could be elicited in 42.4% of the patients, 23.6% due to insect bites and 80.6% due to trauma/surgery. Associated systemic diseases were 18.0% inflammatory bowel disease (11.0% Crohn's disease, 7.0% ulcerative colitis), 17.0% neoplasia (13.0% solid tumors, 4.0% hemato-oncologic diseases), 9.0% inflammatory dermatoses (5.0% psoriasis vulgaris, 4.0% hidradenitis suppurativa), and 7.0% rheumatoid arthritis.

Conclusion: In this retrospective study, a collective of PG patients is analysed for the first time by means of PARACELSUS score with a high data quality regarding the correctly made diagnosis. It could be shown that especially the anterior sides of the lower sides are the predilection sites for PG. In addition, PG often arises from pathergy phenomena and associated systemic diseases often necessitate interdisciplinary treatment concepts.

FREE PAPER SESSION: DRESSINGS

OP087 ANTIMICROBIAL TESTING OF WOUND DRESSINGS USING A STANDARDIZED WOUND INFECTION MODEL

Sarah Fink[1], Diana Mogrovejo[2], Vanessa Wiencke[2], Thomas Eberlein[3], Florian H. H. Brill[2], Cornelia Wiegand[1]

[1]University Hospital Jena, Department of Dermatology, Jena, Germany; [2]Dr. Brill + Partner GmbH, Institute for Hygiene and Microbiology, Hamburg, Germany; [3]WCC Wound Competence Centre, Linz, Austria

Aim: Wounds of elderly patients or those with poor nutritional status, comorbidities, etc., are more susceptible to bacterial infection delaying healing. S.aureus and P.aeruginosa are the most prevalent species occurring in patients with infected wounds. Consequently, prevention and treatment of wound infections play an important role in wound management. Here, a new 3D-skin-wound-model with S.aureus or P.aeruginosa infection was used to investigate the antimicrobial efficacy of antimicrobial dressings.

Method: 3D-full-skin-models were prepared and wounded by 3-mm-biopsy-punch. Subsequently, they were infected with S.aureus or P.aeruginosa. Afterwards, wounds were treated with antimicrobial dressings. Microbial burden was determined by cfu-count and fluorescence imaging. Cytokine secretion was quantified by specific ELISA. Moreover, histological specimen were prepared and examined after staining with haematoxylin and eosin.

Results / Discussion: Without treatment, infected skin wound models showed extensive tissue damage and bacterial invasion. While S.aureus was mainly confined to the wound margins, P.aeruginosa spread throughout the model. Infection caused time dependent cytokine increase and inflammatory marker release. Antimicrobial treatment led to a significant reduction of S.aureus and to a lesser extent of P.aeruginosa improving the wound situation.

Conclusion: A wound infection model for evaluation of antimicrobial dressings was developed. The model is easy to standardize, featuring a uniform wound size and wound depth. Bacterial infection led to secretion of inflammatory markers and was visible as tissue destruction in the histological specimen. Using this model, differences of antimicrobial dressings against S.aureus and P.aeruginosa infections in a wound situation were demonstrated. Hence, this model provides a valuable, application-oriented tool for testing of antimicrobial dressings.

OP088 IN VIVO PRESSURE PROFILE UNDER A SIMPLE AND DOUBLE LAYER FLAT KNIT AND CIRCULAR KNIT ELASTIC STOCKINGS ON HEALTHY VOLUNTEERS

Jean-Paul Belgrado[1]

[1]*Université Libre de Bruxelles, ULB, Lymphology Research and Rehabilitation Unit, Brussels, Belgium*

Background: It is thought that flat knit garments are more rigid than circular and have a better massage effect when moving.

There are no known publication demonstrating that in vivo double layering of compression, doubles the pressure. Clarification is essential to evidence practice and appropriate guidelines.

Aim: The aim was to measure and compare, the interface pressure profile under one and two layers of flat and circular knit customised class 2 compression stockings, in healthy volunteers and measure

the effect of double layering of compression stockings.

Method: A Bluetooth, wireless thin pneumatic pressure sensors was fixed on the position C1 in 10 healthy volunteers. Pressure was recorded in real time, throughout the experiment.

Measurements were taken in static and dynamic conditions for one and two layer, customised flat knit and circular knit elastic stockings. A titling table ensured static conditions.

Subjects were monitored static in three positions, in tip-toeing, walking, running and cycling, for 3

minutes each.

The mean pressure of each sequence and the amplitude of pressure variation in each condition was

analysed by a comparison test.

Results / Discussion: Under all experimental conditions, the double layering of flat or circular knit stockings, doubles the pressure.

Under all experimental conditions, the amplitude of the pressure variation is small.

Conclusion: Double layering of garments precisely doubles the pressure and can be used to create a higher disto-proximal gradient and provide easier application.

The pressure profiles measured at the C1 interface do not show significant variations that could support the concept of a significant massage effect.

OP089 INCIDENCE AND CHARACTERISTICS OF MEDICAL ADHESIVE-RELATED SKIN INJURIES IN PATIENTS FOLLOWING SPINAL SURGERY

Tae Yeong Yang[1], Jung Eun Park[2], Jun Bum Kim[1], Na Hyun Lee[1]

[1]*Kangbuk Samsung Hospital, Korea, Rep. of South*; [2]*Health Insurance Review & Assessment Service, Korea, Rep. of South*

Aim: This study aimed to compare the incidence, types, and characteristics of medical adhesive-related skin injuries (MARSI) occurring on surgical sites according to the type of adhesive dressing used in patients following spinal surgery.

Method: This prospective observational study included patients who underwent spinal surgery in a high-level K general hospital in Seoul, Korea, from September 5, 2021, to September 4, 2022. Informed consent was obtained from all participants, and institutional review board approval was received. An independent t-test or Mann-Whitney U test was used to compare group differences. Survival analysis was performed using Kaplan-Meier analysis, log-rank test, and Cox proportional hazard regression analysis.

Results / Discussion: Out of the 140 participants included in the study (acrylic dressing group [n=66]; silicone dressing group [n=74]), 45% developed MARSIs within ten days post-surgery. The most common type of MARSI was contact dermatitis (41.4%). The cumulative incidence of MARSI was higher in the acrylic dressing group (56.8%) than in the silicone dressing group (31.8%) (p=0.003). The mean time to occurrence of the first MARSI was shorter for the acrylic dressing group than in the silicone dressing group (2.67±1.22 days vs 5.90±1.17 days, respectively, $p<0.001$). Furthermore, the mean duration of MARSIs was longer for the acrylic dressing group (5.19±1.67 days) than in the silicone group (2.67±0.88 days) ($p<0.001$).

Conclusion: The use of post-operative dressings with silicone adhesives following spinal surgery was associated with lower incidence, longer time to the occurrence, and shorter duration of MARSIs.

OP090 ACCELERATION (REACTIVATION) OF THE WOUND HEALING PROCESS. DATA ANALYSIS FROM THE EHO-85 RANDOMISED CONTROLLED TRIAL

José Verdú Soriano[1], Marisol de Cristino-Espinar[2], Silvia Luna-Morales[2], Caridad Dios-Guerra[3], Antonio Casado-Diaz[4], Miriam Berenguer Pérez[1], Leocadio Rodríguez Mañas[5], José Luis Lázaro Martínez[6]

[1]University of Alicante, Department of Community Nursing, Preventive Medicine, Public Health and History of Science, San Vicente del Raspeig, Spain; [2]Hospital Universitario Reina Sofia, Nursing Department, Reina Sofia University Hospital, on behalf of the researchers of Córdoba-Guadalquivir and Southern Cordoba Health Management Areas (Andalusian Health Service, Spain), Córdoba, Spain; [3]University of Cordoba, Department of Nursing, Faculty of Medicine and Nursing, Córdoba, Spain; [4]Hospital Universitario Reina Sofia, Maimonides Institute of Biomedical Research of Cordoba (IMIBIC) and Clinical Management Unit of Endocrinology and Nutrition, Córdoba, Spain; [5]Getafe University Hospital, Department of Geriatrics and Geriatric Research Group, Biomedical Research Foundation , Getafe, Spain; [6]Complutense University of Madrid, Diabetic Foot Unit, University Clinic of Podiatry, Madrid, Spain

Aim: A secondary objective of the trial, to compare reactivation of healing capacity between an amorphous hydrogel (EHO-85) containing an extract of Olea europaea leaves (OLE) and a standard hydrogel (SH).

Method: A prospective, multicentred, randomised, observer-blinded, controlled trial, approved by the Ethical Committee of Cordoba (Spain), was performed. Patients were recruited if they had pressure ulcers (PU) (cat II-III), venous leg ulcers (VLU) or diabetic foot ulcers (DFU), excluding ischemic conditions, and according to strict inclusion and exclusion criteria. Patients were treated with EHO-85 (n=106) or Varihesive® (ConvaTec) (SH), (n=98); 3 times/week for 8 weeks. Main endpoint was relative wound area reduction (WAR) measured as ((area to-area tn)/area to) x 100). Analysis were made by intention to treat (ITT) and per protocol (PPP). Descriptive, bivariate, and multivariate analysis were performed. Response to treatment was assessed in second and fourth week.

Results: Both groups were comparable. Significant superior effect was observed in favor of EHO-85 vs. SH. WAR in relative terms (%) by a) ITT population EHO-85 (n=103) vs. SH (n=92). Week 2: -45±38 vs. -19±59; p: 0.002. Week 4: -49±47.5 vs -21.3±67 p: 0.002.b) b) PPP population EHO-85 (n=89) vs SH (n=78). Week 2: -50±33 vs. -24±50; p: 0.002. Week 4: -49±47.5 vs.-21.3±67 p: 0.001. Healing rate(mm2/day) Week 2: 14.4±4 vs. 4.5±3. Week 4: 9.5 ±3 vs 3±3. [ITT population]. Multivariate analysis confirms better results for EHO-85 vs SH.

Conclusion: EHO promotes and accelerates wound healing already in the first weeks of application, in a very significant way, when compared to a SH. This superiority is likely based on its optimal moisturizing capacity, excellent pH lowering and antioxidant properties.

OP091 THE RESULTS OF A 17 PATIENT EVALUATION ON THE CLINICAL PERFORMANCE OF A SUPERABSORBENT DRESSINGS WITHIN LOTHIAN TRUST, SCOTLAND

Eleanor Wakenshaw[1], Lauren McCormack[1]

[1]Western General Hospital, United Kingdom

Aim: To evaluate the clinical performance of an alternative super-absorbent dressing within a Scottish Health Board.

Method: 17 patients requiring management of their wounds using a super-absorbent dressing were included in the product evaluation. These patients were cared for in a variety of care settings with a variety of wound types.

65% of these wounds were static or deteriorating, 88% of the wounds were assessed to be moderate to heavily exuding.

The wounds were assessed, and the progress and performance of the dressing reported on a review form.

Results / Discussion: 12 patient's wounds were assessed to be progressing at the end of the evaluation.

8 of these wounds are continuing to be managed with the super-absorbent dressing.

4 wounds had fully healed.

16 of the patients had a positive experience using the new super-absorbent dressing. 1 patient withdrew as they "did not like the dressing" despite his wound showing signs of improvement.

Case study example will be included in poster along with Healthcare Professional testimonials.

The feedback on the product performance criteria was reported as 100% Good or Very Good.

100% Healthcare professionals would continue to use the dressing.

100% Healthcare professionals would recommend to colleagues.

Conclusion: The results of the 17-patient evaluation on a new super-absorbent dressing were positive. The dressing demonstrated efficacy in exudate management, protection of the peri-wound skin, was conformable, easy to apply and remove without trauma.

The effective management of exudate and conformability of the dressing has resulted in reductions in dressing changes required.

OP092 BACTERIAL CELLULOSE—ADAPTATION OF A NATURE-IDENTICAL MATERIAL TO THE NEEDS OF ADVANCED TREATMENT OF CHRONIC WOUNDS

Thomas Eberlein[1], Peter Grundtner[1], Christine Bertram[2], Peter Lübke[3]

[1]Akademie-ZWM AG, Embrach, Switzerland; [2]Christine Bertram Gesundheitsmanager, Waidhaus, Germany; [3]HELIOS Klinik Leisnig, Leisnig, Germany

Aim: Modern wound treatment calls for hydroactive dressings. Among the variety of materials that have entered the field of wound care in recent years, the carbohydrate polymer bacterial cellulose (BC) represents one of the most promising candidates as the biomaterial features a high moisture-loading and donation capacity, mechanical stability, moldability, and breathability. [1]

Method: Commercially available BC wound dressing* has been evaluated in a multi-center study in 44 patients with mainly venous leg ulcers, mixed leg ulcers, and diabetic foot syndrome. This observational data collection has been performed according to Medical Devices Documents (MEDDEV) 2.12/2 Rev. 2 guidelines for post-market clinical follow-up studies.

Results / Discussion: A significant cleansing effect was achieved during application, with a reduction of fibrinoid coatings from approx. 57.1% to 43.1% representing a very good value for autolytic wound cleansing. Irritative manifestations at the wound edges and peri-wound skin decreased significantly during application period. In addition to the palliative properties of the dressing, this also demonstrates its excellent tolerability even for pre-existing skin damage.

Conclusion: The dressings were very comfortable for patients to use both during dressing changes and application. Rare unpleasant sensations were generally minor in their severity and also decreased significantly over the treatment period. Overall, a high level of satisfaction for patients and professional users can be stated.

Reference:

1. Zahel, P.; Beekmann, U.; Eberlein, T.; Schmitz, M.; Werz, O.; Kralisch, D. Bacterial Cellulose—Adaptation of a Nature-Identical Material to the Needs of Advanced Chronic Wound Care. Pharmaceuticals 2022, 15, 683.

* Epicyte Hydro

OP093 IMPROVEMENT OF SCAR QUALITY IN SPLIT-THICKNESS SKIN GRAFT DONOR SITES: A MULTICENTRIC RANDOMIZED CLINICAL TRIAL COMPARING DRESSINGS BASED ON WHEAT EXTRACT AND POLYHEXANIDE VERSUS HYALURONIC ACID AND SILVER SULPHADIAZINE

Giulia Benedetta Sidoti[1], Giovanni Papa[2], Vittorio Ramella[1], Luca Spazzapan[1], Nadia Renzi[1], Silvia Pasquali[1], Ludovica Vita[1], D'Andrea Francesco[3], Francesca Mosella[3], Evelin Makuc[1]

[1]University of Trieste, Plastic Surgery Unit, Department of Medical Surgical and Health Sciences, Italy; [2]University of Trieste, Plastic Surgery Unit, Department Of Medical Surgical And Health Sciences, Italy; [3]University of Naples Federico II, Plastic Surgery, Italy

Aim: The aim of the study is to compare the efficacy of two dressings for the treatment of the donor sites of split-thickness skin grafts (STSG).

Method: After harvesting of the graft, the donor site was covered with a calcium sodium alginate wound dressing for haemostasis until surgery had been completed. At the end of the operation, the wound was cleaned with saline solution and either dressing based on whey extract and Polyhexanide[1] or the one with Hyaluronic Acid and Silver sulphadiazine[2] was applied. Then, an absorbent foam dressing and two layers of cotton gauze pads were placed onto the medicated gauzes. Moreover, in order to provide increased protection to the donor site wound, self-adhesive elastic bandages were applied on top. The primary outcomes were healing rate, time to re-epithelialisation, the quality of the scar after 3 months.

Results / Discussion: 31 patients were enrolled in the randomized trial. The average time of healing was 22 days, with no statistical significance. The quality of the scar was assessed using two different scar scales: the Vancouver Scar Scale (VSS) and the Manchester Scar Scale (MSS) three months after surgery. The dressings based on whey extract yielded better scarring results.

Conclusion: Both gauzes, the one with whey extract and Polyhexanide[1] and the one with Hyaluronic Acid and Silver sulphadiazine[2] are secure and effective for this purpose, especially to promote wound healing and scarring. They both showed interesting results but dressing with whey extract[1], both as impregnated gauze and cream, demonstrated significant better scarring of the donor site in a long term follow up.

1. Fitostimoline Plus ®
2. Connettivina Plus ®

FREE PAPER SESSION: DIABETIC FOOT 3

OP094 ANEMIA AT ADMISSION IS NOT ASSOCIATED WITH A WORSE SHORT-TERM PROGNOSIS IN DIABETIC FOOT INPATIENTS

Francesco Giangreco[1], Elisabetta Iacopi[1], Vittorio Malquori[1], Letizia Pieruzzi[1], Chiara Goretti[1], Alberto Piaggesi[1]

[1]*Pisa University Hospital, Diabetic Foot Section, Pisa, Italy*

Aim: Anemia is a marker of severity in patients with diabetes mellitus, associated with higher mortality. Aim of this study was to test its impact on diabetic foot (DF) inpatients.

Method: We retrospectively searched patients admitted for DF in our Department between July and December 2021 (Group A) and compared them with patients admitted in the same period in Diabetology Department for diabetes-related diagnosis different from DF (Group B). We compared demographic and clinical characteristics focusing on blood crasis: mean (HB) or maximum (HHB) haemoglobin concentration, mean corpuscular volume (MCV), mean corpuscular hemoglobin content (MCH), mean corpuscular hemoglobin content (MCHC), red blood cell count (RBC) and hematocrit (HCT) were extracted from charts at admission. Length of admission and in-hospital mortality were compared.

Results / Discussion: We studied 211 patients: 106 in Group A and 105 in Group B. No differences in age while patients of Group A had a longer disease duration (19.4±11.3 yrs vs 7.96±10.4 yrs, $p<0.05$). Anemia was more prevalent in Group A (72.6%) than B (52.3%): $p<0.01$. HB (10.34±2.0 g/dl vs 11.1±2.2 g/dl, $p<0.05$) was significantly lower in Group A with no difference in HHB, MCV, MCH and MCHC. HCT was significantly lower in Group A (32.3±5.7% vs 36.5±7.3%, $p<0.05$) as well as RBC (3.7±0.7x10^6/microl vs 4.2±0.8 10^6/microl, $p<0.05$). Group B showed longer duration of admission (13.8±9.6 days vs 7.6±4.9 days, $p<0.001$) and higher mortality rate during admission (8.58% vs 0.94%, $p<0.01$).

Conclusion: Despite its high prevalence in DF inpatients, anemia is not associated with a worse short-term prognosis.

OP095 THERE IS NO BLOOD FOR IMPROVEMENT: ANEMIA CUTS DOWN HEALING CHANCES IN DIABETIC FOOT PATIENTS

Francesco Giangreco[1], Elisabetta Iacopi[1], Vittorio Malquori[1], Letizia Pieruzzi[1], Chiara Goretti[1], Alberto Piaggesi[1]

[1]Pisa University Hospital, Diabetic Foot Section, Pisa, Italy

Aim: Anemia is considered a marker of severity of diabetes and diabetic foot (DF) but is still controversial if it can be taken as a predictor of negative outcomes in these patients. Our study aimed to evaluate if anemia could be associated with a reduction of healing chances in patients admitted for DF.

Method: We retrospectively analysed all patients admitted in our Department in 2021 for DF, dividing them in two groups according to presence (Group A) or absence (Group B) of anemia, diagnosed on reduced level of both total Hemoglobin (HB) and red blood cells (RBC). We compared group for clinical, demographic characteristics, blood chemistry, procedures and clinical outcomes: healing rate (HR) and time (HT).

Results / Discussion: We derived data of 196 patients: 116 patients in Group A [59.2%; age 70.9±10.8 yrs; male/female 74.1/25.9%; DM1/DM2 7.3/92.7%; Hba1c 57.2±18.5mmol/mol; diabetes duration (DD) 20.2±12.1 yrs] and 80 in Group B (40.8%; age 68.4±10.9 yrs; male/female 62.5/37.5%; DM1/DM2 10.3/89.7%; Hba1c 60.8±16.2mmol/mol; DD 16.6±11.8 yrs). Group A presented higher ($p<0.05$) male prevalence and shorter disease duration but no differences in comorbidities, and surgical or vascular procedures. Group A showed a lower healing rate (55.6% vs 77.5%, $p=0.0028$) with no differences in healing time (109±86 days vs 115±93 days, p=ns). In Cox logistic regression analysis only anemia negatively affected healing (HR 2.8, CI 95% 1.4-5.4, $p=0.0037$).

Conclusion: Anemia is associated to a reduction in healing chances in DF patients and represents an independent predictor of healing failure.

OP096 ASSOCIATION AMONG CURRENT SMOKING, ALCOHO LCONSUMPTION, REGULAR EXERCISE, AND LOWER EXTREMITYAMPUTATION IN PATIENTS WITH DIABETIC FOOT: NATIONWIDEPOPULATION-BASED STUDY

Yoon Jae Lee[1], Kyung-Do Han[2], Jun Hyeok Kim[1]

[1]College of Medicine, The Catholic University of Korea, 1Department of Plastic and Reconstructive Surgery; [2]Soongsil University, Seoul, Korea, [2]Department of Statistics and Actuarial Science

Aim: The present study investigates whether modifiable behavioral factors of current cigarette smoking, heavy alcohol consumption, and regular exercise are associated with risk of lower extremity amputation (LEA) in diabetic patients.

Method: A total of 2,644,440 diabetic patients (aged ≥20 years) was analyzed using the database of the Korean National Health Insurance Service. Cox proportional hazard regression was used to assess adjusted hazard ratios (HRs) for the behavioral factors with risk of LEA under adjustment for potential confounders.

Results / Discussion: The risk of LEA was significantly increased by current cigarette smoking and heavy alcohol consumption (HR, 1.436; 95% confidence interval [CI], 1.367 to 1.508 and HR, 1.082; 95% CI, 1.011 to 1.158) but significantly decreased with regular exercise (HR, 0.745; 95% CI, 0.706 to 0.786) after adjusting for age, sex, smoking, alcohol consumption, exercise, low income, hypertension, dyslipidemia, body mass index, using insulin or oral antidiabetic drugs, and diabetic duration. A synergistically increased risk of LEA was observed with larger number of risky behaviors.

Conclusion: Modification of behaviors of current smoking, heavy alcohol intake, and exercise prevents LEA and can improve physical, emotional, and social quality of life in diabetic patients.

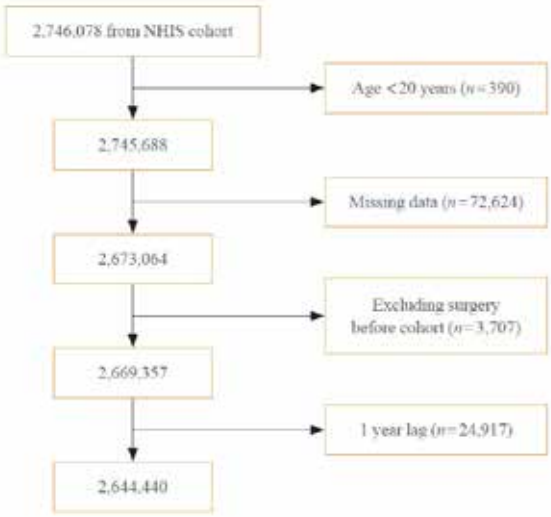


Fig. 1. Flowchart showing the enrollment process for the study cohort. NHIS, National Health Insurance Service.

Table 1. Demographics of the Diabetic Foot Patients in the NHIS Cohort (2009 to 2012)

Variable	Total	Amputation		*P* value
		No	Yes	
Number	2,644,440	2,635,662	8,778	
Age, yr	57.41±12.33	57.39±12.33	61.57±10.78	<0.0001
20–40	200,993 (7.6)	200,778 (7.62)	215 (2.45)	<0.0001
40–65	1,647,984 (62.32)	1,643,131 (62.34)	4,853 (55.29)	
≥65	795,463 (30.08)	791,753 (30.04)	3,710 (42.26)	
Sex				<0.0001
Male	1,587,633 (60.04)	1,580,897 (59.98)	6,736 (76.74)	
Female	1,056,807 (39.96)	1,054,765 (40.02)	2,042 (23.26)	
Smoke				<0.0001
Non	1,472,125 (55.67)	1,467,988 (55.7)	4,137 (47.13)	
Ex	489,799 (18.52)	488,134 (18.52)	1,665 (18.97)	
Current	682,516 (25.81)	679,540 (25.78)	2,976 (33.9)	
Alcohol drink				<0.0001
Non	1,514,021 (57.25)	1,508,712 (57.24)	5,309 (60.48)	
Light	867,972 (32.82)	865,514 (32.84)	2,458 (28)	
Heavy	262,447 (9.92)	261,436 (9.92)	1,011 (11.52)	
Regular exercise	548,040 (20.72)	546,388 (20.73)	1,652 (18.82)	<0.0001
Limited income (25%)	611,073 (23.11)	608,708 (23.1)	2,365 (26.94)	<0.0001

(Continued to the next page)

Table 1. Continued

Variable	Total	Amputation		*P* value
		No	Yes	
BMI, kg/m^2	25.07±3.4	25.08±3.4	23.96±3.33	<0.0001
<18.5	41,569 (1.57)	41,269 (1.57)	300 (3.42)	<0.0001
<23	656,656 (24.83)	653,491 (24.79)	3,165 (36.06)	
<25	656,584 (24.83)	654,394 (24.83)	2,190 (24.95)	
<30	1,085,365 (41.04)	1,082,630 (41.08)	2,735 (31.16)	
≥30	204,266 (7.72)	203,878 (7.74)	388 (4.42)	
HP	1,499,654 (56.71)	1,493,541 (56.67)	6,113 (69.64)	<0.0001
DYS	1,107,349 (41.87)	1,103,509 (41.87)	3,840 (43.75)	0.0004
CKD	302,677 (11.45)	300,353 (11.4)	2,324 (26.48)	<0.0001
Retinopathy	87,647 (3.31)	86,667 (3.29)	980 (11.16)	<0.0001
Nephropathy	1,875 (0.07)	1,738 (0.07)	137 (1.56)	<0.0001
Cardio vasculopathy	111,181 (4.2)	110,510 (4.19)	671 (7.64)	<0.0001
Cerebral vasculopathy	45,368 (1.72)	44,984 (1.71)	384 (4.37)	<0.0001
Using insulin	162,226 (6.13)	160,322 (6.08)	1,904 (21.69)	<0.0001
More than three oral antidiabetic drugs	238,520 (9.02)	237,087 (9)	1,433 (16.32)	<0.0001
Diabetic duration over 5 years	818,864 (30.97)	813,019 (30.85)	5,845 (66.59)	<0.0001
Creatinine	0.9 (0.8–1.1)	0.9 (0.8–1.1)	1 (0.8–1.2)	<0.0001
Glucose, mg/dL	144.65±46.86	144.55±46.66	175.76±81.9	<0.0001
WBC, ×100/μL	85.43±8.65	85.43±8.65	85.84±8.68	<0.0001
SBP, mm Hg	129.03±15.82	129.02±15.81	131.48±18.33	<0.0001
DBP, mm Hg	79.05±10.27	79.05±10.27	78.76±11.1	0.0094
Total cholesterol, mg/dL	196.42±42.49	196.43±42.48	194.08±46.47	<0.0001
HDL-C, mg/dL	51.86±22.07	51.87±22.04	50.94±29.71	<0.0001
LDL-C, mg/dL	111.21±40.94	111.22±40.94	107.55±40.4	<0.0001
TG, mg/dL (geometric mean, 95% CI)	145.77 (145.67–145.87)	145.74 (145.64–145.84)	153.56 (151.7–155.44)	<0.0001

Values are expressed as mean±standard deviation, number (%), or median (interquartile range).
NHIS, National Health Insurance Service; BMI, body mass index; HP, hypertension; DYS, dyslipidemia; CKD, chronic kidney disease; WBC, white blood cell count; SBP, systolic blood pressure; DBP, diastolic blood pressure; HLD-C, high density lipoprotein cholesterol; LDL-C, low density lipoprotein cholesterol; TG, triglyceride; CI, confidence interval.

Table 2. Risk Factors and Hazard Ratios of the Risk of Amputation in Patients with Diabetic Foot

Variable	Number	Event	Duration	Incidence rate, /1,000 person-years	Hazard ratio (95% CI)	
					Non-adjusted	Adjusted[a]
Current cigarette smoking						
No	1,961,924	5,802	13,512,000	0.42940	1 (Reference)	1 (Reference)
Yes	682,516	2,976	4,630,204	0.64274	1.503 (1.438–1.571)[b]	1.436 (1.367–1.508)[b]
Heavy alcohol consumption						
No	2,381,993	7,767	16,346,859	0.47514	1 (Reference)	1 (Reference)
Yes	262,447	1,011	1,795,345	0.56312	1.187 (1.112–1.268)[b]	1.082 (1.011–1.158)[b]
Regular exercise						
No	2,096,400	7,126	14,317,538	0.49771	1 (Reference)	1 (Reference)
Yes	548,040	1,652	3,824,666	0.43193	0.865 (0.820–0.912)[b]	0.745 (0.706–0.786)[b]
Score[c]						
0	389,891	1,052	2,734,435	0.38472	1 (Reference)	1 (Reference)
1	1,583,446	4,859	10,856,128	0.44758	1.168 (1.092–1.248)[b]	1.366 (1.277–1.462)[b]
2	555,392	2,347	3,767,964	0.62288	1.631 (1.516–1.754)[b]	1.752 (1.562–1.966)[b]
3	115,711	520	783,677	0.66354	1.739 (1.566–1.932)[b]	2.448 (1.998–3.001)[b]

CI, confidence interval.
[a]Adjusted for age, sex, smoking, alcohol consumption, exercise, limited income, hypertension, dyslipidemia, body mass index, use of insulin or oral antidiabetic drugs, and diabetic duration; [b]A two-sided *P* value is under 0.05 indicated a statistically significant difference; [c]The score was 0 in the absence of all three lifestyle habits of smoking, drinking heavily, and not regularly exercising; one point was added for each unhealthy behavior, for a total of three points for smoking, heavy drinking, and not exercising.

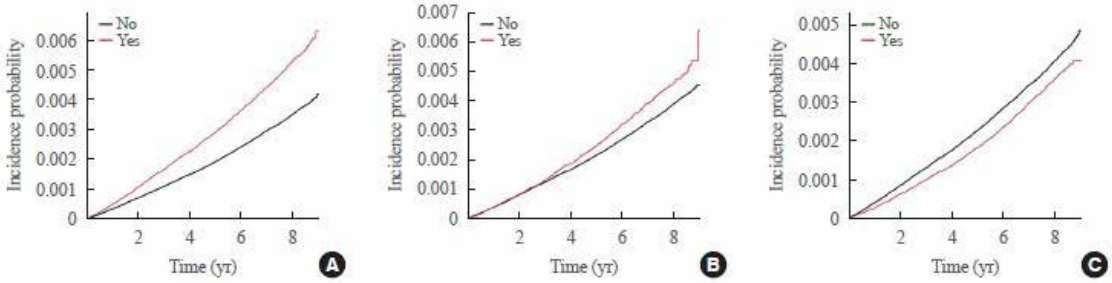


Fig. 2. Kaplan-Meier curves for cumulative incidence of lower extremity amputation in a diabetic population at biennial intervals. (A) Depending on current cigarette smoking. (B) Depending on heavy alcohol consumption. (C) Depending on regular exercise.

OP097 WHAT IS THE CLINICAL UTILITY OF SEM MEASUREMENT FOR THE DETECTION OF FOOT ULCER DEVELOPMENT AMONG ADULTS WITH DIABETES

Pauline Wilson[1 2], Declan Patton[1], Fiona Boland[1], Zena Moore[1], Niamh Phelan[2]

[1]Royal College of Surgeons in Ireland, Ireland; [2]St James's Hospital, Ireland

Aim: Previous research has shown that the measurement of sub-epidermal moisture (SEM) identifies increased risk of PU by allowing early identification of cellular oedema. For the first time, this study aimed to assess the effectiveness of SEM in the early identification of DFU.

Method: In this prospective observational study SEM measurements using the SEM Scanner™ were taken from 216 individuals attending outpatient diabetes clinics in a large urban teaching hospital in Ireland as part of a comprehensive diabetic foot assessment. Measurements were taken at foot sites associated with ulceration-plantar hallux, first metatarsophalangeal joint, fifth metatarsophalangeal joint and heel. Participants identified at increased risk at baseline had an additional 2 assessments within the next 7 days.

Results / Discussion: Of the 216 participants, 22% (n=47) were identified as high risk using standard assessment, 70% (n=152) had suboptimal diabetes control, 23% (n=49) had loss of protective sensation and 2% (n=5) had non-palpable pulses. Elevated SEM was identified in 32% (n=69). There was agreement between SEM and standard risk assessment tools in 62% (n=42) of these cases. Of the 13% (n=9) of the high risk participants who developed a visual DFU during the 7 day period, 88% (n= 8) had an elevated SEM prior to ulceration. Abnormal SEM was correlated with DFU and this correlation was statistically significant. **Conclusion:** Whilst tentative, initial analysis from this study shows that similar to early stage PU identification, that SEM measurement can also result in the earlier detection of DFU through identifying cellular oedema and local inflammation.

OP098 DIABETES FOOT RISK ASSESSMENT OF PATIENTS WITH TYPE II DIABETES IN A TERTIARY HOSPITAL IN KENYA

James Nduati Ngoyo[1], Samuel Gatimu[2]

[1]Diabetes Foot Foundation of Kenya, Founder and Advocacy Lead, NAIROBI, Kenya; [2]Diabetes Foot Foundation of Kenya, Health Economics, NAIROBI, Kenya

Aim: The aim of this study was to to assess the risk of diabetic foot complications among type 2 diabetes patients in Kenya using the International Working Group on Diabetic Foot (IWGDF) risk stratification guidelines to highlight the need for improved foot care.

Approximately1.9% of the Kenyans are diabetic with an estimate of 50% on treatment and 20% had controlled glycaemia. Poor glycaemic control is a risk for diabetes complications including diabetes foot. Feet screening is unpriotized area in provision of quality diabetes care and annual check-up for diabetes patients.

Method: A descriptive cross-sectional study was conducted in 2016 at Mathari National Teaching and Referral Hospital in Kenya among 147patients. Feet examination urine and blood samples taken.

Results / Discussion: Out of the 147 patients, 31% were male, 47% were aged more than 55 years, 77% were overweight/obese, 80% had poor glycaemic control and 85% never had feet screened for complications.

One-fifth of the respondents were high-risk for diabetic foot, 36% moderate 37% low and 7% had no risk of diabetic foot complications. Patients with moderate risk of developing diabetic foot had slightly higher average levels of HbA1c (9.4 g%), albumin-creatinine ratio (50.3%), and high-density lipoprotein cholesterol (1.4 mmol/L). There was no significant difference between the diabetic foot risk categories to clinical and laboratory profiles.

Conclusion: Risk classification has been fronted as an effective tool to prevent lower-extremity complications of diabetes. There is poor practice of foot screening in Kenya calling for measures to ensure routine foot screening. Health care professional and patients to be sensitized on the importance of foot screening to prevent foot disease and lower-extremity.

OP099 A REVIEW OF THE IMPACT OF UNDERTAKING 25 PERCUTANEOUS TENDON RELEASE OF THE FLEXOR DIGITORUM LONGUS IN DIGITAL APICAL ULCERATION IN A DIABETES FOOT MDT CLINIC

Graham Bowen[1]

[1]*Podiatry Clinical Service, Solent NHS Trust Southampton, Southampton, United Kingdom*

Aim: Review of 25 percutaneous tendon release Flexor Digitorum Longus (FDL) for neuropathic apical ulceration undertaken with a MDT diabetes foot clinic.

Method: Review of 25 percutaneous tendon release Flexor Digitorum Longus (FDL) for neuropathic apical ulceration. The main aim of this service evaluation is look at the impact of Flexor Digitorum Longus (FDL) release undertaken in the Diabetes Foot Multi-disciplinary Team at University Hospitals Southampton on patients with diabetes with apical neuropathic ulceration, in line with international guidelines:

1. Clinically indicated in line with Internal guidelines
2. Duration of index ulceration pre FDL (number of Podiatry interventions before)
3. Types of offloading devices used for index ulceration
4. Antibiotic use prior to FDL release of index ulceration
5. Impact of FDL release

Results / Discussion: 25 apical ulceration on either the 2nd or 3rd toes where Identified and percutaneous tendon release FDL was undertaken. All 25 resulted in resolution of the ulceration and at 6 months post intervention, 24 remained ulcer free, with one re ulceration observed

Conclusion: Percutaneous tendon release of the FDL is a straightforward outpatient procedure undertaken within the MDT setting, leading to resolution of the ulceration by removing the cause. FDL tendon release is clinically indicated in apical ulceration in toes that can be extend with no fixed deformity in the MPJ, PIPJ and / or DIPJ, where non-surgical offloading treatment has failed.

OP100 LOCAL LOW-FREQUENCY VIBRATION DOWNREGULATES THE EXPRESSION RELATED TO CELLULAR SENESCENCE AND PROMOTES WOUND HEALING IN DIABETIC RATS

Daijiro Haba[1], Chihiro Takizawa[1], Qi Qin[1], Sanai Tomida[1], Gojiro Nakagami[1 2]

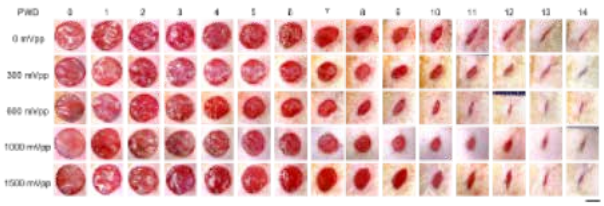
[1]*Department of Gerontological Nursing/Wound Care Management, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan*; [2]*Global Nursing Research Center, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan*

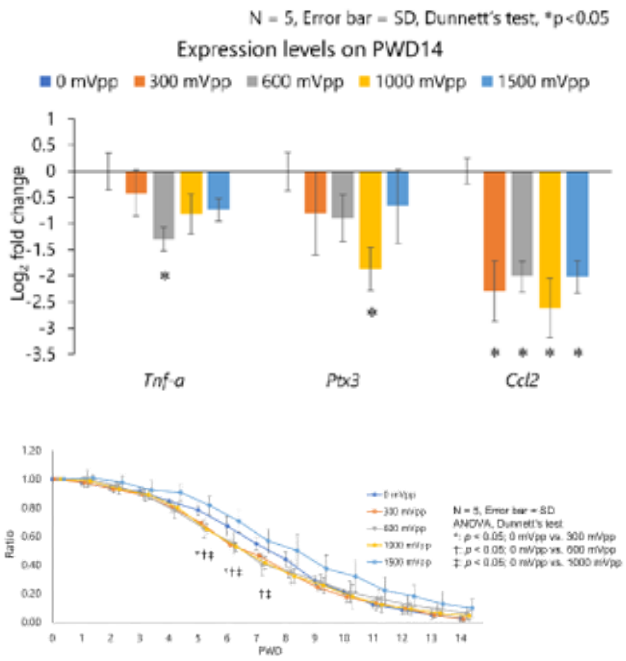
Aim: Cellular senescence progressed in diabetic foot ulcers (DFUs), and accumulated senescent cells expressed senescence-associated secretory phenotype (SASP), which causes chronic inflammation resulting in hard-to-heal. We reported that local low-frequency vibration (LLFV) promoted wound healing in diabetic rats and improved chronic inflammation; therefore, we hypothesized LLFV might attenuate cellular senescence. The present study investigated the effects of LLFV on cellular senescence in wound healing of diabetic rats.

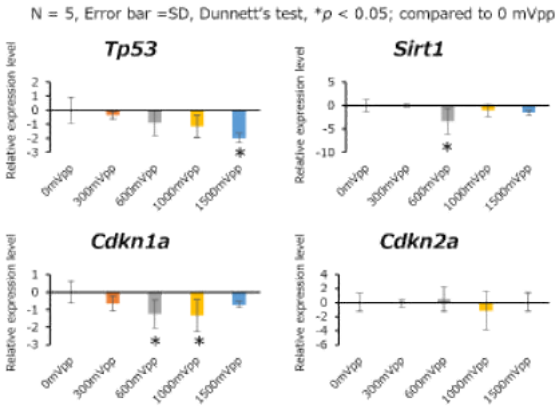
Method: We used male Sprague–Dawley rats with diabetes mellitus induced by streptozotocin. A round full-thickness wound was created, and LLFV was applied on the wound at 50 Hz for 40 min/day from post-wounding day (PWD) 1 to 14. We investigated the effects of LLFV by various vibration intensities (0, 300, 600, 1000, or 1500 mVpp) on wound area reduction and gene expressions related to cellular senescence and SASP.

Results / Discussion: The relative wound areas in the 300 mVpp at PWD 5–6 and 600 and 1000 mVpp at PWD 5–7 were significantly smaller than those in the 0 mVpp. At PWD 14, gene expressions related to cellular senescence and SASP such as Cdkn1a in the 600 and 1000 mVpp, Tp53 in the 1500 mVpp, Tnfa in the 600 mVpp, Ptx3 in the 1000 mVpp, and Ccl2 in all vibration groups were downregulated. LLFV might be associated with the p53/p21 pathway and attenuate cellular senescence in diabetic wound healing.

Conclusion: This is the first study to demonstrate that LLFV could be senolytic therapeutics through the mechanical stimulation in diabetic wounds.







OP101 THE CORRELATION BETWEEN TRANSCUTANEOUS OXYGEN PRESSURE(TCPO2) AND FORWARD-LOOKING INFRARED (FLIR) THERMOGRAPHY IN THE EVALUATION OF PERFUSION ACCORDING TO ANGIOSOME

Ha Jong Nam[1], Je Yeon Byeon[2], Hwan Jun Choi[2 3], Syeo Young Wee[1]

[1]Soonchunhyang University Gumi Hospital, Department of Plastic and Reconstructive Surgery, Gumi-si, Gyeongsangbuk-do, Korea, Rep. of South; [2]Soonchunhyang University Cheonan Hospital, Department of Plastic and Reconstructive Surgery, Cheonan-si, Chungcheongnam-do; [3]Soonchunhyang University, Institute of Tissue Regeneration, Cheonan-si, Chungcheongnam-do, Korea, Rep. of South

Aim: Evaluation of lower extremity perfusion is essential for the management of diabetic foot. Our study focused on two novel non-invasive tools for assessing lower extremity perfusion that have recently received increasing attention, transcutaneous oxygen pressure ($TcPO_2$) and Forward Looking InfraRed(FLIR) thermography. Although such methods have frequently been used, no literature has studied the correlation of the two methods. The objective of this study is to analyze the relationship between $TcPO_2$ and thermography according to the angiosomes of lower extremity after the improvement of perfusion.

Method: A total of 11 patients who were hospitalized for diabetic foot were enrolled in this study, and all patients underwent percutaneous transluminal angioplasty (Table 1). The improved perfusion after angioplasty was recorded by a cardiologist, anterior tibial artery (ATA) and posterior tibial artery (PTA). Before and after angioplasty, $TcPO_2$ and thermography were measured simultaneously under the same condition (Fig. 1). $TcPO_2$ was measured in two angiosomes, ATA and PTA. For thermography, the dorsum, plantar and medial views of both feet were photographed, and the average temperature was measured by a computer analysis program (Fig. 2).

Table 1. Demographic data and baseline characteristics.

Subject	Age	Sex	Direction	Reperfusion site	Initial $TcPO_2$(mmHg)	Initial temperature(°C)	Underline diseases
1	42	M	Left	ATA	1	24.5	HTN, DM, ESRD
2	60	M	Right	ATA	8	26.1	DM
3	72	M	Left	ATA	13	26	HTN, DM, ESRD
4	77	M	Left	ATA	21	25.3	HTN, DM
5	73	F	Right	PTA	18	25	DM, CVD
6	72	M	Left	PTA	5	26.7	HTN, DM
7	50	M	Left	PTA	5	25	HTN, DM
8	74	M	Right	PTA	18	27	HTN, DM, HL, CVD
9	60	M	Right	PTA	27	26.6	HTN, DM
10	78	M	Left	PTA	6	25	HTN, DM
11	71	M	Left	PTA	15	25.9	DM

*ATA : Anterior tibial artery, PTA : Posterior tibial artery, HTN: Hypertension, DM: Diabetes mellitus, ESRD: End-stage renal disease, HL: Hyperlipidemia, CVD: Coronary vessel disease

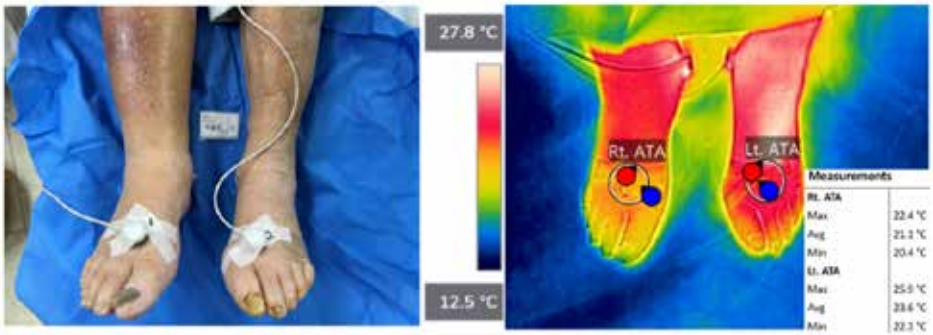


Fig. 1. Measurement of Transcutaneous oxygen pressure(TcPO2, Left) and Forward Looking InfraRed(FLIR) thermography(Right) simultaneously before and after angioplasty at the same humidity, temperature and anatomical position.

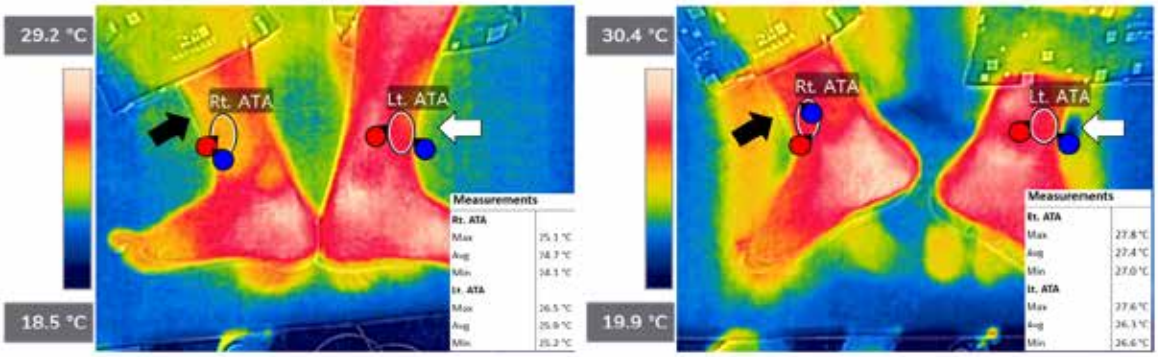


Fig. 2. Appliance of Forward looking infrared (FLIR) thermography and the analysis program. The result exhibits improvement in the perfusion of the right anterior tibial artery(ATA) after angioplasty in a 60-year-old man. The average temperature was calculated before(Left) and after(Right) angioplasty. The results of thermography significantly increased along with improved perfusion(Black arrow). On the other hand, non-improved counterpart was showed no significant change(white arrow).

Results / Discussion: The results of $TcPO_2$ and thermography significantly increased along with improved perfusion. The median value of $TcPO_2$ resulted in an increase of 13(5.5-18.0) to 29(8.0-40.5)mmHg after the procedure, and the temperature measured by thermography showed an increase of 25.9(25.0-26.35) to 27.2(26.75-27.95)°C(Table 2). Both values showed a statistically significant correlation (Fig. 3).

Table 2. Pre and postoperative values of $TcPO_2$ and thermography.

	Median(Q1-Q3)		P-value
	Pre-angioplasty	Post-angioplasty	
TcPO2(mmHg)	13(5.5-18.0)	29(8.0-40.5)	0.0144
Temperature(°C)	25.9(25.0-26.35)	27.2(26.75-27.95)	0.0033

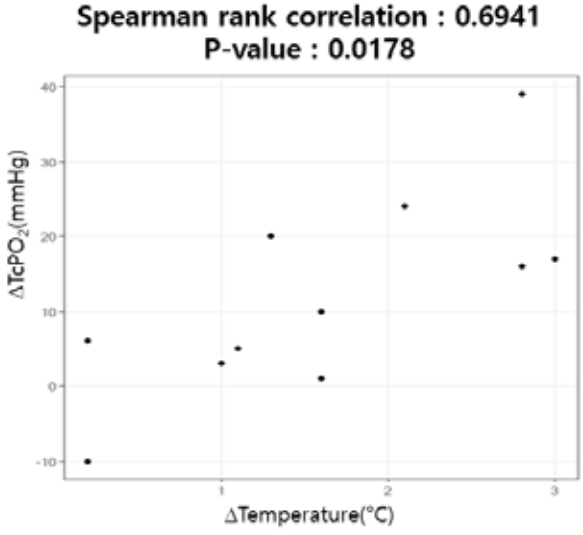


Fig. 3. Graph showing a positive correlation between $TcPO_2$ and temperature.
* Δ : Difference between post and preoperative values

Conclusion: This study demonstrated a significant correlation between $TcPO_2$ and thermography measurements. $TcPO_2$ and thermography are useful non-invasive options when perfusion evaluation is necessary, such as before and after angioplasty.

FREE PAPER SESSION: ACUTE WOUNDS / COMUNICAZIONI ORALI: FERITE ACUTE

OP102 COMPARATIVE STUDY OF HEALING TIME BETWEEN MINCED SKIN GRAFT AND POSTAGE SKIN GRAFT ON SPLIT-THICKNESS SKIN GRAFT DONOR SITE

Jun-Ho Lee[1], Won Seob Lee[1], Tae-Gon Kim[1]

[1]*Yeungnam University College of Medicine, Department of Plastic and Reconstructive Surgery, Daegu, Korea, Rep. of South*

Aim: Few studies have compared regrafting with minced technique versus other techniques. This study aimed to compare wound healing times of a minced skin graft (MSG) on the donor site with that of a postage skin graft (PSG).

Method: We retrospectively evaluated records of patients who had undergone regrafting on the donor site of split-thickness skin grafting (STSG). Patients who underwent regrafting using MSG (Figure 1) or PSG as a donor for STSG were included. Patients who could not be followed up according to the schedule or whose dressing was not maintained properly because the patient did not cooperate were excluded. We subjectively evaluated wound healing time based on the presence of exudates on dressing material and the patients' pain relief.

Results / Discussion: Among the 62 patients included, 29 underwent MSG and 33 underwent PSG (Table 1). The healing times in the MSG and PSG groups were 10 (8–12) and 12 (11–15) days, respectively (Table 2). A significant difference was noted in healing times between the two groups (Figure 2).

Conclusion: The MSG technique is one of the most efficient means to promote wound healing following STSG when using remnant skin; it has the potential to positively impact both the patients' financial and psychological burden after skin grafting.

Figure 1. Minced skin grafting. Remnant skin was minced until pasty and grafted onto the donor site as flat and uniformly as possible regardless of epidermal-dermal polarity.

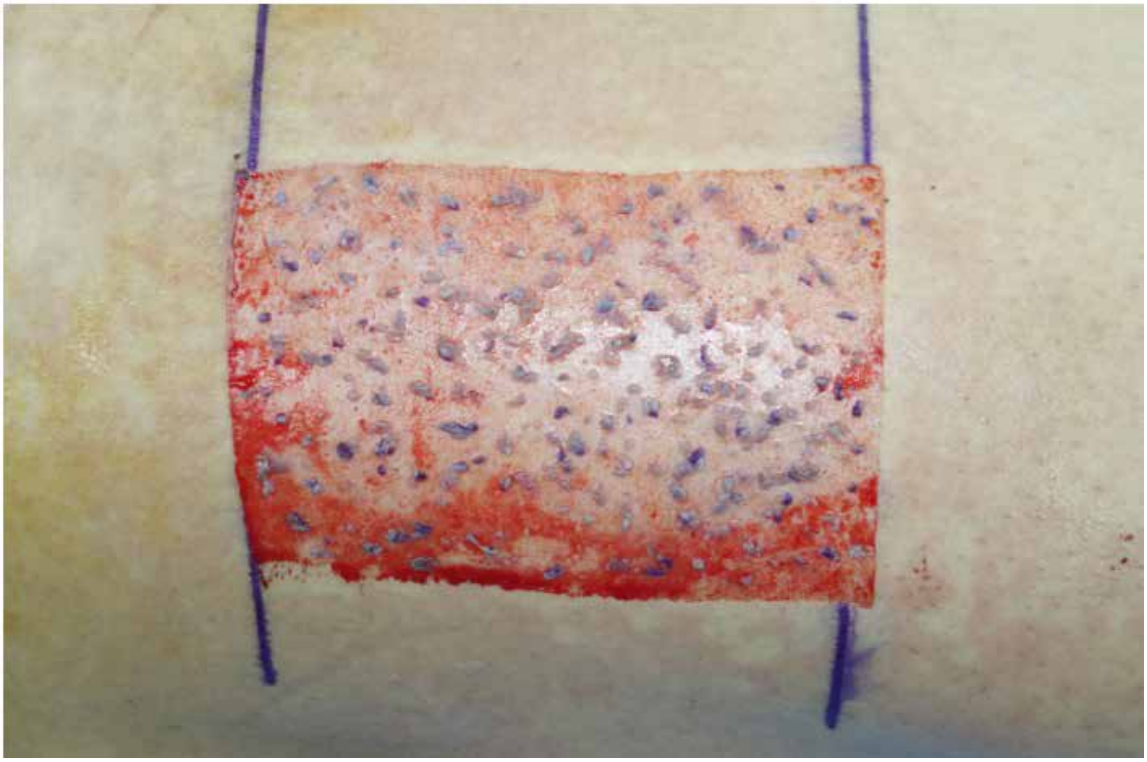


Figure 2. (A) The donor site of a 76-year-old man with second-degree burns caused by boiling water spilled over his right arm and both feet; two weeks after the burns, an STSG was performed to cover a 104 cm2 sized open wound, and MSG was performed on the donor site. (B) Ten days after MSG, the donor site was completely epithelized. (C) The donor site of a 79-year-old man diagnosed with myxofibroma on his right forearm. After the orthopedic surgeon performed a wide excision of the mass, an STSG was performed to immediately cover a 120 cm2 sized open wound. (D) Thirteen days after surgery, the donor site was completely epithelized.

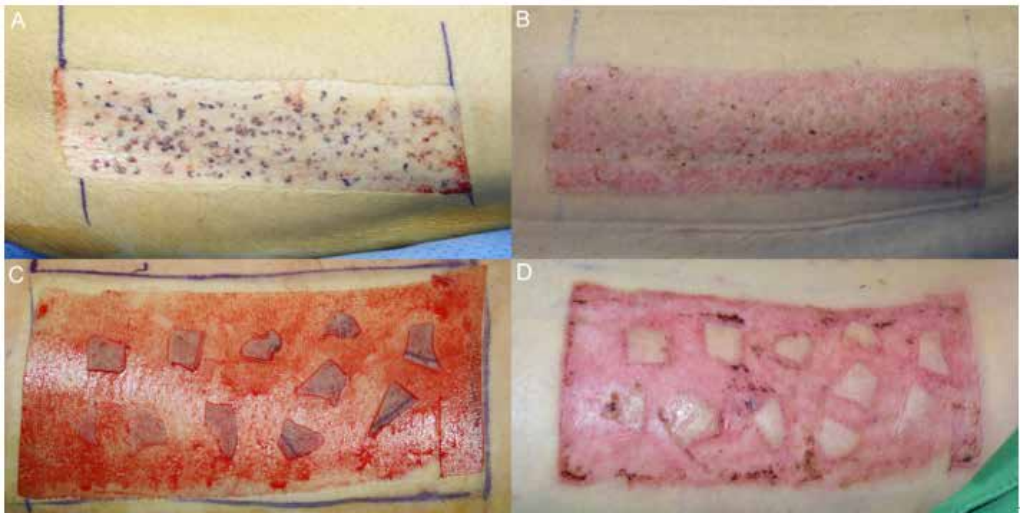


Table 1. Patient demographics

Variable	MSG (%)	PSG (%)	P-value
No.	29	33	
Age, yr, median (IQR)	59 (40.5–66.5)	65 (55.5-74.5)	0.078
BMI, kg/m², median (IQR)	22.7 (20.6–25.6)	23.8 (22.7-27.2)	0.021[a]
Smoking	5 (17.2)	2 (6.1)	0.237
Hypertension	8 (27.6)	16 (48.5)	0.120
Diabetes mellitus	13 (44.8)	16 (48.5)	0.804
Old myocardial infarction	5 (17.2)	2 (6.1)	0.237
Peripheral artery disease	2 (6.9)	4 (12.1)	0.676
Cause of open wound			<0.001[a]
Burn	15 (51.7)	2 (6.1)	
Necrosis	1 (3.4)	12 (36.4)	
Malignancy	0 (0)	5 (15.2)	
Pressure	9 (31)	0 (0)	
Trauma	4 (13.8)	14 (42.4)	

MSG, minced skin graft; PSG, postage skin graft; IQR, interquartile range; BMI, body mass index.
[a] $P < 0.05$.

Table 2. Time to complete epithelization

	MSG	PSG	P-value
Size of harvested STSG, cm², median (IQR)	40 (20-132)	72 (32.5-120)	0.197
Healing time, days, median (IQR)	10 (8-12)	12 (11-15)	0.001[a]

MSG, minced skin graft; PSG, postage skin graft; STSG, Split-thickness skin graft; IQR, interquartile range.
[a] $P < 0.05$

OP103 HYPERBARIC OXYGEN THERAPY IN SALVAGE OF REPLANTED AND RECONSTRUCTED TISSUES AFTER TRAUMATIC INJURIES

Eylem Koca Avan[1], Hande Akdeniz[2], Yüksel Laçin Avan[3], Handan Öztürk[4]

[1]Bozyaka Training and Research Hospital, Underwater and Hyperbaric Medicine, İzmir, Turkey; *[2]Akademi Private Hospital , Plastic and Reconstructive Surgery, Kocaeli, Turkey*; [3]Çiğli Training *and Research Hospital, Orthopedics and Traumatology, Izmir, Turkey*; *[4]Denizli Private Health Hospital, Underwater and Hyperbaric Medicine, Denizli, Turkey*

Aim: To evaluate the effect of hyperbaric oxygen therapy (HBOT) on the survival of replanted and reconstructed tissues after traumatic injuries

Method: The patients who were referred for HBOT after surgical interventions due to traumatic injuries were investigated between 2020-2021 years.

Results / Discussion: 15 cases were identified. 5 out of 15 were excluded because they refused or did not continue their treatments. The age range of 10 cases included the study was 22-63 with a mean age of 40,5. 1 patient for right foot thumb, 1 for ear and remain 8 for hand injury arising from trauma had been operated. Replantation had been applied in 6 cases. The starting time of HBOT was 2nd day at the earliest,10th day at the latest. HBOT sessions were ranged from 8 to 44 with a mean of 24,6. In traumatic injuries, the ideal treatment approach should be to avoid inadequate perfusion and hypoxia of traumatic wound edge that would lead to tissue loss. HBOT improves the tissue viability by enhance oxygenation, and has been demonstrated utility in the salvage of compromised grafts/flaps and in acute traumatic ischemia when initiated immediately postoperative. All cases in this study had been consulted for HBOT due to ischemia findings on the surgical field during post-surgical follow-up and have been discharged by good functional results with increased tissue survival. Our study is also important for that only few studies available regarding HBOT in replanted tissues. **Conclusion:** HBOT seems to be effective in salvage of compromised reconstructed and replanted tissues. Further studies are needed to clarify the efficiency of HBOT in this patient group.

OP104 ACCELERATED WOUND HEALING BY ON-SITE PRODUCTION AND DELIVERY OF CXCL12 BY ENGINEERED LACTIC ACID BACTERIA: THE RESULTS FROM A RANDOMISED, DOUBLE-BLIND, PLACEBO-CONTROLLED PHASE 1 TRIAL

Evelina Vågesjö[1 2], Emelie Ohnstedt[1 2], Andreas Fasth[2], Hava L Tomenius[2], Pia Dahg[2], Sofia Jonsson[2], Nisha Tyagi[2 3], Mikael Astrom[2], Zhanar Myktybekova[2], Lovisa Ringstad[2], Margareth Jorvid[2], Peter Frank[2], Per Hedén[4], Stefan Roos[3], Mia Phillipson[1 5]

[1]Uppsala University, Department of Medical Cell Biology, Uppsala, Sweden; *[2]Ilya Pharma Ab, Uppsala, Sweden*; *[3]Sveriges Lantbruksuniversitet Ulltuna, Uppsala, Sweden*; *[4]Sofiahemmet, Stockholm, Sweden*; *[5]Science for Life Laboratory Uppsala University, Uppsala, Sweden*

Aim: Impaired wound healing is a growing medical problem referred to as a silent pandemic. There are today very few approved drugs with documented clinical efficacy of healing. CXCL12-expressing *Limosilactobacillus reuteri*, ILP100-Topical, systematically accelerates wound healing in well-controlled animal models. In this first-in-human study, safety as well as clinical and biological effects on wound healing was documented by traditionally accepted, and by explorative and tracible assessments.

Method: This is an adaptive, randomised, double-blind, placebo-controlled, first-in-human phase 1 trial with ascending single- and multi-dosing of ILP100-Topical (emilimogene sigulactibac) to 4-8 induced wounds in 36 healthy volunteers at a single centre in Sweden. The primary objective was to determine safety and tolerability, while secondary and explorative objectives included assessments of clinical and biologic effects on wound healing.

Results / Discussion: In all subjects, single- or multi-dosing (10 administrations over 3 weeks) with ILP100-Topical was considered safe and well-tolerated with no systemic exposure. A combined cohort analysis showed that multi-dosing of ILP100-Topical significantly accelerated wound healing (p=0.02) as 76% (73/96) of the wounds were healed on Day 32 compared to 59% (57/96) of controls (saline and placebo). Further, ILP100-Topical shortened time to first registered healing by 6 days on average, and by 10 days at the highest dose. ILP100-Topical increased the density of $CXCL12^+$ cells in the wounds and local blood perfusion in the skin surrounding the wound.

Conclusion: The favourable safety profile and proven effects on wound healing support continued clinical development of ILP100-Topical for the treatment of complicated wounds in patients.

OP105 COMPARING INSIGHTS AND PERCEPTIONS OF HEALTHCARE PROFESSIONALS ON POST-OPERATIVE INCISION WOUND CARE: A POST-HOC ANALYSIS

Kylie Sandy-Hodgetts[1], Gilbert Madriaga[2], Diane Eng[3], Phil Davies[4], Randy Schwartz[5], John Timmons[4]

[1]Murdoch University, Centre for Molecular Medicine & Innovative Therapeutics, Australia; [2]Monlycke Health Care Asia-Pacific, Medical Affairs, Singapore; [3]Monlycke Health Care Asia-Pacific, Medical and Professional Affairs, Singapore; [4]Molnlycke Health Care AB, Medical Affairs, Sweden; [5]Molnlycke Health Care US, Medical and Professional Affairs, United States

Aim: This analysis aimed to compare insights and perceptions of healthcare professionals (HCPs) in the Asia-Pacific (APAC) region on the impact of factors that prevent surgical site infection (SSI) and the importance of the properties of an ideal wound dressing identified in a previously published APAC Consensus Document.

Method: A post-hoc analysis of published data from a survey conducted in July 2021 in the APAC region was undertaken. To compare the insights and perceptions of surgeons, generalist nurses, wound care nurses and operating room (OR) / surgical ward nurses, Kruskal-Wallis equality-of-proportions rank test and Dunn's pairwise comparison using Bonferroni correction were performed.

Results / Discussion: Data from a total of 960 HCPs were included in the analysis (surgeons: 40%; generalist nurses: 34%; wound care nurses: 16%; and OR / surgical ward nurses: 10%). Most participants were from the Greater China Region (32%). Reported dressing change frequencies were different among the HCP groups ($p<0.001$). For SSI prevention, HCPs have varying perceptions on the impact of the following factors: patient hygiene ($p=0.0001$); patient education ($p=0.0001$); undisturbed wound healing ($p=0.0266$); post-operative wound dressing choice ($p=0.0001$); good surgical technique ($p=0.0004$); and presence of multiple co-morbidities ($p=0.001$). Likewise, HCPs have different opinions on the importance of the following properties of an 'ideal' dressing: flexibility ($p=0.0001$); adherence to the skin ($p=0.0001$); absorbency of fluid ($p=0.0001$); elimination of dead space ($p=0.0001$); and patient comfort / atraumatic removal ($p=0.043$).

Conclusion: Post-surgical incision wound care is crucial in determining surgical success and the patient's recovery journey. Differences in perceptions among HCPs involved in post-incision wound care may result in varying patient outcomes.

OP106 FISH SKIN DERIVED WOUND ADJUNCTS (FDWA) IS AN ALTERNATIVE FOR CLASS 3 AND CLASS 4 SURGICAL WOUNDS

Pooja Mody[1], Sergey Bagin[1], Ghassan Jibawi[2], C. Neal Ellis[1], Saju Joseph[1]

[1]Touro University Nevada, Department of Surgery, United States; [2]American University School of Medicine Aruba, Department of Surgery, United States

Aim: Surgical Site Infections (SSI) are a major cause of morbidity, resulting in high resource utilization and extended length of stay. Class 3 and class 4 wounds are a very high-risk patient group for SSI. We hypothesized that using FDWA would reduce SSIs in this cohort.

Method: Our prospectively collected surgical database of all patients was retrospectively reviewed for all patients with class 3 or class 4 wounds. FDWA (Kerecis) was placed in 28 patients with Class 3 or Class 4 wounds in a 3-month period. FDWA were placed in the subcutaneous space prior to wound closure. All patients were followed for 30 days. The occurrence of SSIs was determined using CDC guidelines. Predicted morbidity and SSI rate was calculated using ACS NSQIP.

Results / Discussion: There were 11 males and 15 females. Median Age was 62.5 years (44-88). NSQIP predicted complication rate was 23% and mortality rate was 13%. The median predicted SSI rate was 43%. There were 2 deaths (7%) in this cohort from the underlying medical condition. Of the remaining 26 patients there were no observed SSIs. 4 patients developed sterile seromas which did not require any intervention.

Conclusion: In our cohort, no SSIs were identified throughout the follow up period with an associated decrease in resource utilization and length of stay. In our healthcare system, this is a more cost-effective strategy compared to current protocols. FDWA was an effective alternative for high-risk Class 3 and Class 4 surgical wounds.

OP107 SKIN TEARS PREVALENCE AND KNOWLEDGE IN SURGICAL CONTEXT

Silvia Cilluffo[1], Barbara Bassola[1], Valentina Tommasi[1], Luca Giuseppe Re[1], Raffaella Feldi[2], Dimitri Beeckman[3], Maura Lusignani[1]

*[1]University of Milan, ASST GOM Niguarda, School of Nursing, Milan, Italy; [2]Istituti Clinici Zucchi, Carate Brianza, Italy; [3]*Örebro University, *Faculty of Medicine and Health, School of Health Sciences, Nursing Science Unit, Swedish Centre for Skin and Wound Research, Ôrebro, Sweden*

Aim: To investigate the prevalence of skin tears in surgery departments and investigate nursing knowledge about skin tears. Skin tears are "wounds caused by cut, friction and / or blunt force, with consequent separation of the skin layers. Skin tears are painful acute injuries; they could heal quickly, but can also evolve towards chronicity secondary infections. The prevalence of skin tears was studied in long-term hospitalizations (20.8%), in nursing homes (3-12%), in general hospitals (6.2-11.4%). They can develop all over the body, with greater incidence in the extremities.

Method: A cross-sectional observational study was conducted in the surgical wards at the ASST Grande Ospedale Metropolitano Niguarda, Milan, 160 patients were enrolled. The punctual prevalence of skin tears (Skin Tear Advisory Panel Classification System) was detected. The nurse knowledge was investigated with the Skin Tear Knowledge Assessment Instrument (OASES). administered to a sample of 100 nurses.

Results / Discussion: The prevalence of skin tears was of 4.5%. Forty-three percent of skin tears were category 1, 14% were category 2 and 43% were category 3. 50% were located at the arms, and the other 50% at the abdominal level. All participants had adhesive dressings. Nursing knowledge was on average 12.3 (range from 0 to 20 correct answers), with the lowest score found in the 'Prevention' section of the instrument.

Conclusion: Skin tears are a problem in surgery, with risk factors appearing specific to this area. Further research should be done in this context of care.

OP108 DEEP DISSECTING HEMATOMA : A LARGE DESCRIPTIVE MULTICENTRIC COHORT

Marion Frey[1], Romain Veber[1], Hester Colboc[1], Bastien Genet[2]

[1]Hospital Rothschild Ap-Hp, Paris, France; [2]University Hospitals Pitié Salpêtrière - Charles Foix, Paris, France

Aim: To evaluate the effectiveness of an IPC device in participants with VLU.

Method: Deep dissecting hematomas (DDH) are acute wound, often misdiagnosed. Our study aims to describe the demographic, clinical and biological data of a large geriatric cohort of hospitalized patients with DDH as well as identify the prognostic factors of DDH's wound healing.

Results / Discussion: We included 60 patients, mainly female (80%), medium age 92 years old [72-102]. The medium CIRS Score (Cumulative Illness Rate Scale) was 14.5/56 [9-33]. DDH's main localization was on the lower limb. More than half of the patients (55%) had dermatoporosis, while almost all patients had malnutrition (88%). 51 patients had vascular disease (hypertension n=44, 73%; lower extremity arterial disease n=20, 33%; venous insufficiency n=21, 35%), 12 patients were diabetic (20%) and 10 had a neuropathy (17%). Regarding treatments which can potentially delayed wound healing, 4 patients were under chemotherapy (8%) and 14 had corticosteroid therapy (30%). Almost half of the patients presented complications of their DDH: 47% presented acute anemia and 34% infection of their wound needing oral antibiotherapy. Results regarding risk factors of DDH (compare to control patients same sex and age, without DDH) and prognostic factors of DDH's wound healing are under analysis and will be available within a few weeks.

Conclusion: We report the largest cohort of DDH, realized with geriatric hospitalized patients. Further analysis, including risk factors of developing DDH and prognostic factor of DDH's wound healing are under analysis.

FREE PAPER SESSION: DIABETIC FOOT 4

OP109 POINT-OF-CARE FLUORESCENCE IMAGING REVEALS EXTENT OF CHRONIC INHIBITORY BACTERIAL LOAD (CIBL) IN DIABETIC FOOT ULCERS

David Armstrong[1], Michael Edmonds[2], Thomas Serena[3]

[1]Keck School of Medicine of University of Southern California, Department of Surgery, Los Angeles, United States; [2]King's College Hospital Foundation Trust, Diabetic Foot Clinic, London, United Kingdom; [3]SerenaGroup Research Foundation, Cambridge, United States

Aim: Elevated levels of bacteria/biofilm hamper healing and increase the risk of infection and its complications in diabetic foot ulcers (DFUs). Diabetes often attenuates clinical signs and symptoms of infection (CSS), making it difficult to discern the presence of bacterial loads or where to sample for microbiology. This two-part study (1) compares the detection of bacterial loads/infection in DFUs using IWGDF-CSS versus CSS combined with point-of-care fluorescence (FL) imaging; and (2) explores FL-targeted sampling as a means to increase the clinical relevance of microbiology findings.

Method: Post-hoc analysis of (1) 138 DFUs and (2) 78 double-biopsied chronic wounds from a prospective, multicenter clinical trial. Comparison (1) diagnostic performance of CSS and CSS+FL-imaging across total bacterial loads (TBL) 10^4-10^9 CFU/g; and (2) of the TBL and species present for wounds biopsied at their centre (standard practice) or at a FL+ site. **Results / Discussion:** (1) Over 90% of DFUs contained TBL $>10^4$ CFU/g (pathogenic), however CSS were largely absent and did not increase proportionately with TBLs. FL-imaging greatly increased bacterial detection sensitivity across all TBL ($p<.0001$) and 84.2% of ulcers were FL+ in the periwound. (2) Sampling a FL+ site increased bacterial detection sensitivity ($p=.0059$) and increased the number of species detected ($p<.001$). **Conclusion:** The frequent presence of asymptomatic yet pathogenic bacterial loads in DFUs prompts new terminology, chronic inhibitory bacterial load (CIBL). FL-imaging improves CIBL detection across all TBL, and biopsy findings support the added significance of FL-imaging in guiding sampling towards relevant yet not obvious sampling locations (e.g. periwound).

[1] MolecuLight i:X device

OP110 A RANDOMIZED, OPEN LABEL, SINGLE CENTRE, POST-MARKET SURVEILLANCE STUDY TO EVALUATE EFFICACY AND SAFETY OF A NEW ANTIMICROBIAL WOUND DRESSING COMPARED TO STANDARD DRESSING IN TREATMENT OF DIABETIC FOOT ULCER (DFU)

Gyan Chand[1]

[1]Sanjay Gandhi Post Graduate Institute of Medical Sciences, Endocrine Surgery, Lucknow, India

Aim: Diabetic foot Ulcer (DFU) are caused by poor circulation, hyperglycemia where neuropathy, ischemia and infection lead to tissue breakdown, morbidity and possible amputation. In current study, patented non-adherent topical biopolymer-based dressing comprising antimicrobial formulation is evaluated for safety and efficacy on DFU. The dressing is porous, absorbs wound exudates and is effective against gram-positive, gram-negative bacteria and superbugs.

Method: In this interventional comparative study, 100 subjects, 30-70 years, randomized equally into two groups *i.e.* test dressing (TD) and standard dressing (SD), were followed-up for 28 days after application. Bacterial load was evaluated on Day-0 and Day-28. Efficacy of TD was determined via clinical evaluation by Bates-Jensen Wound Assessment Tool (BWAT) and %wound closure by photographs at every visit. Subjects were assessed for pain evaluation by Likert Scale. Adverse events (AE) and Serious Adverse Events (SAE) associated with PD application were determined.

Results / Discussion: Average BWAT score of TD subjects reduced from 36.25 (Day-0) to 14 (Day-28) [88.9%] while it reduced from average 33.625 (Day-0) to 20.375 (Day-28) [39.4%] in SD subjects ($p<0.05$). Wound assessment showed significant healing, granulation and re-epithelization along with 100% subjects showing complete wound closure in TD group as compared to 25% SD subjects exhibiting complete healing. Skin tissue appeared to be healthy with no inflammatory signs and without growth in TD subjects at Day 28. Pain was also significantly reduced on Day-28 in comparison to Day-1.

Conclusion: Wound contraction and re-epithelialization was noted after Day-28 of TD application with patients exhibiting better recovery and less pain. No AE and SAEs were reported in TD subjects.

Brand Name: VELVERT (Datt Mediproducts Private Limited)

OP111 SAVE FOOT FOR SAVE LIFE: AN ITALIAN MULTICENTER SURVEY EVALUATING THE USE OF THE DUAL PATHWAY INHIBITION IN PATIENTS WITH DIABETIC FOOT SYNDROME IN A REAL WORLD SETTING

Cristiana Vermigli[1], Stefano Radicchia[2], Giuseppe Murdolo[3]

[1]Santa Maria Misericordia Perugia Hospital, Perugia (Italy), Department of Internal Medicine, Endocrinology and Metabolism, Perugia, Italy; [2]Gubbio and Gualdo Tadino Hospital, Department of Internal Medicine, , Gubbio , Italy; [3]Santa Maria Misericordia Perugia Hospital, Perugia (Italy); Department of Internal Medicine, Endocrinology and Metabolism, Perugia, Italy

Aim: Peripheral artery disease (PAD) is one of the most common cardiovascular (CV) complications in patients with type 2 diabetes (T2D). Low dose rivaroxaban (2.5 mg twice daily) combined with aspirin ("dual pathway inhibition", DPI) reduces major adverse CV (MACE) and limb (MALE) events in patients with PAD, independently of the presence of T2D. However, the implementation of DPI in patients with a "diabetic foot syndrome" has not been widely evaluated. The aims of this survey were to ascertain the use of DPI and the possible outcomes in a population of T2D with PAD in a real word setting.

Method: Italian multicenter survey from 24 outpatient clinics was carried out by using clinical questionnaires. Baseline clinical characteristics and changes in different outcomes were evaluated.

Results / Discussion: We recruited 347 patients with T2D and PAD, in six months. Almost all the participants exhibited multiple CV risk factors, 68% of the patients exhibited foot ulceration, 49% had undergone revascularization, and 31% had a previous minor amputation. All the patients were treated with DPI. After 6 months follow-up, clinical changes in different outcomes were observed, such as reduction of pain at rest (63%), improvement in claudication (83%) and transcutaneous oximetry (71%), as well as a reduction >50% (79%) or healing (57%) of foot ulcerations. None had clinically relevant bleeding.

Conclusion: The results of this survey suggest that, in patients with T2D and PAD, a population with very high risk of limb amputation, DPI should be offered as an important therapeutic strategy to improve prognosis.

OP112 SYSTEMATIC INTRAOPERATIVE BONE SAMPLING INCREASES HEALING CHANCES IN DIABETIC FOOT OSTEOMYELITIS

Francesco Giangreco[1], Elisabetta Iacopi[1], Alessandro Leonildi[2], Valerio Ortenzi[3], Letizia Pieruzzi[1], Chiara Goretti[1], Simona Barnini[2], Giuseppe Naccarato[3], Alberto Piaggesi[1]

[1]Pisa University Hospital, Diabetic Foot Section, Pisa, Italy; [2]Pisa University Hospital, Microbiology Unit, Pisa, Italy; [3]Pisa University Hospital, Department of Translational Research and New Technologies in Medicine and Surgery, Pisa, Italy

Aim: We aimed to evaluate if a proactive multidisciplinary diagnostic program could improve outcomes in the management of multidrug resistant (MDR) diabetic foot (DF) osteomyelitis (OM).

Method: We evaluated all the consecutive patients undergoing to minor amputation for OM July-December 2021 in our department (Group A). Intraoperative bone specimens were collected for microbiological and histological analysis on whose results antibacterial therapy was decided. Controls were patients admitted January-June 2021 with same indications (Group B) but with no systematic intraoperative bone sampling. Clinical and demographic characteristics, procedures, healing rate (HR) and healing time (HT), were compared between the groups.

Results / Discussion: We derived data from 89 patients: 46 in Group A [51.7%; age 68.8±13.5 yrs; diabetes duration (DD) 19.6±11.6 yrs Hba1c 8.7±4.8%;] and 43 in Group B (48.3%; age 70.4±12.9 yrs; DD 18.8±12.1 yrs; Hba1c 8.4±5.1%). No differences in demographic and clinical features, i.e. renal failure (39.1% vs 37.2%, p=ns), ischemic cardiac disease (41.3% vs 39.5%, p=ns), peripheral arterial disease (65.2% vs 67.4%, p=ns) and peripheral revascularizations (56.5% vs 53.4%, p=ns). Group A had a higher healing rate (80.4% vs 60.4%, p=0.0021) and a shorter healing time (67±41 days vs 134±92 days, p=0.020) compared to Group B.

Conclusion: Systematic intraoperative bone sampling for culture and histology, and consequent antibiotic adaptation, increases healing rates and reduces healing times in DF patients submitted to minor amputations for OM.

OP113 CLINICAL CHARACTERISTICS OF DIABETIC PATIENTS REFERRING TO A SPECIALIZED DIABETIC FOOT SERVICE FOR AN ACUTE DIABETIC FOOT PROBLEM

Michela Di Venanzio[1], Roberta Seminelli[2], Ermanno Bellizzi[2], Laura Giurato[3], Davide Lauro[2], Luigi Uccioli[3], Marco Meloni[2]

[1]Hospital San Camillo de Lellis, UOSD Diabetologia , Rieti, Italy; [2]University of Rome "Tor Vergata", Department of Systems Medicine, Rome, Italy; [3]University of Rome Tor Vergata,CTO Andrea Alesini Hospital, Division of Endocrinology and Diabetes, Department of Systems Medicine, Rome, Italy

Aim: The study aimed to evaluate the clinical characteristics and severity of diabetic patients referring to a specialized diabetic foot service (DFS) due to a new acute foot problem.

Method: The current study is a retrospective observational study including consecutive diabetic patients referring to a DFS from February 2022 to November 2022 due to a new acute foot problem. At the assessment, demographic and clinical data such as the characteristics of foot problems were recorded. The rate of hospitalization and the main causes of hospitalization were reported.

Results / Discussion: Two-hundred four patients were included. The mean age was 73.5±21.6 years, 91.1% were affected by type 2 diabetes with a mean duration of 16±8 years; 38.2% had ischaemic heart disease while 15.7% were on dialysis. Overall, 68.9% of patients had an ischaemic/neuro-ischaemic wound, 82.1% had an infected wound and 6.7% reported severe infection. Hospitalization was required in 76% of cases. The most common causes of referral were respectively the presence of gangrene (30.6%), osteomyelitis (18.6%), abscess/phlegmon (7.5%). The main foot injuries requiring hospitalization were respectively gangrene in 93.1% of cases, osteomyelitis in 88.9% of cases, and abscess in 86.7% of cases.

Conclusion: The current study reported as the main reason of referral to a specialized DFS for a new acute diabetic foot problem was the presence of infection, specifically gangrene, osteomyelitis, and abscess/phlegmon. In the majority of cases, patients required hospitalization for managing their clinical condition.

OP114 MAJOR LOWER LIMB AMPUTATIONS IN PATIENTS WITH PERIPHERAL ARTERIAL DISEASE AND/OR DIABETES IN ICELAND 2010-2019, REVASCULARIZATION, COMORBIDITIES AND RISK FACTORS

Solrun Dogg Árnadóttir[1 1], Gudbjorg Palsdottir[2], Karl Logason[1], Ragnheiður Arnardóttir[3]

[1]Landspítali University Hospital, Vascular Surgery Unit, Reykjavík, Iceland; [2]Landspítali University Hospital, Wound care Unit, Reykjavík, Iceland; [3]University of Akureyri, School of Health Sciences, Akureyri, Iceland

Aim: No recent studies exist on major lower extremity amputations (MLEAs) in Iceland. The aim of this study was to investigate MLEA incidence in Iceland 2010-2019 and preceding procedures in amputations induced by peripheral arterial disease (PAD) and diabetes mellitus (DM).

Method: Retrospective study on clinical records of all patients (>18 years) who underwent MLEA in Iceland's two main hospitals during 2010-2019. Patients were excluded if MLEA was performed for reasons other than DM and/or PAD. Symptoms, medication and circulation assessment were recorded from first hospital visit due to symptoms, and prior to the last MLEA, respectively. Previous arterial surgeries and amputations were also recorded.

Results / Discussion: A total of 167 patients underwent MLEA. Thereof, 134 (77 ± 11 years, 93 men) due to DM and/or PAD. The MLEA-rate due to those diseases increased from 4.1/100,000 inhabitants in 2010-2013 to 6.7/100,000 in 2016-2019 (p=0,04). Risk factors were mainly hypertension, 84%, and smoking, 69%. Chronic limb-threatening ischemia induced 71% of first hospital visits. Revascularizations were performed (66% endovascular) in 101 patients. Non-diabetic patients were 52% and had statins less frequently prescribed than DM patients (26:45, p<0.001).

Conclusion: DM and/or PAD are the leading causes of MLEA in Iceland. Amputation rate increased during the period but is low in an international context. Amputation is most often preceded by arterial surgery. DM is present in almost half of cases, similar or less than in most other countries. Opportunities for improved prevention lie mainly in earlier diagnosis and preventive treatment of non-diabetic individuals with PAD.

OP115 THERMOGRAPHY - THE NEW TOOL FOR DIABETES FOOT SCREENING?

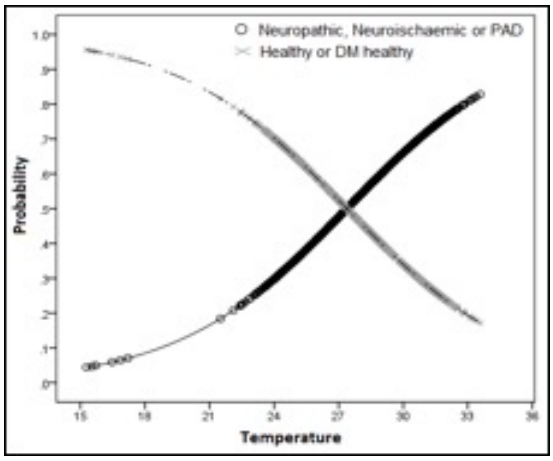
Alfred Gatt[1], Cynthia Formosa[1]

[1]*L-Università ta' Malta, Podiatry, Msida, Malta*

Aim: To determine whether thermography could detect diabetes foot complications of peripheral arterial disease (PAD), neuropathy and neuroischaemia when compared with those of healthy adults.

Method: Participants were categorized into five groups: healthy, healthy diabetes, PAD and neuroischaemic groups following a clinical examination. Thermography of the foot was then performed at an ambient temperature of 23°C.

Results / Discussion: 43 neuroischaemic feet, 41 neuropathic feet, 58 PAD feet, 21 DM feet without complications, and 126 healthy feet were had thermographic imaging which were then analyzed. The temperatures of the feet and toes were significantly higher in the complications group when compared to the healthy adult and DM healthy groups. Results of this study show that the higher the temperatures of the foot in DM, the higher the probability that it is affected by neuropathy, neuroischaemia, or PAD (figure 1).



Conclusion: There were significant differences between the temperatures of healthy feet and the feet of participants with complications. This suggests that thermography can possibly be utilized as a quick non-contact screening tool to detect patients with these complications, whereby such patients can be quickly identified by this emerging technology. This would save both clinical and human resources by avoiding having to screen all diabetes patients, thus enabling clinicians to spend more time with those patients with complications.

OP116 LEAN THINKING AS A PROBLEM-SOLVING APPROACH IN A DIABETIC FOOT (DF) CLINIC

Elisa Leporati[1], Laura Ambrosini Nobili[1], Lorenza Abbruzzese[1], Nicola Riitano[1], Soo-Kyung Strambi[1], Alberto Piaggesi[1]

[1]*Pisa University Hospital, Diabetic Foot Section, Pisa, Italy*

Aim: *Lean Thinking* is a certified technique for the quality implementation in complex systems like factories, distribution chain supply etc. Aim of our study was to check if the application of the *lean management* approach to our DF clinic would produce positive effects in the quality of the work of the podologists.

Method: A thorough analyisis of working processes was carried out in our DF clinic for six consecutive months and three critical aspects were identified: 1. The supplying of materials and the organization of storage, 2. The pathways for the patients accessing the clinic for being visited or leaving it after the visit and 3. The distant location of the waiting room. The interventions consisted in 1. the implementation of a web-based operative program for the supply of materials and the re-organization of the storage, 2. the creation of separate pathways for patients in and out the clinic and 3. The relocation of the waiting room. we measured before and after the changes for one month respectively: 1. rates of missing materials (RMM), 2. time for patients' changing in the visit rooms (TPC) and 3. rate of occupation of the waiting room (ROW).

Results / Discussion: RMM significantly decreased after the intervention (3.2±1.1% vs 12.4±3.7%, $p<0.01$); TPC reduced as well (5.2±2.3 min vs 10.8±4.1 min $p<0.05$), while ROW did not show significant modifications although it improved (72.4±16.8% vs 60.1±22.3% ns).

Conclusion: Lean management is effective in improving the quality of podological work in a DF clinic.

FREE PAPER SESSION: PRESSURE ULCERS 2 / COMUNICAZIONI ORALI: ULCERE DA PRESSIONE 2

OP117 PRESSURE ULCER TREATMENT COST ANALYSIS: PROSPECTIVE STUDY PILOT RESULTS

Lenka Krupová[1], Andrea Pokorna[2 3], Petra Búřilová[2 3], Dana Dolanová[2 3], Miloslav Klugar[2 3 4], Simona Saibertová[2]

[1]University Hospital Ostrava, Department of Dermatology, Ostrava, Czech Republic; [2]Masaryk University Brno, Department of Health Sciences, Brno, Czech Republic; [3]Institute of Health Information and Statistics, Department of Data Analyses, Prague, Czech Republic; [4]Czech Evidence-Based Healthcare and Knowledge Translation, Czech Republic

Aim: We are presenting the preliminary results from the pilot study aimed to prepare and verify a methodology for monitoring the cost of pressure ulcers in hospitalized patients. We assessed the feasibility and acceptability of an approach intended to be used in the final prospective observational study.

Method: The prospective cross-sectional study in patients with pressure ulcers at the University Hospital Ostrava. Based on the literature review and expert knowledge, a structured dataset for data collection was constructed. Data collection took place from March to May 2022 at selected departments. A consultation and comparison of the data collection methodology with foreign experts took place.

Results / Discussion: A total of 101 patients with pressure ulcers who were hospitalized at selected departments were included. There were 50 men and 51 women. The average age was 72 years. The average cost per treatment day of a patient hospitalized with a pressure ulcer was 172 EUR. The cost per day of treatment increases with the category of pressure ulcer.

Conclusion: The pilot study showed that the prepared dataset and methodology are well-designed, and only minor changes were needed for the final study, which will be conducted in 2023. The main applied output of the project will be a detailed methodology (economic model) for comprehensive monitoring of the cost of pressure ulcers in hospitalized patients usable in clinical practice for acute care inpatient healthcare providers.

Acknowledgement: This work was supported by the Ministry of Health of the Czech Republic under grant no. NU20-09-00094 "Cost analysis of pressure ulcers treatment - determinant of care".

OP118 GENOMIC BIOMARKERS PROVIDE A DEEPER UNDERSTANDING FOR RECURRENT PRESSURE ULCERS

Kath Bogie[1 2], Letitia Graves[2], E. Ricky Chan[1], Katie Schwartz[2], M. Kristi Henzel[1 2], MaryAnn Richmond[1 2], Nannette Alvarado[2], Josie Shiff[2], Marinella Galea[3], Anna Toth[4], Christine Olney[4]

[1]Case Western Reserve University, United States; [2]Louis Stokes Cleveland VA Medical Center, Cleveland, United States; [3]James J. Peters Department of Veterans Affairs Medical Center, Bronx, United States; [4]Minneapolis VA Health Care System, Minneapolis, United States

Aim: The study is investigating the enigma of why some high risk individuals stay pressure ulcers (PU) free whilst others experience a continuous cycle of recurring PU, leading to long periods of bedrest and reduced quality of life. Genomic biomarkers that may facilitate earlier identification of individuals at the highest risk for recurrent PU are being investigated.

Method: RNA sequencing of processed whole blood samples has been carried to examine repeated measures of the transcriptome activity of 60 persons with complete or incomplete SCI (AIS A-D) and known PU history. Samples were collected at 6-12 month intervals for all participants. RNA was isolated and mixed with Deoxyribonuclease (DNase) to reduce the amount of genomic DNA. Quality control was carried out using the Qubit™ RNA broad range kit and normalized to 50ng/uL prior to sequencing using the NovaSeq 6000 (Illumina) system. Sequence data was analysed using iPathwayGuide (Advaita Bioinformatics).

Results / Discussion: A robust subset of 25 active genes that are differentially up- or down-regulated between persons with or without recurrent PU has been identified. Persons with recurrent PU have upregulated activity in genes involved in the pathways in biological senescence and downregulated activity in pathways directly involved in antimicrobial protection.

Conclusion: The huge impact of recurrent PU on quality of life remains challenging. 21st century approaches to an age-old problem are providing greater understanding of the role of genomic biomarkers for increased risk for recurrent PU. An ongoing multisite repeated measures study is providing further insights into multi-omic risk for recurrent PU.

OP119 SUB EPIDERMAL MOISTURE MEASUREMENT AND TARGETED SSKIN BUNDLE INTERVENTIONS, A WINNING COMBINATION FOR THE TREATMENT OF EARLY PRESSURE ULCER DEVELOPMENT

Helen Strapp[1], Sorcha Byrne[2], Declan Patton[3], Pinar Avsar[4], Aglecia Budri[5], Tom O'Connor[6], Linda Nugent[7], Zena Moore[8]

[1]RCSI, Nursing, Dublin, Ireland; [2]Connolly Hospital , Nursing, Dublin, Ireland; [3]RCSI, Skin Wounds and Trauma Research Centre, RCSI University of Medicine and Health Sciences, Dublin, Ireland, Dublin, Ireland; [4]The Royal College of Surgeons in Ireland (RCSI), , Lecturer and Programme Director, School of Nursing and Midwifery. , Dublin, Ireland; [5]The Royal College of Surgeons in Ireland (RCSI), Lecturer and Programme Director, School of Nursing and Midwifery. , Dublin, Ireland; [6]The Royal College of Surgeons in Ireland (RCSI), , Skin Wounds and Trauma Research Centre, RCSI University of Medicine and Health Sciences, Dublin, Ireland School of Nursing and Midwifery, RCSI University of Medicine and Health Sciences, Dublin, Ireland, Dublin, Ireland; [7]The Royal College of Surgeons in Ireland (RCSI), , Senior Lecturer and Programme Director, School of Nursing and Midwifery. The Royal College of Surgeons in Ireland (RCSI), University of Medicine and Health Sciences, Dublin. , Dublin, Ireland; [8]Senior Lecturer and Programme Director, School of Nursing and Midwifery. The Royal College of Surgeons in Ireland (RCSI), University of Medicine and Health Sciences, Dublin. , Skin Wounds and Trauma Research Centre, RCSI University of Medicine and Health Sciences, Dublin, Ireland School of Nursing and Midwifery, RCSI University of Medicine and Health Sciences, Dublin, Ireland, Dublin, Ireland

Aim: To investigate the impact of SEM measurement and targeted PU prevention (treatment group), versus visual skin assessment and usual care (control group), on mean SEM measurement scores, using a CE/FDA approved device, and early PU development in acute hospital patients.

Method: A quantitative, quasi-experimental observational approach was employed. A total of 149 at-risk patients were randomly allocated to one of 2 study groups (78 treatment, 71 control). SEM deltas were recorded daily for a maximum of five days on the sacrum, right and left heel in both study groups. Enhanced PU prevention was delivered to those with an elevated SEM score in the treatment group. Staff caring for the control group participants were blinded to SEM measurements, and participants in this group received usual care. Intention to treat analysis was used to guide analysis.

Results / Discussion: The mean age of participants was 67.3 years, and 43% were female. Participants in the treatment group had a statistically significant reduction in mean SEM delta scores (MD:0.49; 95%CI:0.59, 0.39;p<0.0001), and in the odds of developing a SEM PU (two days of sustained abnormal SEM delta scores, after day one) (OR:0.59, 95% CI:0.24 to 1.00;p=0.05). None of the participants in the treatment group developed a visual PU, and 1.41%(n=1/71) in the control group developed a visual PU.

Conclusion: There was a greater reduction in mean SEM deltas amongst those cared for using SEM measurement and targeted PU prevention, versus those cared for using visual skin assessment and usual care, and the mean SEM delta was statistically significantly lower at study end for those who received targeted interventions based on abnormal SEM readings.

OP120 PATIENT AND CARER PERSPECTIVE OF USING CONTINUOUS PRESSURE MONITORING IN A COMMUNITY SETTING

Nicci Aylward-Wotton[1]

[1]Cornwall Partnership NHS Foundation Trust, Tissue Viability, Bodmin, United Kingdom

Aim: To understand the impact on the patient/carer and multidisciplinary team of using continuous pressure monitoring (CPM) as visual feedback in decision making regarding pressure ulcer management and prevention.

Method: 360 degree interviews were used following a purposeful sample of patients/carers to reflect different experiences of using CPM.

A series of semi-structured interviews were used to recount the impact of the implementation on their care and quality of life. Interviews were audio recorded, transcribed verbatim and sent to each participant to verify content and accuracy. Narratives were thematically analysed to the study objectives and key quotes were selected to illustrate and reinforce the interview findings and develop further questions to achieve saturation.

The interviews were conducted with:

- a patient and /or their carer
- Health Care Practitioner involved in the patient's care
- a representative from a local equipment supplier.

Results / Discussion: Eight adult patients aged 34-73 years were interviewed with a history of recurrent or non-healing Category 2 or 3 pressure ulcers/pressure damage.

CPM was observed as having a strong visual impact by patients and carers. There was increased engagement, insights and understanding with changes in behaviour of patients, carers and clinicians.

There were reports of an increased sense of empowerment, feeling listened to, supported and understood. Equipment suppliers recognised the value of CPM as a clinical and equipment procurement tool.

Conclusion: The key benefits of CPM were improved access to effective equipment solutions and better mutual understanding and concordance between patients and clinicians.

The interviews showed improved collaborative multi-disciplinary working and understanding of the needs of the patients and carers to aid patient empowerment and patient-centered care.

OP121 DECREASING INTRAOPERATIVE SKIN DAMAGE DETECTED WITH SEM IN PRONE POSITION SURGERIES

Barbara Bates-Jensen[1], Jessica Crocker[2], Vicki Nguyen[3], Lauren Robertson[3], Deborah Nourmand[3], Emily Chirila[3], Mohamed Laayouni[3], Ofelia Offendel[3], Kelly Peng[3], Stephanie Anne Romero[3], Gerry Fulgentes[4], Heather McCreath[2]

[1]University of California Los Angeles, School of Nursing, University of California, Los Angeles, Los Angeles, CA Division of Geriatrics, David Geffen School of Medicine, Los Angeles, United States; [2]University of California Los Angeles, School of Medicine; [3]University of California Los Angeles, School of Nursing, Los Angeles, United States; [4]UCLA Santa Monica Medical Center, Santa Monica, United States

Aim: Preventing intraoperative acquired PrIs (IAPrIs) among patients undergoing prone position surgery is challenging due to positioning required for surgical access, limited availability of pressure reduction surfaces for operating tables, and difficulties detecting and ascribing IAPrIs to surgery. Use of subepidermal moisture (SEM) values may help with detection issues.

Method: This prospective intervention clinical trial of patients (n=40 pre-intervention and n=50 intervention) undergoing neurological or orthopedic prone position surgery examined use of multidimensionally flexible silicone foam (MFSF) dressings applied to face, chest, and iliac crest pre-operatively to prevent IAPrIs. Research staff obtained visual assessments and SEM values pre-operatively, post-operatively, and daily up to 5 days or discharge. Erythema was rated as present/absent, and for severity.

Results / Discussion: Participants were 39% female, 30% non-White, with a mean age of 60 years. Average surgery length was 4.7 hours and hospital length of stay 3.1 days. Of participant with no erythema pre-op, fewer intervention participants exhibited post-op erythema minimal severity or greater on the forehead, left cheek, and iliac crests than pre-intervention participants. Post-op SEM difference greater than 0.5 indicated IAPrI. Fewer intervention participants had SEM defined IAPrI across all anatomic locations than pre-intervention. These patterns continued until discharge. Additional analyses identified effects of variations in equipment utilized, surgeon, and length of surgery.

Conclusion: Patients undergoing prone surgeries showed less skin damage and erythema and demonstrated stable SEM values indicating no skin damage when a multidimensionally flexible silicone foam dressing was applied prior to surgery. SEM values detected more skin damage than visual assessment.

OP122 SEMI-OPEN DATA FOR PRESSURE ULCERS PREVALENCE TRENDS – VISUALIZATION FOR THE LAY PUBLIC

Andrea Pokorna[1 2], Petra Búřilová[1 2], Dana Dolanová[1 2], Veronika Štrombachová[2], Michal Pospíšil[1 2], Denisa Porter[3 4]

[1]Department of Nursing and Midwifery, Faculty of Medicine, Masaryk University, Brno, Czech Republic; [2]Institute of Health Information and Statistics, Health Care Assessment, Prague, Czech Republic; [3]University of Ostrava, Faculty of Medicine, Department of Nursing and Midwifery, Ostrava, Czech Republic; [4]King Abdulaziz Medical City, National Guard Health Affairs, Post Anaesthesia Care Unit, Riyadh, Saudi Arabia

Aim: Presenting semi-open data on adverse events with a special focus on pressure ulcers as a tool to increase the health literacy of the general public.

Method: The provision of health services is a risky area. One significant risk is the occurrence of adverse events, of which pressure ulcers are the most commonly reported in the national adverse event reporting system. Since 2018, monitoring and reporting pressure ulcers have been mandatory for all inpatient healthcare providers. Initially, the data was only available to authorized healthcare providers and used for aggregated national analyses. Currently, the analyses are published in aggregated form for the general public. Thus, a new online tool for sharing semi-open data will be presented.

Results / Discussion: Data from 430 healthcare providers on the number of adverse events/injuries are visualized. There is an overview of the trend of pressure ulcer reporting - the number of pressure ulcers per 1000 patients and the absolute number of pressure ulcers. Whilst the conversion of pressure ulcers per 1000 patients has been on a steady trend in recent years (approximately 50 pressure ulcers per 1000 patients), the total number of reported pressure ulcers has increased by three thousand PUs year on year (2021 vs 2020). Visualizing the number of reported PUs by type of healthcare provider also provides interesting information. While the total number of reported PUs is highest for large and faculty hospitals (40 thousand PUs in the year 2021), when calculated per 1000 patients, the largest number of PUs is reported from post-acute care facilities.

Conclusion: An appropriate presentation of information to the general public will increase health literacy, raise awareness of the problem and contribute to addressing the economic cost of preventing and treating pressure ulcers.

Acknowledgement: This work was supported by the Ministry of Health of the Czech Republic under grant no. NU20-09-00094 "Cost analysis of pressure ulcers treatment - determinant of care".

FREE PAPER SESSION: BURNS

OP123 HYALURONIC ACID AND SILVER SULFADIAZINE – ESSENTIAL COMPOUNDS IN THE TREATMENT OF BURNS

Mihaela Pertea[1], Madalina Fotea[1], Oxana-Madalina Grosu[1], Stefana Luca[1]

[1]1. "Grigore T. Popa" University of Medicine and Pharmacy, Iasi, Romania, 2. Department of Plastic Surgery and Reconstructive Microsurgery, St. Spiridon Emergency County Hospital, Iasi, Romania, Plastic Surgery, Iasi, Romania

Aim: Hyaluronic acid (HA) is an extracellular matrix component. It decreases the infiltration of inflammatory cells, improves re-epithelization and granulation, and promotes angiogenesis. HA and silver sulfadiazine (SSD) have been used in therapy of burns like a topical treatment. This study aims to investigate the effectiveness of hyaluronic acid and silver sulfadiazine association for treating superficial and deep second-degree burns.

Method: The study was conducted on 56 patients aged 20 to 82 years old, with II-nd degree burn (superficial and deep), not exceeding 25% of total body surface area. Data pertaining to epidemiologic status of the patients, etiology, and degree and percentage of burn were collected. In addition, pain, infection rates, length of hospital stay, duration of healing, presence of scar formation and the surgical interventions performed were analyzed. The etiology of burns was hot liquid, contact burns, electricity and flame burn. In all cases HA was applied from the second day of hospitalization after surgical cleansing of the wound with or without negative pressure wound therapy.

Results / Discussion: Healing time varied between 10 and 30 days. Furthermore, this topical association had favourable antibacterial, anti-edematous and local analgesic effects, with an evident stimulatory activity on the re-epithelialization process. All cases needed pain management.

Conclusion: Because of its hygroscopic proprieties, HA provides a proper environment for tissue regeneration, with important use in scar management. Our study confirms all of this, proving that using HA and SSD has a significantly favourable response concerning the average healing time of superficial or deep partial-thickness burns.

OP124 A NEW TECHNIQUE IN THE TREATMENT OF FOURTH-DEGREE SCALP BURNS IN CHILDREN: COMBINATION OF FORMING MULTIPLE HOLES WITH BURR HOLE AND NEGATIVE PRESSURE WOUND THERAPY

Sabri Demir[1], Süleyman Arif Bostanci[1], Ahmet Erturk[1], Fahri Akkaya[1], Can Ihsan Oztorun[2], Elif Emel Erten[1], Dogus Caliskan[2], Mujdem Nur Azili[2], Emrah Senel[2]

[1]Ankara Bilkent City Hospital, Children Hospital, Department of Pediatric Surgery and Pediatric Burn Center, Ankara, Turkey; [2]Ankara Yildirim Beyazit University, Faculty of Medicine, Department of Pediatric Surgery, Ankara, Turkey

Aim: Treatment of fourth-degree burns on the scalp is a challenging problem. We aimed to share our experience with fourth-degree burns of the scalp, those firstly multiple holes were formed on the skull bones and closed with Negative Pressure Wound Therapy (NPWT), and the intermittent dressings were applied until covered with granulation tissue and finally covered with an autograft split-thickness graft.

Method: Five-children with fourth-degree scalp burns were included in the study. Multiple holes were formed at the outer-table of the skull until bleeding on the base was seen. The holes were drilled down to the Diploe range. Then the wound was covered with a paraffin gauze dressing and closed with NPWT. This wound care was repeated until the entire wound was covered with granulation. Finally, it was grafted with split-thickness autograft.

Results / Discussion: Of the cases (n=5), 4 were male. The mean age of the patients was 1.24 years. The cause of burns in all patients was flame and the mean total burned surface area was 26.4%. The mean wound covering duration with granulation after the holes forming was 45 days. No patient was lost. No graft complications were observed. In our cases, for the first time in children, granulation was constituted by combining forming multiple holes and NPWT application in the management of deep scalp burns.

Conclusion: NPWT both accelerates the development of granulation and prevents the development of infection. Therefore, we recommend combination of forming multiple holes with Burr-hole and NPWT technique in the management of fourth-degree scalp burns.

OP125 BURNS OF REFUGEES/ASYLUM SEEKERS CHILDREN WHO HAD TO LEAVE THEIR HOMES DUE TO THE WAR

Sabri Demir[1], Ahmet Erturk[1], Suleyman Arif Bostanci[1], Sarper Muftuogullari[1], Elif Emel Erten[1], Can Ihsan Oztorun[2], Dogus Caliskan[2], Vildan Selin Cayhan[1], Mujdem Nur Azili[2], Emrah Senel[2]

[1]Ankara Bilkent City Hospital, Children Hospital, Department of Pediatric Surgery, Pediatric Burn Center, Ankara; [2]Ankara Yildirim Beyazit University, Faculty of Medicine, Department of Pediatric Surgery, Ankara, Turkey

Aim: We aimed to share our data about burned-children treated in our pediatric-burn-center (PBC), which occurred in the children of four countries (Syria, Iraq, Afghanistan, and Somalia) who had to leave their homes due to the civil war.

Method: Children who were lived in refugee camps in their own countries, where civil wars continued, and who were under the status of asylum seeker/refugee in Turkey, were treated in our PBC were included in the study. The demographic and clinical data were evaluated, retrospectively and compared with Turkish patients.

Results / Discussion: Between 01 February 2012 and 28 February 2022, 1673 burned children were treated in our PBC. Of these, 279 (16.7%) were citizens of countries where civil war continued. The length-of-stay at PBC for foreigners was longer (P<0.001), TBBSA was bigger (P<0.001), the incidence of fire/flame burns and related inhalation injury was higher (P<0.001), and grafting rates were higher (P=0.001). The mortality rate of foreigners was five times higher (8.6% versus 1.65%, P<0.001). Of the foreigners, 86.7% were Syrian, 6.1% Iraqi, 5.4% Afghan, and 1.8% Somalian. Refugees/asylum seeker victims were injured mostly in the winter-months and by the flame/fire burns caused by the fuel-stove used for heating in the refugee camps. The second most common cause was the fires caused by other reasons in the tents/barracks, followed by bomb explosions.

Conclusion: Asylum-seekers/refugees, mostly children, and women, escaping from the war live in terrible conditions in the camps. Fuel-stoves and related fires are the most common cause of burns in the refugee camps. For this reason, international organizations should find a solution to the heating problem in camps other than fuel-stoves.

OP126 COMPARATIVE STUDY BETWEEN SKIN MICROGRAFTING (MEEK TECHNIQUE) AND MESHED SKIN GRAFTS IN PAEDIATRIC BURNS

Marwan Noureldin[1], Tarek Said[1], Khaled Makin[1], Hamed Kadry[1]

[1]Kasr Al Ainy Medical School, Egypt

Aim: Management of paediatric burns is always challenging; due to limited donor sites and cosmetic appearance that will affect the child later in life, either at the donor or the recipient site.

Method: A prospective comparative randomised study was done on 40 paediatric burn patients with deep dermal and full-thickness burns. Patients were divided into two groups, Meek and meshed groups. The skin graft take, epithelialization time, total surgery time and the aesthetic outcomes (using the POSAS) in each group were evaluated three months postoperatively.

Results / Discussion: The percentage of take in the Meek group (84.25%) was significantly better than the meshed group (71.5%) (P = 0.006). Epithelialization time was better for the Meek group (27.11 days) than the meshed group (33.5 days) (P = 0.176). Infection rates were lower in the Meek group (25%) than in the meshed group (40%) (P = 0.311). Subjectively POSAS scar assessment scale exhibited better results for the Meek group, with a mean score of 3.17 & for the meshed group, it was 4.2 (P = 0.048). The observer's overall score was as well better for the Meek group, with a mean overall opinion score of 2.89 & for the meshed group was 4.1 (P = 0.003). The operative time was longer with the Meek technique than with the traditional mesher (P < 0.001).

Conclusion: The Meek technique for expanding the skin grafts is useful in covering burn wounds with a greater expansion rate, more accessible application, better graft take & better scar appearance than the traditional mesher. Still, the Meek technique has a considerable learning curve, longer procedure time & more expensive.

OP127 PERFORMING MICRO-SKIN IMPLANTATION ON GRANULATION TISSUES OF DEEP BURN WOUNDS AND CHRONIC REFRACTORY WOUNDS

Hou-an Xiao[1]

[1]*Xi'an Ninth Hospital Affiliated to Xi'an Jiaotong University, Department of Burn and Plastic Surgery*

Aim: To investigate clinical efficacy of performing autologous micro-skin implantation on granulation tissues of deep burn wounds and chronic refractory wounds.

Method: 160 patients with deep burn wounds and chronic refractory wounds were enrolled. For deep burn wounds, necrotic tissues on wound surfaces were thinned to form red fresh granulation surfaces; for chronic refractory wounds, necrotic tissues on wound surfaces were removed to form clean granulation surfaces. After autologous micro-skin implantation was performed, moist exposed burn ointment dressing was applied on wound daily post-surgery.

Results / Discussion: 114 patients' wounds healed completely within 3-6 weeks post-surgery. 46 patients' wounds did not close completely, the second autologous micro-skin implantation was performed for them. 6 months to 5 years' follow-up data demonstrated satisfying wound healing status and mild scar hyperplasia.

Conclusion: Performing autologous micro-skin implantation on granulation tissues formed after preliminary treatment is an effective method to repair deep burn wounds and chronic refractory wounds.

FREE PAPER SESSION: HEALTH ECONOMICS & OUTCOME / COMUNICAZIONI ORALI: ECONOMIA SANITARIA E RISULTATI

OP128 HEALTH CARE PROFESSIONALS' PERCEPTIONS ON COST AND RESOURCE UTILISATION FOR THE TREATMENT OF DIABETES FOOT DISEASE

Nicoletta Frescos[1], Michelle Kaminski[2], Lucy Stopher[3], Shirley Jansen[3 4]

[1]*St Vincent's Hospital, Podiatry, Melbourne, Australia*; [2]*La Trobe University, Podiatry, Bundoora, Australia*; [3]*Sir Charles Gardiner Hospital Perth, Vascular Unit, Perth, Australia*; [4]*Curtin University, Curtin Medical School, Perth, Australia*

Aim: This study aimed to investigate the financial burden and resource utilisation for the treatment of diabetes related foot disease.
Method: Semi-structured interviews with expert HCPs actively involved in the management of DFD was conducted using a pre-specified discussion guide. The study sample was purposefully selected to ensure equal representation across HCPs. Quantitative results of the interviews were applied to the Markov model to estimate the annual cost of DFD management within Australia.

Results / Discussion: Twelve HCPs participated in the interviews. Qualitative results show there is variation in the frequency and type of resource utilisation based on the particular HCP, the practice setting and the procurement arrangements. A major theme arising from the interviews was the delay in treatment for specialist care. The overall cost of DFD was estimated to be AUD $828 million, and is likely to increase to AUD $1.110 million by the year 2026.

Conclusion: Delays to treatment in DFD have implications for tissue and limb salvage in this growing and morbid disease process, with long term impacts on the patient, health care costs and society. While some of this cannot be easily quantified, this study will identify and bridge the gaps between current Australian literature on DFD costs, evidence-based guidelines and the variation in service provision and barriers to access, which will help to inform optimisation of service delivery.

OP129 COST-EFFECTIVENESS OF TLC-NOSF DRESSING IN THE MANAGEMENT OF DFUS WORLDWIDE: AN OVERVIEW ANALYSIS

Chris Manu[1]

[1]*King's College Hospital, London, United Kingdom*

Aim: Diabetic foot ulcers (DFUs) are challenging wounds associated with delayed healing, high risk of infection and lower-limb amputation; and so, very high treatment costs.TLC-NOSF dressing has proven its significant efficacy from a randomized, double-blind clinical trial, when compared with neutral dressings. Authors will report the results of the economic impact of using TLC-NOSF dressing in Europe, Asia and North America.

Method: In Europe, the studies involved a Markov-model cost-effectiveness design. From the study endpoint of 20 weeks, extrapolation to a base-case time horizon of 1 year was adopted in the UK and French models and 100 weeks for Germany. Deterministic and probabilistic sensitivity analyses were conducted to assess the robustness of the model parameters. In China and Canada, independent studies involving a Markov-model were conducted respectively on 10 000 and 1000 patients.

Results / Discussion: The NICE Guidance has recently supported the use of TLC-NOSF in the DFU treatment and reported an average annual cost-saving of £342 per patient in the UK; this treatment is also highly cost-effective in Germany (€3,767 cost savings) and in France (€3,345). The main cost driver was the time to heal. Furthermore, earlier the use of TLC-NOSF dressing, higher are efficacy and cost savings. In Canada, compared to conventional dressings, adding TLC-NOSF dressings resulted in an expected $5,878 decrease in health care costs over 5 years.

Conclusion: TLC-NOSF dressing compared with neutral dressings is the dominant treatment strategy in the management of DFUs, resulting in significant annual cost savings in European, Asian and North American Healthcare systems.

OP130 THE ECONOMIC BURDEN OF CHRONIC WOUNDS: CARE AND MATERIALS IN HOME CARE

S.F. Amesz[1 2], Niels Stol[3], Harm Jaap Smit[4]

[1]*Deventer Hospital, Deventer, Netherlands*; [2]*Qualityzorg B.V., Nieuw-Vennep, Netherlands*; [3]*Excen B.V., Nieuw-Vennep, Netherlands*; [4]*Erasmus MC, Academy, Rotterdam, Netherlands*

Aim: Chronic wounds lead besides patients personal burden to an economic burden. The prevalence of chronic wounds is estimated to be at 1-2% of the population in Europe. In 2021, the Netherlands had 17.53 million inhabitants, which means there would be 170-350 thousand people in the Netherlands with a chronic wound. The total cost of (multidisciplinary, specialized) wound care in the Netherlands is estimated at approximately 3.2 billion euros.

Method: In this retrospective study home care data between 1 January 2017 to 31 July 2022 from all patients with healed wounds was collected by means of a transmural electronic patient file record[1] at patient level, but also at the level of unique wounds. The homecare was provided by a Dutch specialist wound care agency in primary care exclusively a tissue viability nurses or Nurse Practitioner specialists[2]. In addition to this study, the number of home visits were also recorded to the minute and the amounts declared to the health insurance providers.

Results / Discussion: In this period 3569 patients with 8362 wounds, an average of 2,34 wounds per patient were treated. The total costs of medical supplies for these patients were 3.979.979 euros. The total costs of the specialized wound care at home for these patients were 6.346.458 euros. These costs combined make for a total cost of 10.326.527 euros.

Conclusion: The total costs of care for a patient suffering from a chronic wound are difficult to determine, but this study provides insight into part of these costs.

1. Patdoc®; 2. QualityZorg

OP131 AUTOLOGOUS WHOLE BLOOD CLOT AND NEGATIVE-PRESSURE WOUND THERAPY IN SOUTH AFRICA: A COMPARISON OF THE COST AND SOCIAL CONSIDERATIONS

Liezl Naude[1 2 3], Ane Lombard[3], Georges Balenda[4]

[1]Wound Healing Association of Southern Africa, Past President, South Africa; [2]World Alliance of Wound & Lymphoedema Care, WAWLC, Switzerland; [3]Eloquent Health & Wellness, Pretoria, South Africa; [4]Tembisa Hospital, Tembisa, South Africa

Aim: To compare the social considerations and financial costs of using autologous WBC v. NPWT in the treatment of DFUs in SA.

Method: Data were obtained based on current supply costs from SA suppliers for the two modalities, the standard of care for both modalities, the number of applications required for each, and social considerations provided by SA wound management clinicians. Wound healing rates were obtained from the published literature. Calculations included weekly cost of supplies, total cost saved by a patient with a DFU managed with either of the wound therapies, and the difference in total cost saved between the two modalities. Key social considerations were assessed qualitatively from discussions with SA clinicians experienced in both autologous WBC and NPWT, and from published research.

Results / Discussion: With healing rates over 4 weeks' treatment duration of 19% for autologous WBC and 10% for NPWT, autologous WBC saved ZAR17 719.93, or 9% more than using NPWT, in scenario 1 and ZAR18 381.47, or 10% more, in scenario 2. At 12 weeks' treatment duration, healing rates for autologous WBC and NPWT were 75% and 43%, respectively. In scenario 1, results indicated a 43% cost difference between the two modalities. In scenario 2, results indicated a 46% cost difference between the two modalities.

Conclusion: Both modalities are safe and effective in treating hard-to-heal wounds of the lower extremities. Autologous WBC consistently demonstrated better outcomes than NPWT in terms of both healing rate and cost-effectiveness, as well as having some advantages in terms of social considerations in SA.

OP132 CHRONIC WOUNDS AND EMPLOYMENT

Dorothee Busch[1]

[1]Hautklinik, Universitätsklinikum Erlangen, Erlangen, Germany

Aim: The aim of the project is to find out what effect chronic wounds have on occupational activities and how they are affected. Also, we will evaluate to what extent occupational activity affects the quality of life of patients represents a potential stress factor.

Method: We created a questionnaire with 3 components. First, we asked general questions about occupation and chronic wound, then we inquired about the extent to which occupation is limited by the wound and which services of the health care system and social system are used. This was followed by questions about self-assessment, quality of life and stress factors.

Results / Discussion: The mean age of the 23 patients interviewed was 49 years. 78% of all patients were employed, 18% were on sick leave and 4% were retired. The employed patients worked an average of 38.2 hours per week. 65% of the patients had already been on sick leave because of the wound; the mean duration of sick leave was 11 months. Subjective stress differed depending on the occupation and stress factors at the workplace. Quality of life was impaired, with 60% of respondents feeling less able to perform and 65% concerned about their professional future.

Conclusion: The effects of chronic wounds are particularly evident in reduced work performance, most clearly in the form of sick leave. In addition, there is a clear psychological burden in this group of patients. It is important to find out in a larger sample which factors are decisive for stress in the work environment in order to improve the situation of working patients.

OP133 THE HEALTH ECONOMICS IMPLICATION OF A COMPARATIVE TIME AND MOTION STUDY DONE ON TWO BANDAGE SYSTEMS, ONE A TRADITIONAL 4 LAYER SYSTEM, THE OTHER A NOVEL TWO LAYER DUAL COMPRESSION SYSTEM (DCS)

Debashish Chakravarthy[1]

[1]*Urgo Medical, Medical Affairs, Fort Worth, United States*

Aim: Four-layer bandage systems (4LB) is the traditional choice for the management of lower extremity edema. Though more expensive, a novel two-layer dual compression system bandage (2LB) has found favor due to improved wound healing rate associated with compliance. The objective of this study was to estimate the time and labor costs of patients treated with a 4LB or 2LB system.

Method: All clinically indicated patients presenting at a single wound care center were included over the course of a single day. Patients were randomized to 4LB or 2LB system and bandaged by an experienced clinician. The time of bandage application was calculated by an independent observer and divided by the total number of patients to determine the average. Labor costs were determined by multiplying the times by average labor and overhead costs.

Results / Discussion: 40 patients were randomized to 4LB or 2LB. 46:00 minutes (2:18 minutes/limb) was spent applying the 4LB versus 31:40 minutes (1:35 minutes/limb) applying the 2LB. The 2LB saved nearly 15 minutes over 20 patients. The labor and overhead costs associated with applying the 4LB and 2LB were $19.93 and $13.72 for the day, a labor saving of $ 6.51.

Conclusion: Over 30-day period, 942 limbs were bandaged in this center. Use of 2LB system would result in 11.25 hours saved and $292.54 saved in labor. The 11.25 hours saved can be better used for seeing 65 additional patients, which is more beneficial to the community, and this also can generate an estimated $ 15210 at average patient revenue rates. Also significant are obvious environmental benefits in using a 2LB which generates less medical waste.

OP134 COST-BENEFIT OF AND SKIN CARE UNIT IMPLEMENTATION: A HEALTH ECONOMICS PERSPECTIVE

Barbara Ampuero[1]

[1]Santiago, Portugal, Santiago, Chile

Aim: To evaluate the economic impact of implementing a Skin Care Unit in high complexity public health centers in Chile as a cost-benefit option.

Method: Descriptive, prospective design study. The project evaluation methodology was used at profile level, 5-year cash flow economic evaluation in a high complexity health institution in Santiago de Chile between years 2022-2026. The variables studied were: prevalence of Pressure Injuries (PU), Diagnosis Related Groups data, cost of treatment of complex wounds, economic indicators such as Net Present Value and Sensitivity Analysis. The data obtained were transferred to an Excel spreadsheet and analyzed by linear regression and descriptive statistics. This study did not require Ethics Committee authorization, only administrative authorization from local authorities.

Results / Discussion: The data obtained quantify the cost of treating 1 complex PU at 40,430 USD with an average of 25 complex PUs in a year and with an average care time of 120 days. However, at the time of forming a skin care unit with a specialized team, with clinical, management and training roles, a decrease of 8.8% in annual prevalence of complex PU is estimated and a reduction of 30 days of healing which generates at the cash flow level an economic profitability and therefore the feasibility of its implementation.

Conclusion: The creation of a Skin Care and Advanced Wound Management Unit in a high complexity public health care center is cost-effective if economic management indicators are considered, which can also be reflected in a perception of quality and satisfaction on the part of users.

OP135 15 YEARS OF CZECH NATIONAL WOUND HEALING CENTRE ENDORSEMENT PROGRAMME

Jan Stryja[1]

[1]*Hospital Agel Podlesi Trinec, Vascular surgery, Trinec, Czech Republic*

Aim: Czech national wound healing centre endorsement programme has been established in 2007 as an initiative of the Czech Society for Wound Healing (CSWH). The aim of this project was to recognize health-care facilities working on a high standard of care and to help to form national-wide network of wound healing centres in the Czech Republic.

Method: The project of endorsement is based on the systematic assessment of non-healing wound health-care providers by way of health-care services declarations. The evaluation process is focused on the complexity of wound diagnostics and care, sufficient specialist arrangement, satisfactory extent of care, the usage of moist dressings, modern wound healing technologies and the standardized protocol of care. Each centre has to be suggested by a guarantor set by the CSWH board.

Results / Discussion: 240 certificates of the high quality of non-healing wound care has been awarded in 15 years of the running programme. A big shift can be observed in the number of endorsed centres (21 facilities in 2007, 59 facilities in 2022), their primary specialisation and aim (2007: dermatology 24%, home-care agency 20%, geriatrics 14%, internal medicine 10%, surgery 10%, burn centre 10%; 2022: surgery 39%, dermatology 24%, internal medicine 8%, long-term care department 8%, podiatry 7%, geriatrics 3%, home-care agency 2%).

Conclusion: Wound healing centre endorsement programme can be a key to national-wide network of wound healing centres development. Wound-care providers are motivated by the honorary recognition. Their effort can be supported by economical tools (e.g. payment for new treatment methods from health insurance budget).

FREE PAPER SESSION: HOME CARE, EDUCATION, E-HEALTH, ATYPICAL WOUNDS

OP136 PHOTOBIOMODULATION, AS ADDITIONAL TREATMENT TO TRADITIONAL DRESSING OF HARD-TO-HEAL VENOUS LEG ULCERS, IN FRAIL ELDERLY WITH MUNICIPALITY HOME HEALTHCARE

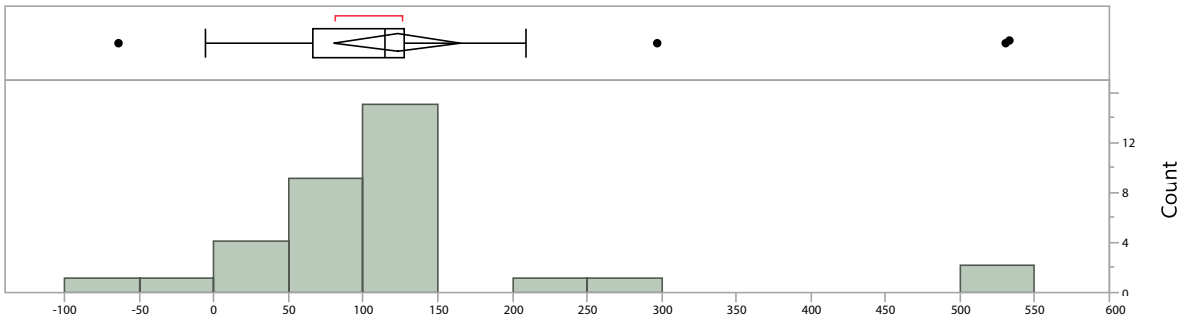
Marianne Degerman[1 2], Micael Öhman[3], Bo Christer Bertilson[4]

[1]*Municipality of Skellefteå, Healthcare Development, Skellefteå, Sweden*; [3]*Luleå University of Thechnology, Department of Engineering Sciences and Mathematics, Skellefteå, Sweden*; [4]*Karolinska Institutet, Department of Neurobiology, Care Sciences and Society, Huddinge, Sweden*

Aim: Aim of the study was to evaluate if adding laser Photobiomodulation (PBM) to traditional dressing of hard-to-heal venous leg ulcers (VLU) reduced healing time, compared to control group from the Swedish registry of ulcer treatment RiksSar.

Method: 34 VLU were treated with infrared 904nm and red 635nm laser PBM twice a week, until healing of the VLU. Tailormade individual control groups were extracted from RiksSar for each of the PBM treated ulcers, a median of 402 control ulcers per PBM ulcer.

Results / Discussion: Healing time of the 34 hard-to-heal VLU in the PBM group was reduced between 66 and 180 days, with a median of 123 days compared to the control group receiving traditional dressing (p= 0.0001).



Distribution median difference in healing time PBM and control group VLU.

Y-axis ; number of intervention group VLU. X-axis = difference in healing time. number of days.

Summary Statistics

Mean	122.8
Std Dev	120.75
Std Err Mean	20.7
Upper 99% Mean	179.3
Lower 99% Mean	66.2
N	34

Confidence Intervals

Parameter	Estimate	Lower CI	Upper CI	1-Alpha
Mean	122.8	66.1	179.4	0.99
Std Dev	120.76	91.4	174.4	0.99

Conclusion: Regardless of the frailty of the PBM group, compared to control group, healing time of hard-to-heal VLU were significantly improved, with a median of 123 days, by adding PBM to traditional dressing. Incorporating PBM into mainstream VLU treatment may significantly change outcomes of treatment. Shortening ulcer duration and promoting healing, including long-term hard-to-heal VLU saves time and resources, for patients and professionals.

FREE PAPER SESSION: HOME CARE, EDUCATION, E-HEALTH, ATYPICAL WOUNDS

OP137 WOUND CARE IN PRACTICE: ENABLING THE NEXT GENERATION OF HEALTHCARE PROFESSIONALS THROUGH ENHANCING INTERPROFESSIONAL EDUCATION

Christina Parker[1 2], Karen Theobald[3], Sandra Johnston[1]

[1]Queensland University of Technology, School of Nursing, Kelvin Grove, Australia; [2]Centre for Healthcare Transformation, Queensland University of Technology, Kelvin Grove, Australia; [1]Queensland University of Technology, School of Nursing, Kelvin Grove, Australia

Aim: It is necessary for future healthcare professionals to learn with, from and about each other to achieve the goal of collaborating to improve patient-centred health outcomes. This study evaluated the incorporation of interprofessional education (IPE) in a wound management elective unit that included baccalaureate students from the health disciplines of nursing, podiatry, pharmacy, and exercise and nutrition science.

Method: Descriptive exploratory design and implementation of an IPE wound care program with a prospective observational follow-up/evaluation of the unit.

Results / Discussion: There was a large increase in students understanding of their roles within an interprofessional healthcare team (pre intervention 60% as compared to post intervention 96%). Overall, this study confirms that a structured program of interprofessional wound care education involving students from diverse health discipline areas allowed healthcare students to improve their knowledge and understanding of IPE. There are two study recommendations worth considering from this project that need to be considered when developing IPE curricula:

1. The use of IPE needs to be standardised across teaching and learning, specifically in wound care contexts
2. The incorporation of an IPE approach within curricula does not come without significant organisation and commitment.

Conclusion: The outcomes confirm that a structured wound management program of IPE within a Faculty of Health course, has promoted students to consider their role and the role of others as part of an interprofessional team, to enable person-centred care in wound management.

1 World Health Organisation (2010). https://www.who.int/hrh/resources/framework_action/en/.

OP138 USE OF ARTIFICIAL INTELLIGENCE (ML/NLU/NLP/NLG) IN REGULATORY(SCIENTIFIC) DOCUMENTS AUTHORING

Farha Feroze[1]

[1]*Plainsboro Township, United States*

Aim: Demonstrating the validated tool to compress CSR writing time with capabilities that facilitate data retrieval from multiple sources to assist in compilation, evaluation and interpretation of information that supports the content development

Method: Generates the pre-filled CSR automatically using AI techniques such as ML/NLP/NLG. Most of the CSR content assembled from source documents such as protocol, SAP etc. The tool automatically writes the CSR content from the documents mentioned above.

Results / Discussion: Creating Regulatory documents such as eCTD modules 2.7.3 & 2.7.4 (Clinical summary efficacy & safety respectively), Investigator brochure, Clinical Study Report (CSR) etc., is highly manual and time consuming for medical writers. Good percentage of contents for the above-mentioned documents comes from various source documents such as Protocol, SAP, Safety Narratives, In-text tables, Integrated summary of safety and efficacy etc. Automating these scientific documents writing by utilizing AI techniques such as ML and Natural language processing/understanding /Generation (NLP/NLU/NLG) will reduce the efforts significantly. This paper will demonstrate the tool that we developed for automating the scientific document to CSR writing by using Artificial Intelligence (AI) techniques. The CSR template follows the ICH-E3 guideline, and the tool can also accommodate sponsor-defined templates.

Conclusion: The benefits of this application are lean writing, multi-person authoring, Traceability report, Interpretation of tables in simple English, Post-text to In-text table conversion, authoring safety narratives and Integration of sponsors workflow. The author can visualize the consolidated comments and edits from multiple reviewer(s) in one place. These features can save lot of time for medical writers so that, they can focus on discussion points and interpretation of study results.

OP139 A WORLDWIDE E LEARNING EDUCATIONAL PROGRAM

Trudie Clark[1]

[1]*Welsh Wound Innovation Centre, Pontyclun, United Kingdom*

Aim: An industry sponsored educational grant was provided to educate 250 clinicians worldwide on tissue viability within a twelve-month period. The course was delivered in English apart from the EWMA patient stories from Finland, France, Italy, Czech Republic, Switzerland which had English subtitles. The course was delivered through Microsoft Teams.

Method: Most of the promotion was through social media while an online application system was devised. The days had different timings to accommodate delegates from different time zones.

The course started in March 2022 with a four-day format repeated four times in 2022. It covered wound assessment and wound healing, pressure ulcers/injuries, leg ulceration and hard to heal wounds. The day ended with delegates completing a unique online multi-choice 'knowledge checker'. A certificate of attendance was issued following submission of an electronic feedback form.

Results / Discussion: There were 1,913 expressions of interest, delegates attended from 12 countries: Australia, Hong Kong, India, Ireland, Italy, Jordan, Latvia, Malaysia, New Zealand, South Africa, United States of America, and United Kingdom. The number that attended the course was 631, 152 from outside the UK, resulting in an additional 381 delegates above the initial target.

The course was exceptionally well evaluated due to the high standard of content, live delivery, unique format, and the efficient administration.

Conclusion: This was a very successful educational collaboration with a worldwide reach.

It is hoped that a legacy of this initiative will be the development of an Alumni which will both extend the educational reach of the program and ultimately benefit healthcare professionals and their patients who require wound care across the world.

OP140 FACTITIOUS DISORDER IN WOUND CARE

Dorothee Busch[1]

[1]*Hautklinik, Universitätsklinikum Erlangen, Erlangen, Germany*

Aim: In dermatology, artificial skin lesions are not uncommon. Good wound care is essential to avoid complications especially in cases of severe findings. To improve care, it is important to better understand the patients, their behaviors, and characteristics of artificial wounds.

Method: The electronic patient records of 178 patients with artificial skin lesions were analyzed. The observation period was from Jan. 1st, 2011, to July 21st, 2022, and included outpatient, day-care, and inpatient cases. We considered cases with ICD-10 codes for organic hallucinosis, borderline, and dermatitis artefacta.

Results / Discussion: Mean age of the patients was 48 years, 71% were female, and 72% had dermatitis artefacta as a diagnosis code. In 25% the diagnosis was suspected and in 57% it was confirmed. 33 patients were hospitalized with an average duration of 6.4 days. The skin lesions had existed for an average of 6 months prior to presentation to our clinic and in many cases had been previously treated by physicians of other specialties. Artificial wounds were predominantly located in easily accessible sites of the body, such as the trunk, arms, and face. About 25% of the artificial skin lesions appeared as wounds and in about 20% a histological examination was present, which often showed neutrophilic infiltrate.

Conclusion: Facitcious wounds present a challenge in differential diagnosis and can sometimes mimic other atypical wounds. Focus on patient history, distribution of lesions, histopathological findings and interdisciplinary collaboration with psychiatrists and other specialists can help in the diagnosis of facitious wounds.

OP141 EDUCATION EVOLUTION - TEACHING SHARP DEBRIDEMENT USING A VIRTUAL PLATFORM

Georgina Ritchie[1], Jessica Senior[2]

[1]*Accelerate CIC Lymphoedema & Leg Ulcer Clinic, Accelerate Academy, United Kingdom*; [2]*University of Huddersfield Queensgate Campus, United Kingdom*

Aim: Educating practitioners in sharp debridement is an essential component of wound management, shown to decrease time to healing and reduce antimicrobial use. Development of the skill was largely paused during Covid-19, due to the challenges of not teaching this skill face to face. Post pandemic a reluctance to travel for education remains. Accelerate CIC and The University of Huddersfield developed a unique online package of clinical coaching using synthetic wounds. The wound model provides trainee practitioners with a true-to life, hands on debriding experience in a safe manner, in preparation for treating patients. The wound mimic was designed to simulate the haptic feedback that practitioners would receive when using tools such as scalpels or curettes on different features within the wound, promoting confidence is wound assessment and debridement technique.

Method: Using 3D printing technology, wound models were generated, complete with granulation tissue at the wound bed, sloughy tissue in an intermediary layer and necrotic eschar at the surface, all surrounded by a healthy skin mimic. Tutees then received their wound model as part of a debriding work package, containing all the relevant equipment required for debriding. This was undertaken as online 1-2-1 coaching and followed a 2-day online theoretical programme.

Results / Discussion: Learners effectively developed this skill using the combination of the online pedagogically robust teaching package, virtual platform for deeper learning and 1-2-1 coaching session using the wound model. We can report 100% satisfaction and clear development of competence and confidence in this skill reported in all learner evaluations.

Conclusion: Effective teaching to change clinical practice was achieved. Next, we plan to evaluate impact on antimicrobial use.

FREE PAPER SESSION: DIABETIC FOOT 5

OP142 12-WEEK RCT EVALUATING IMPACT OF ROUTINE FLUORESCENCE IMAGING OF BACTERIA ON DFU HEALING RATES

Alisha Oropallo[1], Scott Gawlik[2], Dean Vayser[2], Laura Jones[3], Liis Teene[3], Monique Rennie[3]

[1]Northwell Comprehensive Wound Healing Center and Hyperbarics, Lake Success , United States; [2]ILD Research Centre, San Diego, United States; [3]MolecuLight, Inc., Toronto, Canada

Aim: Bacterial loads >10^4 CFU/g delay healing and are challenging to detect in DFUs where co-morbidities (e.g. neuropathy) often mask clinical signs/symptoms. Fluorescence imaging with a point-of-care device detects regions with loads >10^4 CFU/g with high sensitivity. This 12-week randomized controlled trial (clinicaltrials.gov NCT04207099) evaluated the effect of routine imaging on DFU healing rates compared to standard of care (SoC).

Method: Patients with non-healing DFUs were randomized to either standard of care (SoC) or SoC + fluorescence imaging (FL) every 2 weeks. FL-guided interventions were used to decrease bacterial fluorescence signal (e.g. debridement). The primary outcome was wound area reduction at 12 weeks. We report an interim analysis of 18 patients.

Results / Discussion: 17/18 patients had neuropathy and all wounds were <6 months duration. Baseline wound area averaged 2.02 cm^2 in the SoC arm (n=10) and 1.78 cm^2 in the SoC+FL arm (n=8). Mean wound area percent reduction at 12-weeks was 75.7% (SD=45.9) in the SoC arm and 92.8% (SD=14.4) in the SoC+FL arm (23% increase; p=.20, one-tailed Mann Whitney test). At 6-month follow-up, patients in the SoC arm reported reduced mobility and productivity, as well as higher anxiety, frustration, and dependency on others to assist with daily activities, compared to patients in the SoC+FL arm.

Conclusion: These interim results are in line with a published UK RCT on FL-imaging. Both suggest strong clinical and economic benefits of routine fluorescence imaging of bacterial loads. The treatment decisions that were informed by imaging information appear to have accelerated DFU area reduction rates.

OP143 ARTIFICIAL INTELLIGENCE CONVERGENCE HYPER-PERSONALIZED ORGAN REGENERATION TECHNOLOGY

Dr. Jeehee Kim[1]

[1]ROKIT Healthcare INC., Hyper-Personalized Skin Regeneration SBU , SEOUL, Korea, Rep. of South

Aim: To confirm the efficacy of the new treatment technology using a novel 3D-bioprinting, we performed 6 clinical studies of 100 patients with Wagner Grade 1-2 non-healing diabetic foot ulcers(DFUs) and 20 patients with 2nd-3rd degree burns.

Method: In this longitudinal study, 111 DFUs patients enrolled; 63% were in the test group. As a new indication trial, 20 burn patients enrolled. After wound debridement, the wound area was detected with AI software which converts the image into a file and sends it directly to 3D-bioprinter Dr. INVIVO (ROKIT Healthcare, Korea). Autologous adipose tissue was harvested from the patient's abdomen by liposuction and micronized immediately. With a 3D-bioprinter, the personalized adipose patch was manufactured in the operating room and applied to the wound. After a single treatment, patients received standardized offloading and non-adherent gauze dressing for patients. They were followed for up to 12 weeks of healing.

Results / Discussion: We conducted 6 clinical studies of DFUs in five countries, India, Turkey, USA, and Malaysia. The complete wound healed rate at week 12 shows 87% in ROKIT's treatment group, compared to 38% in conventional treatment. All test group patients represent the acceleration of epithelialization with > 70% of wound healed rate. Burn-clinical results showed epithelization within 4 weeks.

Conclusion: A new treatment method is tailored to patients with chronic diseases that are difficult. The convergence between cell biology, AI-detecting, and 3D-bioprinting technologies represents a potential paradigm shift in customized care for chronic skin disease. Through clinical studies results, transplantation of adipose-derived pluripotent cells is feasible through a New-Technology, and safety is secured through transplantation of autologous fat, enabling treatment without side effects.

OP144 PROSPECTIVE RANDOMIZED MULTI CENTER UNITED STATES TRIAL OF ACELLULAR FISH SKIN FOR THE CLOSURE OF DIABETIC FOOT ULCERS

John Lantis[1 2], Callie Horn[3]

[1]Mount Sinai West Hospital and the Icahn School of Medicine, General/Vascular Surgery, New York, United States; [2]Mount Sinai West Hospital and the Icahn School of Medicine, department of surgery, New York, NY, United States; [3]Mount Sinai West Hospital and the Icahn School of Medicine, Surgery, New York, United States

Aim: To assess the efficacy of Acellular Fish Skin (AFS) in the closure of Wagner 1 and 2 Diabetic foot ulcer (DFU) when compared to a commercial collagen dressing. Therefore, a prospective randomized trial was initiated which included a total of 102 patients that randomized to best clinical practices (BCP)or weekly treatment with AFS.

Method: Patient's with the hemoglobin A1c less than 12 with good arterial perfusion to the lower extremity with a diabetic foot wound greater than 1 sq cm and less than 12 sq cm were evaluated. Sharp debridement was carried out and 2 weeks of active offloading therapy was mandated. If the patient did not have a greater than 20% wound area reduction in the first 2 weeks, they were randomized to receive offloading in the form of a knee-high patellar weight-bearing brace. Then either AFS secured with surgical adhesive strips and covered with a non-adherent dressing applied weekly, or placing a collagen alginate dressing 3 times a week covered with gauze and stretch gauze with self-adherent wrap 3 times a week (BCP).

Results / Discussion: At 12 weeks 57% (29/51) of the AFS group were closed while 31% (16/51) of the BCP group were closed. AFS closed relatively 80% more DFUs than BCP. The mean time to closure was 7 weeks, and the median number of applications was six.

Conclusion: A clinically and statistically significant difference in healing was observed between patients treated with AFS and those treated with BCP.

OP145 FOOT SKIN TEMPERATURE: CAN IT BE A PREDICTOR FOR RECANALIZATION IN DIABETIC PATIENT WITHOUT ULCER COMPLICATED WITH PERIPHERAL OCCLUSIVE ARTERIAL DISEASE

Donghyuk Shin[1]

[1]Konkuk University Medical Center, Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South

Aim: Many diabetic patients have advanced atherosclerosis in the foot. To assess peripheral arterial occlusive disease (PAOD), CT angiogram and conventional angiography have been used. However, there is no ulcer on the foot of the patient, the patient may hesitate to proceed these procedure. Therefore, we assessed the measurement of foot skin temperature as a screening tool for evaluating lower extremity circulation to do more detail investigations.

Method: This retrospective study reviewed medical records of forty eight diabetic patients who did no ulcer on their feet between December 2018 and January 2021. They were following-up at the department of endocrinology and referred to my department because of neurologic symptoms such as tingling sensation, pain, and numbness and so on. The foot skin temperature was measured with a non-contact infrared thermometer on dorsum and planta of both feet and the lowest temperature was recorded for statistical analysis. Receiver operating characteristic (ROC) curve analysis was used to evaluate this measurement method as a diagnostic tool.

Results / Discussion: A total of 76 feet were analyzed. Through the backtracking process, we could found that the optimal threshold value for prediction of arterial steno-occlusion in the ipsilateral lower extremity was 35.5˚. The area under the ROC curve was 0.76. With sensitivity set at 73.1%, the specificity was 75.0%.

Conclusion: Measuring foot skin temperature is a predictive and cost-effective method for assessment of PAOD and need for more study and can be used not only to determine whether percutaneous transluminal angioplasty (PTA) is indicated, but also to monitor the result of PTA for early detection of re-occlusion, even in the absence of a wound.

OP146 A NOVEL MACROPHAGE-REGULATING DRUG PROMOTES DIABETIC FOOT ULCERS HEALING - PHASE 3 MRCT STUDY AND POST-HOC ANALYSIS

Shyi-Gen Chen[1 2 3], Jui-Ching Chen[1], Yi-Hsin Wu[1], Naichen Cheng[4]

[1]Taiwan, Oneness biotech, Taiwan; [2]Taiwan, Tri-Service General Hospital, National Defense Medical Center, Taiwan; [3]; [4]NTUH (National Taiwan University Hospital), Department of Surgery, Taiwan

Aim: Macrophage regulation plays an essential role in Diabetic foot ulcer (DFU) healing. We aim to investigate the efficacy and safety of ON101, a topical new drug with a M1/M2-macrophage-regulating mechanism in phase 3 MRCT across the US, China, and Taiwan. Furthermore, we also analyze the risk factors affecting wound healing in post-hoc analysis.

Method: There are 236 eligible subjects with Wagner Grade 1 or 2 DFU(s), randomized 1:1 to receive ON101 or comparator for up to 16 weeks, followed by a 12-week follow-up. The primary endpoint is the incidence of complete healing, and the secondary endpoint is the time to complete ulcer healing. In the post-hoc analysis, we investigate possible risk factors, including baseline HbA1c, ulcer duration, ulcer location, ulcer size, amputation history, and recurrence may impact the complete healing rate.

Results / Discussion: The incidence of complete healing was 60.7% by ON101 and 35.1% by the comparator (P=0.0001). The time to complete ulcer healing was faster in the ON101 group (P=0.002). ON101, approved by Taiwan FDA in 2021, was shown with excellent therapeutic efficacy and safety in the treatment of DFUs. In the post-hoc analysis, we clarified that high levels of HbA1C, ulcer persistence, ulcer location, and amputation history as the risk factors leading to poor DFU outcomes.

Conclusion: ON101 has demonstrated robust efficacy and safety in DFU treatment regardless of risk factors, including HbA1c and ulcer duration. Besides, the early use of ON101 could deliver optimal healing. It is suggested that macrophage rebalance may play a critical role in accelerated DFU healing.

OP147 CHRONIC ISCHEMIC HEART DISEASE IS ASSOCIATED WITH A LOW HEALING RATE IN PATIENTS WITH DIABETIC FOOT ULCERATION (DFU) TREATED FOR CHRONIC LIMB THREATENING ISCHEMIA(CLTI)

Letizia Pieruzzi[1], Lorenzo Conte[2], Antonio Cicorelli[3], Luigi Giorgi[3], Flavio Buttitta[2], Chiara Goretti[1], Elisabetta Lacopi[1], Alberto Piaggesi[1]

[1]University of Pisa, Diabetic Foot Section, Pisa, Italy; [2]University of Pisa , Cardio-Angiology Section Cardio-toracic Department, Pisa, Italy; [3]University of Pisa, Department of Interventional Radiology, Pisa, Italy

Aim: To evaluate the impact on outcome (healing, amputation, survival) of chronic ischemic heart disease (CIHD) in a group of DFU patients (DFPs) treated for CLTI.

Method: We prospectively studied 50 consecutive DFPs (age 74,30±10,98 yrs, 35M/15F, duration of diabetes (DD) 23,04±12,57 yrs) treated with endovascular revascularization for CLTI in our Department between January and June 2022, and followed up for a mean of 6,4±3,2 months, 8/50(16%) were dialysed; 33/50(66%) had a history of previous limb revascularization. We divided them according to the presence [Group1, 28/50(56%) age 73.2±11.7 yrs, 21M/7F, DD 26.1±12.9 yrs] or absence [Group2, 22/50(44%) age 75.7±10.1 yrs, 14M/8F, DD 19.2±11.2 yrs] of CIHD assessed by means of echocardiography, and compared them for major amputation (MA), survival and healing rates during follow up.

Results: All patients were successfully revascularized and dismissed after 6.2±4.1 days; at follow-up 4/50(8%) patients underwent major amputation for progression of disease, 5/50(10%) patients died not healed, 23/50(66%) healed, 16(32%) did not heal and 2/50(4%) patients were lost to follow up. Group 1 showed a significant lower healing rate compared to Group 2 (n=10/25 40% vs n=14/19 74%, p<0,05). No significant differences were observed between the two groups for and survival or MA rates.

Conclusion: Our study confirms the high prevalence of CIHD in DFU patients and its negative prognostic role in the healing process, and claims for more attention on this subtle co-morbidity.

OP148 4-IN-1 LIVE BIOTHERAPEUTIC GENE THERAPY MEDICINAL PRODUCT (GTMP) ACCELERATES HEALING OF DIABETIC FOOT ULCERS (DFU): A FIRST-IN-HUMAN, PHASE-1 CLINICAL STUDY

Christoph Schindler[1], Jacek Mikosiński[2], Sebastian Shellong[3], Haritha Samaranayake[4], Hanna-Riikka Kärkkäinen[4], Mirka Tikkanen[4], Jere Kurkipuro[4], Igor Mierau[4], Wesley Smith[4], Laurent Décory[4], Dirk Weber[4], Thomas Wirth[4], Juha Yrjänheikki[4]

[1]Hannover Medical School, Centre for Clinical Trials, Hannover, Germany; *[2]Mikomed Sp. z o.o. Poradnia Chirurgiczna, Łódź, Poland*; *[3]Städtisches Klinikum Dresden, Dresden, Germany*; *[4]Aurealis Therapeutics, Basel, Switzerland*

Aim: Aim of the study was to evaluate the safety, tolerability, and efficacy of AUP1602-C, a genetically engineered lactic acid bacterium producing three human therapeutic proteins: fibroblast growth factor-2 (FGF-2), interleukin-4 (IL-4), colony stimulating factor-1 (CSF-1), addressing all aspects of chronic wound healing. The maximum tolerated dose (MTD), dose-limiting toxicities (DLTs), and recommended phase-2 dose (RP2D) were also evaluated.

Method: A phase-1, open-label, single-arm, dose-escalation study was initiated to treat non-healing DFU patients. Four dose-cohorts were evaluated in a 3+3 design. Dosing frequency was three times-a-week for six-weeks. A cohort review committee was established to monitor safety and recommend dose-escalation. Wound area was measured by an independent evaluator using digital planimetry. Assessment of systemic toxicity, biodistribution and shedding, and wound microbiology were performed.

Results / Discussion: Fifteen patients received AUP1602-C treatment. No DLTs were observed, MTD was not reached, and the high-therapeutic dose was selected as the RP2D. Local and systemic safety and tolerability were confirmed with no serious adverse events (SAEs), systemic toxicity or immunogenicity related to AUP1602-C. Maceration was the most frequent adverse-event. 83% of patients in the RP2D cohort achieved total wound closure with a median healing time of 47 days. During the 2-weeks run-in period without AUP1602-C, mean wound area increased by 17% with standard-of-care treatment, versus >30% reduction in the first 2-weeks of RP2D treatment.

Conclusion: Encouraging safety and efficacy data, from the first ever study for a GTMP of this nature to be tested in DFU patients, enabled a phase-2 clinical study, now under preparation.

FREE PAPER SESSION: DIABETIC FOOT 6

OP149 PODOLOGICAL PROCEDURE IS ABLE TO RESTORE SKIN ELASTICITY IN DIABETIC FOOT PATIENTS (DFP) AT HIGH RISK FOR ULCERATION

Lorenza Abbruzzese[1], Elisa Leporati[1], Laura Ambrosini Nobili[1], Nicola Riitano[1], Alberto Piaggesi[1]

[1]Pisa University Hospital, Diabetic Foot Section, Pisa, Italy

Aim: To test if mechanical keratolysis (MK) is able to restore skin elasticity in high-risk DF patients.

Method: A cohort of consecutive DFP attending the preventative outpatient clinic of the diabetic foot (DF) section of our hospital was prospectively evaluated for the presence of localised hyperkeratosis (HK), deformities (D) and skin temperature (ST), and underwent keratolysis mechanically removing keratosis with a #10 scalpel in the hand of expert podologists (LAN, EL, NR). Skin hardness was blindly measured before and after the procedures by means of a durometer by another podologist (LA) at I and V metatarsal-phalangeal Joints (I-MTP, V-MTP) and at the heel.

Rsults: 102 DFP [age 74.1±10.5 yrs; DM duration 19.4±8.7 yrs; HbA1c 7.8±1.9%: 52% males; 61 with (Group1) and 41 without (Group2) HK] were studied. Group1 showed a higher prevalence of D (95.1% vs 78.6%, p=0.014) and higher ST (33.4±1.9°C vs 32.6±1.8°C, p=0.03) compared to Group2. SH at I-MPJ (39.2±20.4 UI vs 27.2±15.9 UI p=0.002) V-MPJ (37.2±19.3 UI vs 28.8±17.5 UI p=0.027), were significantly greater in Group1 compared to Group2, while no differences were found at heel. MK reduced significantly SH both at I-MPJ (ΔSH 5.0±7.0 UI, p=0.0024), V-MPJ (ΔSH 3.4±5.6 UI, p=0.0008) and at heel (ΔSH 1.3±3.2UI, p=0.03), annulling the differences in SH with Group2.

Conclusion: HK is a frequent feature in high-risk DFP and is associated with D and increased ST; MK performed by expert podologists is able to restore skin elasticity in DFP at high ulcerative risk.

OP150 TAKE IT EASY: SWAB SAMPLINGS SUPERIMPOSABLE TO INTRAOPERATIVE BONE SPECIMENS IN DIABETIC FOOT OSTEOMYELITIS

Francesco Giangreco[1], Elisabetta Lacopi[1], Alessandro Leonildi[2], Valerio Ortenzi[3], Simona Barnini[2], Giuseppe Naccarato[3], Alberto Piaggesi[1]

[1]Pisa University Hospital, Diabetic Foot Section, Pisa, Italy; [2]Pisa University Hospital, Microbiology Unit, Pisa, Italy; [3]Pisa University Hospital, Histology and Anatomo-Pathology Service, Pisa, Italy

Aim: We aimed to evaluate if swab sampling was trustable and comparable to bone specimen in multidrug resistant (MDR) diabetic foot (DF) osteomyelitis (OM).

Method: We prospectively evaluated all the consecutive patients undergoing to bone resection in operatory room for OM between July and December 2021 in our Department. From all patients deep swab sampling was collected immediately before the surgery according to guidelines procedures (SS) and intraoperative bone specimens were collected for microbiological analysis (BS). Results were compared, searching for the prevalence of Staphylococcus aureus (SA), Pseudomonas aeruginosa (PA) and Enterobacteriae (EB), sorting out Methicillin-Resistant SA (MRSA), PA resistant to Ciprofloxacin (CiproRPA) and Carbapenem (CRPA), EB resistant to Ciprofloxacin (CiproRE) or Extended Spectrum Beta Lactamase producers (ESBL).

Results / Discussion: We derived data from 46 patients underwent to surgical procedures: SA was detected in 29 patients in SS (63.0%) and 31 in BS (67.4% - p=ns), PA in 21 patients in SS (45.6%) and 22 in BS (47.8%, p=ns) and EB in 25 patients in SS (54.3% and 26 in BS (56.5% - p=ns). No difference was detected also in microbial susceptibility comparing swab and bone specimens particularly regarding: MRSA (55.1% vs 54.8%, p=ns), CiproRPA (47.6% vs 45.4%, p=ns), CRPA (28.5% vs 31.8%, p=ns), CiproRE (44.0% vs 42.3%, p=ns), and ESBL (56.0% vs 53.8%, p=ns).

Conclusion: When correctly performed, swab sampling is able to detect bacterial strains and susceptibility with results superimposable to intraoperative bone specimens.

FREE PAPER SESSION: DIABETIC FOOT 1

OP151 WOUND HEALING AND MAJOR AMPUTATIONS IN DIABETIC FOOT DURING THE COVID-19 PANDEMIC PERIOD COMPARED TO THE PREPANDEMIA. A SINGLE CENTER STUDY

Tigla Alexandru[1]

[1]Innklinikum Altötting, Vascular Surgery, Altötting, Germany

Aim: Wounds are complication of diabetes, with high morbidity and mortality. In the SARS-CoV-2 pandemic, these people's everyday lives were restricted. The impossibility of early and follow-up treatment has led to a high risk of amputation.

Method: We evaluate retrospective data of patients with chronic wounds, who became an amputation above the ankle during the 2019-2020 COVID19 pandemic compared to the 2018-2019 period.

Results / Discussion: The study population included 88 patients, 41 patients were amputated in 2018 and 2019 (group A) and 43 patients in 2019 -2020 (group B). More males were found in both groups. There was a difference in the patients who had diabetes. In group A 44% had diabetes and in group B 67%. If we observe the amputations of diabetics, in group A 47% had a minor amputation for the first time, whereas in group B only 40%. The remaining 60% from the pandemic period proceeded directly to major amputation, which makes the difference to the prepandemia. There were no significant differences in the clinical and biochemical parameters, as well as in the prevalence rate of PAD. In group A, revascularization was possible in 60%, in the pandemic only 42%. In group A the proportion of patients who came via emergency room was significantly lower than in group B. In group A about 7% died in the hospital course with the amputation, in group B it was 20%.

Conclusion: Pandemia had a negative impact on patients with diabetic foot ulcers, severe infections, more emergencies and amputations. There were late presentations, with massive necrosis. Compared to the pre-pandemic, there were more major amputations and more deaths

OP152 FREEZE-DRIED HUMAN AMNIOTIC MEMBRANE HELPS IN THE TREATMENT OF DIABETIC FOOT ULCERATIONS

Pavlina Pithova[1], Veronika Wosková[2], Miroslav Koliba[3], Johana Venerová[4], Ondrej Vrtal[5], Martina Koskova[6], Vera Prymkova[7], Ivana Flanderova[8]

[1]University Hospital Motol, Diabetology, Praha 5, Czech Republic; [2]Institute for Clinical and Experimental Medicine Prague, Diabetology, Praha 4; [3]Foot Clinic Vratimov; [4]Military University Hospital, Prague; [5]Hospital České Budějovice; [6]Foot clinic Mladá Boleslav; [7]Hospital Příbram; [8]University Hospital Plzeň, Czech Republic

Aim: We present results of a multicentre observational study demonstrating the use of a lyophilized amniotic membrane in the treatment of diabetic foot ulcerations, in addition to standard care of diabetic foot (offloading, revascularisation procedures etc).

Method: 8 diabetic foot clinics enrolled from 1 to 13 patients with long-lasting diabetic ulcerations, totally 57 patients presenting 67 ulcers (5 patients had multiple ulcers). Amnioticmembrane was applied at every ulcer in 1week intervals. All patients obtained 2-5 applications and we observed the process of wound size change (measured by software Electreasure). Last visit was held 2 weeks after last application.

Results / Discussion: 57 diabetic patients (mean age 63.6 years, 8 women = 14%, 9 type 1 diabetes = 16%) with HbA1c mean value 57 mmol/mol, 61% with normal kidney function. All patients with significant ischemia underwent revascularization procedures before starting the treatment with amniotic membrane. All of them used standard offloading therapy (crutches, wheelchairs, half-shoes, orthoses etc). Most from 67 defects were localized at plantar part of foot (10% at plantar surface of toes, 60% at metatarsal heads, 16% at heel). The mean wound area before was 6.47 cm2, 2 weeks after last application 1.73 cm2. 39% of all ulcers healed completely, 49% reduced their size significantly (mean size reduction 77% of area, from 53 to 98%), in 9% the wound size stayed unchanged and only in 2 (3%) patients the wound was worse than before.

Conclusion: The application of freeze-dried human amniotic membrane could significantly help in the treatment of chronic diabetic ulceration – could result in complete healing or significant reduction of the wound size during 3-6 weeks of therapy.

OP153 DNA METHYLATION PROFILING FOR THE PREDICTION OF RECURRENCES AND PROGNOSIS IN PATIENTS WITH DIABETIC FOOT ULCERS

Sik Namgoong[1 2], Do Yoon Koo[2], Hyun Jyung Oh[3], Jeong-An Gim[3], Saesbyeor Kim[4], Ji Won Son[4], Seung-Kyu Han[1]

[1]Korea University Guro Hospital, Plastic Surgery, Seoul, Korea, Rep. of South; [2]Korea University College of Medicine, Seoul, Plastic Surgery, Seoul, Korea, Rep. of South; [3]Korea University Guro Hospital, Korea, Rep. of South; [4]Korea University Guro Hospital, Nursing Service, Korea, Rep. of South

Aim: Diabetic foot ulcers (DFUs) are recalcitrant to healing. However, the molecular mechanism causing this dysfunction is not fully understood. DNA methylation profiles change during the proliferation, differentiation, and development of an organism, resulting in tissue or disease identification. To elucidate the biomarkers for DFU prognosis, we hypothesized that differences in DNA methylation patterns could provide important therapeutic targets in the treatment of DFUs.

Method: We collected 48 blood samples from 36 DFU patients treated at Korea University Guro Hospital from October 2019 to November 2021. The Illumina MethylationEPIC (850k) DNA methylation microarray was used to determine the pattern between differentially methylated regions (DMRs) in DFU patients with good or poor prognoses. We then selected and visualized the DMRs in the form of heatmaps, and enriched terms associated with these DMRs were identified. By using the DMR list in two processes, Kyoto Gene and Genome Encyclopedia (KEGG) and gene ontology (GO) analysis, gene-concept network, GSEA, and decision tree were performed.

Results / Discussion: In total, 92 DMRs and 108 DMRs (|Log2 fold change|>0.1 and P<0.03) were hypermethylated and hypomethylated, respectively. In the good prognosis sample, 69 and 156 DMRs were hypermethylated and hypomethylated, respectively. In the KEGG analysis, the MAPK signalling pathway was commonly detected as the highest pathway. In the decision tree, *MORN1* hypomethylation and *NCOR2* hypermethylation were crucial classifiers by recurrence.

Conclusion: Collectively, *MORN1* and *NCOR2* genes may be used as biomarkers for predicting the recurrences and prognosis in DFU patients. In DFUs, the clues of recurrence and prognosis prediction may be provided through DMRs and the molecular mechanisms related to inflammation.

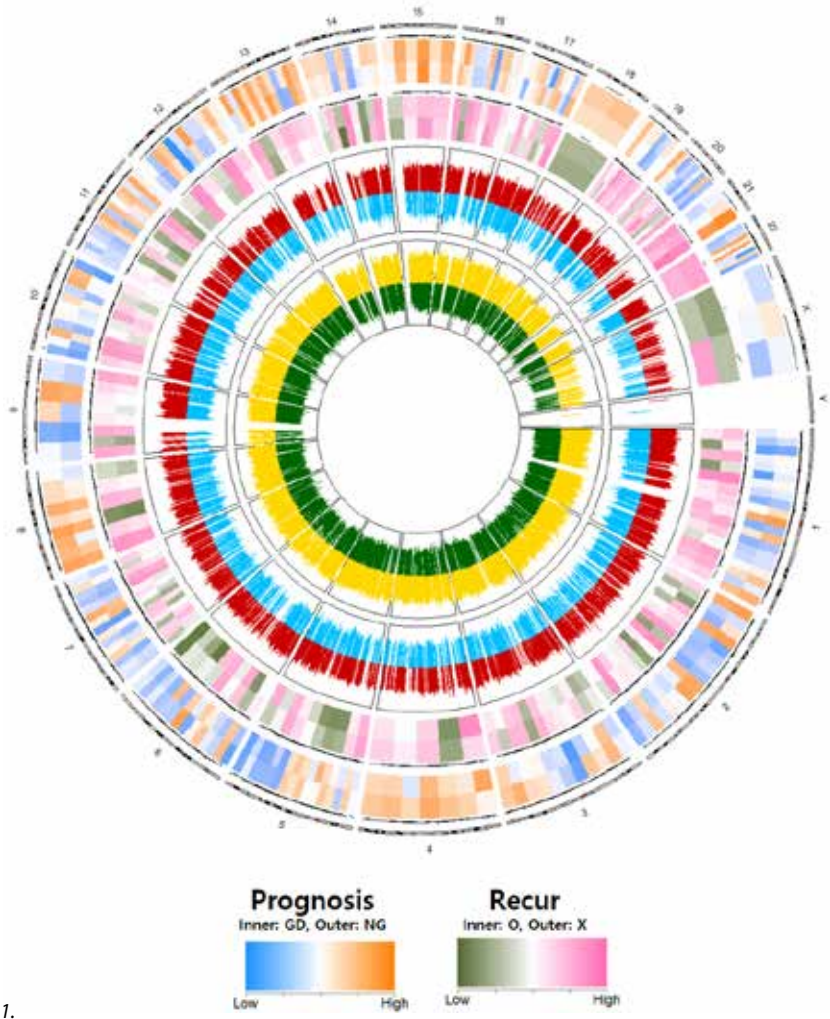

Prognosis
Inner: GD, Outer: NG
Low
High
Recur
Inner: O, Outer: X
Low
High

Fig 1.

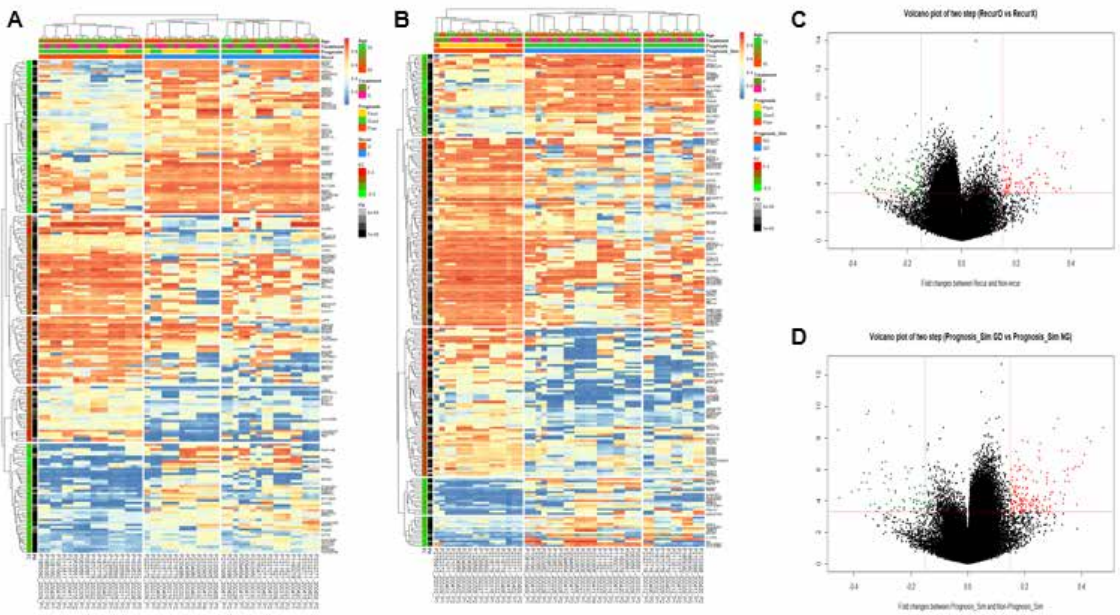

A
B
C
D

Fig 2.

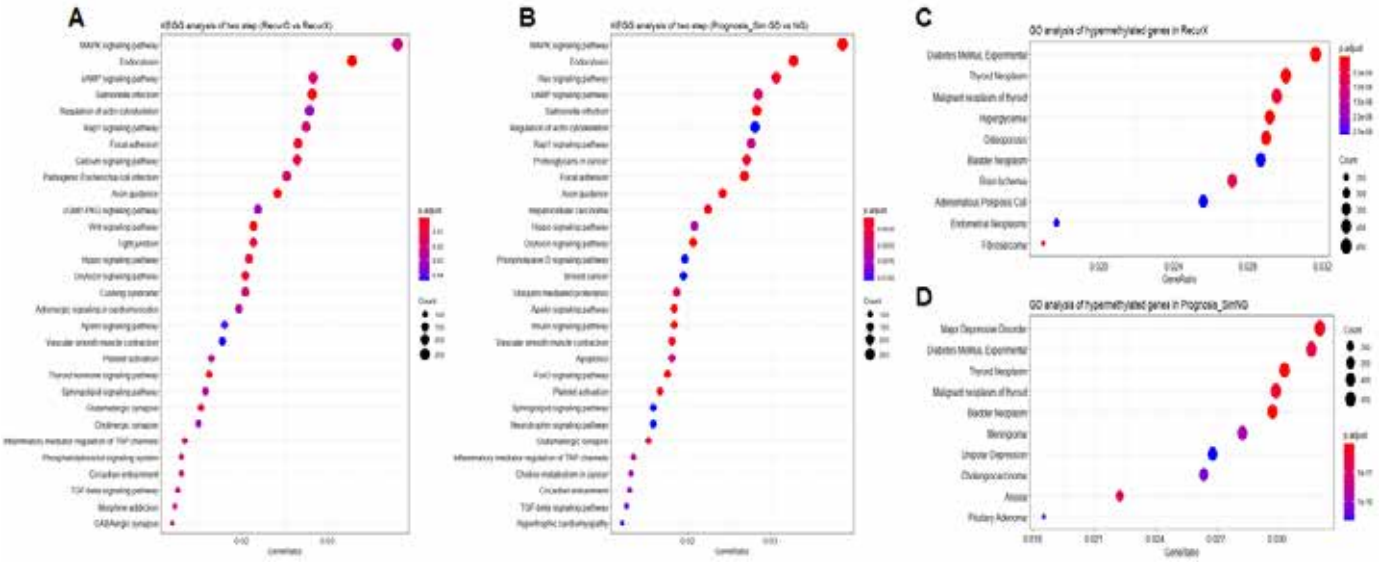

A
B
C
GO analysis of hypermethylated genes in RecurX
D
GO analysis of hypermethylated genes in Prognosis_SimNG

Fig 3.

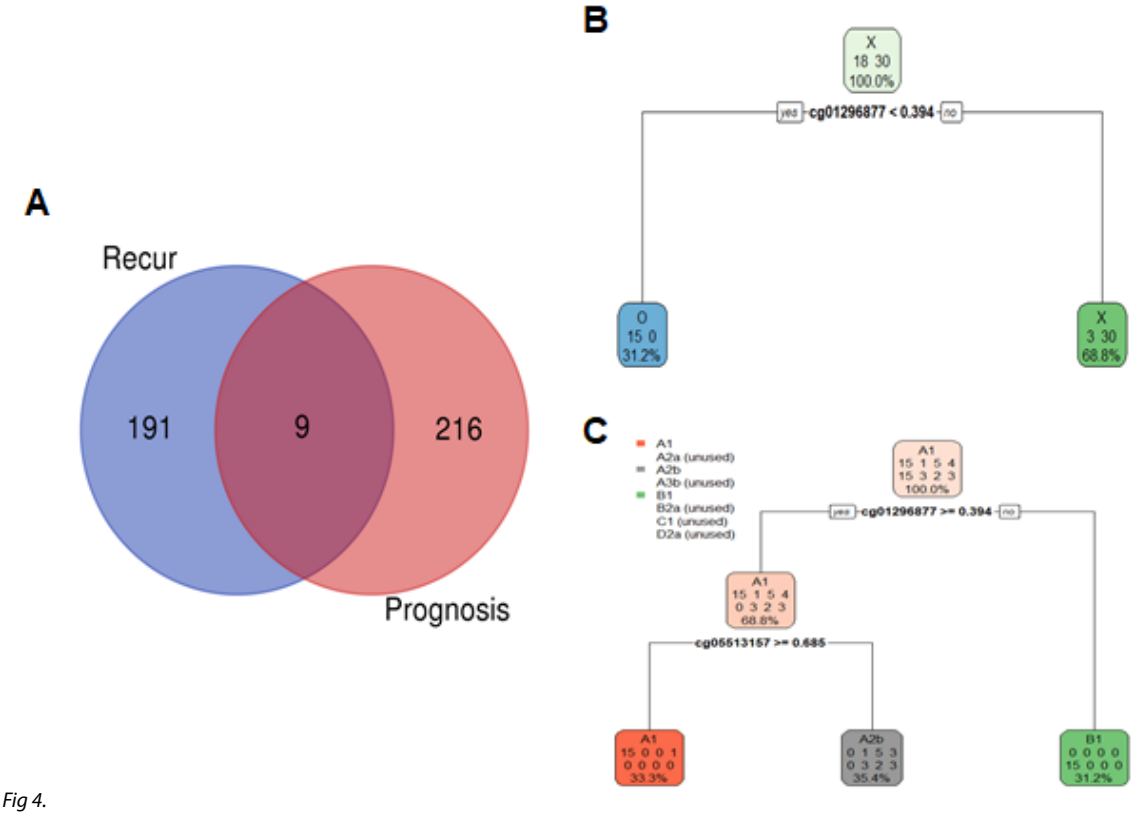

A
Recur
191
9
216
Prognosis
B
X
18 30
100.0%
yes
cg01296877 < 0.394
no
0
15 0
31.2%
X
3 30
68.8%
C
A1
A2a (unused)
A2b
A3b (unused)
B1
B2a (unused)
C1 (unused)
D2a (unused)
A1
15 1 5 4
15 3 2 3
100.0%
cg01296877 >= 0.394
A1
15 1 5 4
0 3 2 3
68.8%
cg05513157 >= 0.685
A1
15 0 0 1
0 0 0 0
33.3%
A2b
0 1 5 3
0 3 2 3
35.4%
B1
0 0 0 0
15 0 0 0
31.2%

Fig 4.

OP154 LONG-TERM FOLLOW-UP IN DIABETIC NO-CLI PATIENTS TREATED WITH AUTOLOGOUS PERIPHERAL BLOOD MONONUCLEAR CELLS

Alessia Scatena[1], Pasquale Petruzzi[1], Nico Attempati[1], Matteo Apicella[1], Michele Mantuano[1], Emanuele Bartolini[1]

[1]San Donato Hospital, Arezzo, Italy

Aim: Not revascularised critical limb ischaemia (no-CLI) is affected by a high amputation rate (30% at one year) and high mortality rate (50% at one year). Treatment with autologous peripheral blood mononuclear cells (A-PBMNC) showed promising outcomes in limb salvage and survival rate. A-PBMNC implants are performed in the leg and the perilesional area with a 21 G needle, extremely painful also for neuropathic patients, repeated a maximum of three times. If necessary, foot surgery was performed at the same time as the last implant.

In the study we evaluated long-term outcomes and retrospectively compared patient clinical parameters and surgeon comfort in a group treated with deep sedation (DS) in spontaneous breathing and a group treated with popliteal and saphenous block (PSB) under ultrasound guidance.

Method: We evaluated 102 diabetic no-CLI patients with similar baseline features and indications who underwent 288 A-PBMNC implants from January 2017 to September 2022: 42 patients with DS (122 implants) and 60 with PSB (166 implants). During the implants all patients underwent no invasive hemodynamic monitoring (blood pressure, heart rate, oxygen saturation) and the post-operative NRS scale. Surgeon comfort as akinesia and side effects are reported. The minimum follow-up period was 12 months.

Results / Discussion: During the procedures, SD determined a higher variation in blood pressure (±20 mmHg), heart rate (±20 bpm) and oxygen saturation (±5 mmHg) than in PSB, respectively 35 vs 26; 97 vs 33; 10 vs 7. In 160 PSB procedures, sufficient anaesthesia and akinesia were achieved, but in 6 cases we need to adjunct SD. Only in 32 SD procedures akinesia was achieved. The mean surgical time was 35.7 minutes. After the procedure, each PSB patient was asked to indicate his value on the VAS pain scale (2.4±0,8 during the process; 2.2±0,3 after). No side effects were registered.

Sixty-nine patients completed at least a one-year follow-up alive and without recurrences; five patients achieved a five years follow-up, 17 patients a four years follow-up; six patients a three years follow-up; five patients a two-year and 26 patients a 1-year follow-up. The healing rate at the 12-month follow-up was 68% (69/102), and the recurrences rate was 7,2% (5/69). In patients in remission, the mean ulcer-free survival days was 946,4±521,26, and the median ulcer-free survival days was 594,55. The overall mortality rate was 32,3% (33/102). The overall amputation rate was 10.7% (11/102).

Conclusion: In A-PBMNC implants, the choice of the best anaesthesia regimen remains an open question and PSB showed to be more effective and as safe as SD.

In the long-term follow-up, A-PBMNC therapy effectively improves limb salvage, survival rate, long-term management and remission parameters in diabetic no-CLI patients.

OP155 ASSOCIATED COMORBITIES IN PATIENTS WITH DIABETES MELLITUS UNDERGOING LOWER LIMB AMPUTATION

Sandra Marina Gonçalves Bezerra[1], Luis Jesus[1], Juliana Sousa[1], Jefferson LIra[2], Lídya TOlstenko Nogueira[2], Augusto Cesar Antunes de Araújo Filho[1]

[1]UESPI, Nurse, Teresina, Brazil; [2]UFPI, Nurse, Teresina, Brazil

Aim: To analyze associated comorbidities in patients with diabetes mellitus undergoing lower limb amputation.

Method: Documentary study with a quantitative approach carried out in a public reference hospital in the state of Piauí, northeastern Brazil, between the years 2019 and 2021. Data were collected using a form developed by the authors. The study variables were: age, gender, origin, type of amputation and comorbidities. Data analysis was descriptive, using absolute frequency and percentages. This study was approved by the Research Ethics Committee of the State University of Piauí, under opinion No. 4,758,688.

Results / Discussion: 525 amputation procedures were quantified in the period, of which 65% were performed in diabetic patients, elderly (79%) with a mean age of 73 years, male (56.8%), from the interior of the state of Piauí (68.8%). As for comorbidities, it was found that 168 (48.8%) had systemic arterial hypertension and 39 (11.3%) had a previous diagnosis of Peripheral Arterial Disease (PAD). Regarding the anatomical location of the amputation, 148 (43%) were performed at the foot level and 130 (38.9%) transfemoral.

Conclusion: Systemic arterial hypertension is the most prevalent comorbidity associated with diabetes mellitus in elderly male patients with foot and transfemoral amputation.

Key words: Diabetic food, Limb amputation. Prevalence. Nurse. Enterostomal Therapist.

COMUNICAZIONI ORALI 1: PERCORSI, EDUCAZIONE ED ESITI NELLA GESTIONE DELLE FERITE

OP157 LEG-W: FROM SKIN ULCER TO LITTLE BRICKS. COLOURED BRICKS TO PROMOTE AND SUPPORT THE RELATIONSHIP BETWEEN PATIENT AND HEALTHCARE PROVIDER IN WOUND CARE CONTEXT

Lucia Sassi[1]

[1]Università degli Studi Milano-Bicocca, Milano, Italy

Aim: The patients' ability to understand health issues is closely related to the clarity and simplicity of the communication.

Communication with the patient and their education are essential elements of the assistance process. The active partecipation of both patient and caregiver in this process is very important for the successful and positive outcome of the treatment.

The relationship with the patient and their education are foundamental in the context of wound care, in implementing treatments focused on bringing a wound to heal.

The objective of this work is to simplify communication by reducing the use of medical terms to a minimum and relying on visual representations to explain the processes involved in tissue regeneration.

Method: This work is aimed at supporting the educational activities led by wound care specialists, based upon the principles of *Health Literacy, Self-Care* and Patient Empowerment.

Results / Discussion: Leg-w was born like a step-by-step, time-lapse representation of the wound bed preparation who explains to the patient the key characteristics to monitor during the wound healing process, in a way that avoids any visual shock.

Conclusion: Today's patient population is increasing and the demographic is shifting towards more IT-literate individuals, who are comfortable accessing technological resources. This new approach enables and facilitates a treatment process centered around simple, clear and scientifically accurate communication.

This educational tool, in addition to being simple and effective, is also looking to be modern in its approach.

OP158 PROGETTO FORMATIVO SUL CAMPO: L'AGGIORNAMENTO CONTINUO IN WOUND CARE, TRA INNOVAZIONE E CASI CLINICI

Stefania Bottos[1], Silvia Bond[2]

[1]Azienda Sanitaria Friuli Occidentale AsFO, Direzione Medica, Pordenone, Italy; *[2]Azienda Sanitaria Friuli Occidentale, Distretto del Livenza, Pordenone, Italy*

Scopo: Approfondimento dei contenuti del wound care, condivisione di esperienze a favorire il confronto tra pari e con gli specialist. Associare la tecnologia delle medicazioni alla pratica clinica. Conoscere le medicazioni disponibili dal nuovo capitolato di gara regionale in particolare tecnologia, modalità di azione, situazioni d'uso e casi clinici in cui utilizzarle.

Metodi: Progetto formativo sul campo.

Risultati: Si sono svolti 8 incontri in didattica a distanza sincrona attraverso la piattaforma aziendale, 1 incontro in presenza e la visione di webinar in asincrona, per un totale di 23 ore. Sono stati coinvolti 100 infermieri appartenenti al Servizio Domiciliare o a ambulatori ospedalieri dell'azienda sanitaria, con la supervisione di tutor specialist wound care aziendali. Hanno partecipato 22 ditte per la presentazione di 64 medicazioni aggiudicate in gara regionale. La parte teorica con oggetto il TIMERS e Il Triangolo del Wound Assesment è stata presentata dai tutor a seguire si sono svolti 7 incontri con un breve refresh teorico della lettera presentata nella giornata, la presentazione di un caso clinico e a seguire la presentazione dei prodotti tenuta dagli specialist delle Ditte con la moderazione dei tutor aziendali, secondo un format redatto nell'ambito del progetto. Nell'incontro finale, in presenza, si è aperta la discussione e l'esposizione di quesiti o dubbi irrisolti. Tutto il materiale è stato messo a disposizione dei partecipanti in formato digitale, filmati degli incontri e slide presentate, nonché materiale di approfondimento come studi scientifici e documenti di posizionamento.

Conclusioni: La partecipazione attiva dei partecipanti con domande e interazioni, la richiesta di approfondimento e l'ottima qualità delle relazioni finali hanno dimostrato l'efficacia del progetto formativo.

OP159 HEALTH LITERACY: I PAZIENTI CON LESIONI CUTANEE CRONICHE SONO CONSAPEVOLI DELL'IMPORTANZA DI UNA CORRETTA ALIMENTAZIONE? RISULTATI DI UN'INDAGINE CONOSCITIVA MULTICENTRICA

Valentina Martin[1], Domitilla Foghetti[2], Giuliano De Lazzari[1], Sara Muzzini[3], Pamela Petroni[4], Sabina Sampaolo[4], Mariateresa Sozza[1], Alessandra Trevisan[1]

[1]Polispecialistica Ambulatoriale, Treviso, Italy; *[2]Ospedale San Salvatore, Chirurgia Generale, Pesaro, Italy*; *[3]Ambulatorio Ferite Difficili, Poliambulatorio Chirurgico, Pesaro, Italy*; *[4]Ambulatorio Ferite Difficili, Poliambulatorio Chirurgico, Fano (PU), Italy*

Scopo: Valutazione del grado di consapevolezza dei pazienti con lesioni cutanee croniche dell'importanza di una corretta nutrizione e conseguente proposta di un percorso di miglioramento delle abitudini alimentari.

Metodi: E' stata condotta un'indagine conoscitiva su 121 pazienti (64 donne-57 uomini), afferenti a tre ambulatori vulnologici, mediante la somministrazione di un questionario mirato alla valutazione della percezione del proprio peso e della propria alimentazione, comprendente la richiesta della disponibilità a modificare le abitudini nutrizionali, nell'ambito di un percorso integrato finalizzato alla guarigione. Sono stati considerati altezza, peso, Body Mass Index-BMI e, nell'89% dei pazienti, il Mini Nutritional Assessment (MNA).

Risultati: La percezione del proprio peso è risultata corretta, in base al BMI, nell'80% dei pazienti. Il 20% non reputa che una corretta alimentazione sia utile alla guarigione, mentre l'82% è disposto a cambiare le proprie abitudini e l'86% utilizzerebbe un libro come supporto al cambiamento. È stato quindi proposto un percorso di miglioramento della nutrizione mediante un counseling ambulatoriale, l'utilizzo di alimenti a fini medici speciali o il ricorso ad uno specialista dietista in base al quadro clinico. È stato consegnato gratuitamente un libro di ricette e consigli nutrizionali creato appositamente dagli autori e realizzato grazie ad un'associazione per i diritti dei pazienti.

Conclusioni: La consapevolezza del ruolo della nutrizione e una corretta percezione del proprio peso sono alla base della creazione di un percorso integrato di cura. Grazie allo studio è stato possibile migliorare l'alleanza con il paziente, identificare le modalità di approccio in modo personalizzato e diffondere la cultura di una sana alimentazione.

OP160 ESITI INFERMIERISTICI NELLA GESTIONE DELLA CURA DELLE FERITE: UNO STUDIO MIXED METHOD

Marzia Lommi[1], Barbara Raffaele[1], Maria Ymelda Tolentino Diaz[1], Graziella Montini[2], Cinzia Puleio[2], Barbara Porcelli[2]

[1]Azienda ASL Roma 2, UOC Assistenza alla persona - Area Della Formazione e Della Ricerca Infermieristica, Roma, Italy; *[2]Azienda ASL Roma 2, UOC Assistenza alla persona, Roma, Italy*

Scopo: Gli obiettivi specifici sono stati: a) misurare gli esiti del trattamento di una ferita cronica e le condizioni del paziente; b) esplorare le esperienze e l'impatto sulla vita del paziente e c) integrare i risultati quantitativi e qualitativi per spiegare il processo di selfcare nei pazienti con ulcera cronica.

Metodi: Nella prima fase dello studio mixed method esplicativo i dati sono stati raccolti da un campione di convenienza di 44 pazienti presi in carico presso gli ambulatori infermieristici di un'azienda sanitaria di Roma. Nella seconda fase sono stati intervistati 14 pazienti e i dati sono stati analizzati utilizzando il metodo fenomenologico descrittivo di Giorgi. Nella terza fase sono stati integrati i risultati quantitativi e qualitativi per spiegare il processo di selfcare nei pazienti con ulcera cronica.

Risultati: La regressione lineare ha confermato l'associazione tra la qualità della vita dei pazienti e alcuni fattori socio-demografici e clinici. Dall'analisi qualitativa sono emersi 3 temi. Il primo 'Cura di sé', include i sottotemi: Self care maintenance, Self management e Self monitoring. Il secondo tema Cura da parte dei professionisti sanitari include i sottotemi Supporto all'autogestione, Gestione dei sintomi e Gestione delle malattie. Il terzo tema Qualità di vita include i sottotemi del benessere, autonomia e limitazioni alla qualità di vita dei pazienti portatori di ulcere croniche.

Conclusioni: Soffrire di ferite croniche per un lungo periodo di tempo ha un impatto negativo sulla qualità della vita dei pazienti, sull'autonomia, sul benessere e sul processo di self care. Le teorie a medio raggio sul selfcare delle malattie croniche risulta essere applicabile alle ulcere croniche, circostanze che hanno una malattia cronica come loro eziologia.

COMUNICAZIONI ORALI 2: CRITICITÀ E SOLUZIONI IN SETTING DI CURA DIFFICILI

OP161 OSTEOMIELITE DEL PIEDE :"EMPYTY TOE TECNIQUE" ED I VANTAGGI NEL PAZIENTE DIABETICO, VASCULOPATICO E COMPLICATO

Barbara De Angelis[1], Chiara di Segni[1], Fabrizio Orlandi[1], Valerio Cervelli[1]

[1]Tor Vergata/Medicina, Plastic and Reconstructive Surgery, Roma, Italy

Scopo: Le ulcere complesse del piede soprattutto nel paziente diabetico, vasculopatico e con altre diverse comorbidità sono una importante complicanza ed risultano difficili da trattare da Molto spesso questi casi sono accompagnati da osteomieliti acute e croniche soprattutto nel piede.In molti casi si deve ricorrere all' amputazione della parte affetta cosa non ben accettata dal pazienti .Il nostro lavoro descrive il corso del trattamento per l'osteomielite cronica delle dita del piede talvolta cionvolgente anche la testa metatarsale del raggio interessato mediante resezione selettiva dell'osso ma preservando i tessuti molli (la "tecnica del dito vuoto").

Metodi: Abbiamo sottoposto alla tecnica chirurgica descritta un totale di 30 pazienti tra l' anno 2020/2021. Tutti i pazienti risultavano affetti da diabete tipo 2, vasculopatia ed ulcerazione cronica delle dita del piede con osteomielite. Dopo l'approccio multidisciplinare comprensivo di prelievi per tampone con abg per successiva antibioticoterapia sistemica , se necessaria, i pazienti sono stati sottoposti alla rimozione selettiva dell' osso osteomielitico con risparmio delle parti molli utilizzate successivamente per la ricostruzione locale di un dito il più possibile simile alla anatomia del soggetto. I pazienti sono stati seguiti per un follow up di 1,2,3 settimane dopo 1 mese,3 mesi 6 mesi valutando la self-estimation, l'healing time, il dolore la funzionalità.

Risultati: I risultati ottenuti hanno dimostrato la validità della procedura decritta riguardo tutti i parametri ed anche la soddisfazione estetica e l' aspetto psicologico del mantenimento della parte del piede affetta proprio grazie alla preferenza dei pazienti di vedersi il proprio dito invece di amputarlo.

Conclusioni: Il metodo presentato si è rivelato efficace nel trattamento dell'osteomielite del piede soprattutto delle dita in in quei pazienti complicati da diabete e vasculopatie, preservando parzialmente la funzione, o mantenendola come già presente , e preservando completamente la forma anatomico estetica della parte trattata.

OP162 PROTOCOLLO DI CURA CON DEBRITMENT A ULTRASUONI E SUCCESSIVA PRESSIONE NEGATIVA CON INSTILLAZIONE NEL TRATTAMENTO DI ULCERE INVETERATE

Cecilia Muscarà[1], Francesca Turrini[1], Stefania Chiarenza[1]

[1]Istituti Clinici Zucchi Monza, Centro di Vulnologia, Monza, Italy

Scopo: A partire da maggio 2022 abbiamo selezionato 10 pazienti portatori di ulcere croniche inveterate degli arti inferiori presenti da almeno 10 anni, sebbene trattate in centri specializzati.

Le lesioni presentavano genesi vascolare e quadro di sovrainfezione già trattata. Eseguiti inoltre biopsia ed esame istologico per escludere patologia neoplastica e consulenza Infettivologica per eventuali indicazioni terapeutiche

Metodi: Per tutti I pazienti facenti parte dello studio l'approccio pre intra e post operatorio è stato standardizzato per evitare possibili bug, fino al momento del secondo step chirurgico che, invece è stato deciso dal chirurgo dopo valutazione dello stato della lesione (mesch o sostituto dermico).

La medicazione è stata rinnovata ogni 48/72 ore come da linee guida.

Mantenuto bendaggio ad elevato stifness.

Risultati: Secondo protocollo interno il paziente viene sottoposto a debridment chirurgico, eventualmente associato a DUS (debridment a Ultra Suoni) e successivamente a posizionamento di terapia a pressione negativa con instillazione (NPWTi) di soluzione fisiologica 0.9%., soluzione detergente a base di poliesanide allo 0.1% o Colimicina ad uso locale (1 caso).

Come da indicazioni d'utilizzo dei produttori è stata mantenuta pressione negativa alternata compresa tra 0 e -125 mmHg. L'instillazione è stata programmata a intervalli di 210 minuti, mentre i volumi sono stati calcolati in relazione alle dimensioni delle lesioni trattate.

Conclusioni: Tutti i pazienti hanno avuto un beneficio in termini di miglioramento della sintomatologia dolorosa, controllo dell'essudato e detersione del fondo lesionale con raggiungimento della quota dermica che ha permesso l'esecuzione di un innesto dermoepidermico o di un sostituto dermico.

OP163 NUOVE TECNOLOGIE APPLICATE ALLE FERITE DIFFICILI: LESIONI DA PRESSIONE INFETTE DA PATOGENI MULTIRESISTENTI,PREPERAZIONE O ALTERNATIVA A CHIRURGIA

Carla Pezzuto[1], Ilaria Rosso[2], Fabrizio Malan[3]

[1]Azienda Ospedaliero-Universitaria Città della Salute e della Scienza di Torino, chirurgie specialistiche, Torino, Italy; [2]Azienda Ospedaliero-Universitaria Città della Salute e della Scienza di Torino, Ortopedia e riabilitazione, Torino, Italy; [3]Azienda Ospedaliero-Universitaria Città della Salute e della Scienza di Torino, Torino, Italy

Scopo: Valutare la possibilità di trattamento di lesioni da pressione infette in pazienti mielolesi in alternativa o in preparazione ad intervento ricostruttivo. Si considerano ulcere infette da patogeni resistenti con possibilità di ridurre o eradicare infezioni da Pseudomonas,Acinetobacter,Klebsiella e Stafilococco metR per arrivare ad un miglioramento locale o guarigione.

Metodi: Utilizzo di dispositivo medico che si avvale di plasma freddo costituito da un mix di elettroni,ioni,radiazioni UV e calore. Tale dispositivo induce un processo di rigenerazione tissutale e disinfezione microbica , mediante la formazione di micropori nella membrana batterica dei microorganismi e distruzione del loro DNA mediante ossidazione senza danneggiare le cellule umane .Utilizzato in lesioni da pressione in 7 pazienti mielolesi colonizzati da batteri multiresistenti e già trattati con medicazioni avanzate da più di 4 settimane e colonizzazione persistente (tamponi successivi ripetuti e positivi).Misurazione e iconografie sequenziali ad ogni applicazione effettuata 1 volta alla settimana per 1 minuto.

Risultati: Pazienti trattati 7 , età media 49 aa,4 lesioni 4°,2 lesioni 3°,1 lesione 2°, diametro medio 11 cm (max 25 cm).Guarigione completa 5 pazienti (4 con lesioni sacrali,1 con lesione ischiatica) per 5/7 applicazioni con follow up a 2 mesi (progressivo miglioramento dopo stop applicazioni),negativizzazione alla seconda applicazione per 1 paziente con acinetobacter e lesione 2° grado,negativizzazione di 4 pazienti dopo 4 applicazioni.Paziente non responder per peggioramento condizioni generali,1 paziente con miglioramento parziale.

Conclusioni: La possibilità di trattamento non chirurgico e soprattutto il controllo o la scomparsa di infezioni da batteri multiresistenti in ulcere croniche diventa una alternativa importante per le ulcere difficili.

OP164 TERAPIA CHIRURGICA DEL REFLUSSO VENOSO CON LASER ENDOVENOSO PER I PAZIENTI AD ALTO RISCHIO E CON CON ULCERA FLEBOSTATICA (CEAP C5-6): FATTIBILITÀ E RISULTATI

Carlo Rivellini[1], Luciano Bersano[1]

[1]Ospedale Regina Montis Regalis, Chirurgico, Mondovì, Italy

Scopo: Le tecniche ablative, recentemente interessate da una notevole innovazione tecnologica che ha enormemente migliorato le apparecchiature e i devices, hanno radicalmente cambiato lo scenario della terapia delle varici complicate da ulcerazione rendendo possibile il trattamento chirurgico anche di questi pazienti altrimenti rifiutati per l'elevato rischio di complicanze. Abbiamo analizzato retrospettivamente i pazienti con varici primitive e secondarie, complicate da lipodermatosclerosi e/o ulcerazione attiva (stadio CEAP C5 e C6), trattati con laser endovenoso con fibra a tecnologia dual ring (ELVeS) al fine di valutarne l'efficacia e la sicurezza nella popolazione definita ad alto rischio normalmente rifiutati alla terapia chirurgica.

Metodi: Sono stati trattati consecutivamente 127 pazienti ad alto rischio chirurgico con varici complicate da lipodermatosclerosi e/o ulcerazione. Il protocollo di trattamento prevede l'uso di un laser a 1470 nm con fibra dual ring (ELVeS), in anestesia locale tumescente e in un setting di tipo ambulatoriale. Tra i pazienti trattati 51 erano maschi (età media di 67), 98 ipertesi, 48 diabetici di cui 31 in terapia insulinica, 92 obesi di cui 53 oltre i 100 kg (BMI medio 37), 28 cardiopatici di cui 17 con CAD rivascolarizzata e 24 presentavano un'arteriopatia concomitante; 84 pazienti presentavano una ipodermite importante, 57 pazienti anche una lipodermatosclerosi, 22 con pregressa ulcerazione e 50 un'ulcerazione in fase attiva di cui 37 di Grado 1/Stadio A, 10 di Grado Stadio B, 3 di Grado 2/Stadio B secondo il Texas Wound Classification System. Tutti i pazienti hanno ricevuto una terapia elastocompressiva post-operatoria con bendaggio multistrato in caso di ulcerazione continuata fino alla guarigione, 47 una medicazione avanzata, 12 una terapia antibiotica mirata, 8 il gel piastrinico e 3 l'inoculo di mononucleate periferiche. E' stato somministrato un QoL SF36 in 3 momenti del percorso di cura.

Risultati: Il tasso di guarigione delle lesioni è stato del 100% in un periodo di tempo variabile da 1 a 5 mesi al pari del tasso di successo dell'intervento (obliterazione della safena); il tasso di recidiva della lesione è stato del 3,2% su un follow-up medio di 12 mesi. In 12 pazienti si sono avuti ematomi dolorosi e stati infiammatori cutanei (flebectomie e scleroteraia associata) risolti in 4 settimane e 2 casi di endothermal heat-induced thrombosis (EHIT) risolti con Fondaparinux in monosomministrazione per 10 giorni. Il test QoL SF36 ha dimostrato un significativo miglioramento della qualità di vita in tutti i pazienti trattati.

Conclusioni: Il protocollo ELVeS si è dimostrato efficace e sicuro nel trattamento del reflusso venoso nei pazienti ad alto rischio chirurgico con lipodermatosclerosi e/o ulcerazione anche in fase attiva con riduzione dei tempi di guarigione e del tasso di recidiva della lesione.

OP165 L'EFFICACIA CLINICO-ORGANIZZATIVA DI UN PERCORSO DEDICATO AI PAZIENTI CON FERITE CRONICHE: UN TRIAL CLINICO RANDOMIZZATO

Jacopo Fiorini[1], Alessandro Sili[1]

[1]*Policlinico Tor Vergata, UOC Direzione Infermieristica, Roma, Italy*

Scopo: La creazione di percorsi dedicati a determinati utenti, ad esempio quelli per le patologie croniche, si è dimostrata negli anni una scelta vincente per le organizzazioni sanitarie e per i pazienti. È stato condotto un Trial Clinico Randomizzato per confrontare l'efficacia di un percorso clinico-organizzativo per la gestione delle lesioni croniche guidato da infermieri specializzati, rispetto alla comune pratica assistenziale.

Metodi: Sono stati arruolati due gruppi random di pazienti con lesioni croniche, il primo seguito da specialisti in wound care (sperimentale) nel ricovero e nel post-dimissione, mentre il secondo affidato alla comune prassi assistenziale (controllo). Un protocollo di trattamento è stato condiviso ed utilizzato per entrambi i gruppi. L'end-point primario era la rigenerazione dell'integrità cutanea e come secondario il tasso di riammissione.

Risultati: 1298 sono stati i pazienti arruolati e randomizzati nel gruppo sperimentale (N=707) e nel gruppo di controllo (N=591). Nel gruppo sperimentale si registrano 55.7 giorni (DS = 55.4) di presa in carico e lesioni completamente guarite. Nel gruppo di controllo, i pazienti sono stati seguiti in media per 88.6 giorni (DS = 158.3) e gli esiti erano per lo più ferite non cicatrizzate o decesso. La cura delle ferite guidata dall'infermiere specialista ha quadruplicato la possibilità di guarigione e ridotto dell'80% la riammissione ospedaliera.

Conclusioni: Il percorso clinico-organizzativo governato dagli infermieri specialisti sin dal ricovero, risulta efficace nel ridurre il tempo di trattamento e il numero di visite ai servizi ambulatoriali post-dimissione, permettendo la guarigione della ferita in breve tempo e riducendo la possibilità di riammissione.

OP166 THE TREATMENT OF ONCOLOGICAL WOUNDS OF NEOPLASTIC ETIOLOGY: IMPROVEMENT PROJECT IN AZIENDA USL TUSCANY SOUTHEST - NHS ITALY

Sara Sandroni[1], Clotilde Fratarcangeli[1]

[1]*Azienda USL Toscana Sudest*

Aim: Skin lesions with a neoplastic etiology can generally occur following primary tumors or skin metastases and are considered chronic lesions with a "non-healing" tendency, therefore the main objective is represented by the management of the symptomatological picture, together with the need to take being treated by adopting shared local treatment procedures and protocols.

Method: A preliminary analysis was carried out in the South-East Tuscany Local Health Authority through a network of management of oncological lesions with neoplastic aetiology and the need for a protocol was highlighted which would define the treatment phases in a standard treatment in a structured way.

A working group pertaining to the Skin Lesions Assistance Network - Skin Lesions Specialist Nurses and the Oncology Department - UOP Nursing assistance in the oncology area was set up. The protocol is structured layer and shared with the following training project.

Results / Discussion: Were evaluated:

- Adherence monitoring of the lesions present post protocol in different time

- Compliance – performance of healthcare professionals

- Professional training and technical support required

Conclusion: The use of a structured protocol deriving from a literature review and training project allowed the shared and standardized treatment of this type of wounds.

COMUNICAZIONI ORALI 3: EMODERIVATI E NUOVE TECNOLOGIE PER UNA CURA PIÙ EFFICACE

OP167 L-PRF LEUKOCITE-PLATELET RICH FIBRIN IN THE DIABETIC FOOT ULCERS

Enrico Rescigno[1]

[1]*Ospedale Civile Lavagna Genova, Chirurgia, Lavagna, Italy*

Scopo: E'nota dalla letteratura l'efficacia dei derivati plasmatici nella cura delle ulcere del piede diabetico come risulta da Cochrane Review e dal Grado di Raccomandazione 1B espresso da autorevoli Società Scientifiche (SVS: Soc. Vasc. Surg., SIMTI: Soc. Ital. Medicina Trasf. e Immunol., SIMCRI: Soc. Ital. Di Med. e Chir. Rigen.). Nel vasto panorama dei composti plasmatici si distingueva "L-PRF" Leukocytes-Platelets Rich Fibrin pubblicato da Choukroun nel 2001(1): un nuovo tipo di coagulo plasmatico ad alta densità ottenuto dalla sola centrifugazione del sangue senza aggiunta di reagenti o trattamenti fisici dove piastrine e leucociti sopravvivevano fino a 7 giorni liberando elevati livelli di Growth Factors protagonisti della riparazione tissutale. Lo studio multicentrico internazionale randomizzato di Games del 2018 sul piede diabetico utilizzando un analogo del L-PRF "LeucoPatch", ne ha dimostrato la superiorità di guarigioni di oltre il 50% (34% vs 22%) rispetto alle medicazioni avanzate(2). Intendiamo dimostrare la nostra esperienza con L-PRF nei pazienti affetti da ulcere non-healing afferenti al nostro Ambulatorio del Piede Diabetico.

Metodi: Dal 2015 ad oggi sono stati trattati 48 pazienti con piede diabetico età media 74aa (range 42-89) su 75 conlesioni cutanee di varia natura. La preparazione dei coaguli plasmatici è avvenuta tramite centrifuga e provette certificate FDA e CEE a 2700 giri/m per 12 minuti. I coaguli sono stati immediatamente applicati alle ferite, rivestiti con garza grassa o medicazione gelificante in carbossimetilcellulosa sodica in base al grado di essudato della lesione e la procedura è stata ripetuta ogni settimana.

Risultati: Sui 48 pazienti si è ottenuta la completa guarigione nel 84% dei casi, una guarigione parziale nel 10% e un'amputazione per infezione nel 6%. In una paziente con esposizione ossea dell'apice della telefalange dell'alluce, la guarigione con L-PRF ha evitato l'usuale amputazione. In 2 deiscenze di ferita dopo amputazione parziale si è evitata l'infezione e la progressione di malattia. 2 pz con esposizione tendinea (achillea e IV dito) sono guariti con conservazione della motilità. Tutte le lesioni hanno manifestato una non comune neovascolarizzazione del letto dell'ulcera e un'immediata risoluzione del dolore.

Conclusioni: L-PRF si è dimostrato, nella ns pur limitata esperienza, efficace di facile preparazione e con eventi avversi contenuti; ha ridotto il dolore, migliorato i tempi di guarigione con positive ricadute sui costi umani e sociali nonché di quelli economici connessi alle diminuite amputazioni.

Bibliografia:

1. Choukroun J. et Al. Implantodontie 2001; 42, 55–62
2. F. Games et Al. The Lancet Diabetes and Endocrinology 2018 Vol 6, issue 11, 870-878

OP168 IL PLASMA RICCO DI PIASTRINE NEL TRATTAMENTO DELLE ULCERE DI DIFFICILE GUARIGIONE, REVISIONE DELLA LETTERATURA

Tomas Ghezzi[1]

[1]*Ospedale Città di Castello USL Umbria 1, Ambulatorio Stomaterapia e Wound Care, Città di Castello, Italy*

Scopo: Valutare il potenziale contributo clinico del plasma ricco di piastrine (PRP) nella completa o parziale guarigione delle ferite di difficile guarigione, verificare l'efficacia degli emocomponenti ad uso non trasfusionale rispetto ai trattamenti convenzionali, attestare affidabilità e sicurezza della biotecnologia.

Metodi: Revisione della letteratura mediante consultazione database PubMed, EBSCOhost, ClinicalKey e Cochrane Library. La metodologia di ricerca ha incluso termini attinenti, come, platelet rich plasma, platelet gel, platelet growth factors, chronic skin ulcers, non-healing wounds, diabetic foot ulcer, leg ulcer e pressure ulcer. Gli articoli selezionati, giudicati pertinenti, sono stati esaminati e valutati criticamente.

Risultati: I termini di ricerca hanno prodotto numerosi articoli riguardanti l'utilizzo del PRP in diversi ambiti della medicina rigenerativa. Emerge una disomogeneità nelle tecniche di campionatura, preparazione e attivazione, nonché, nei protocolli di applicazione del PRP, ciò comporta potenziali difformità nei diversi contesti. I risultati emersi dalla letteratura suggeriscono che il PRP può migliorare il tasso di guarigione delle ulcere del piede diabetico, rimane controversa l'efficacia sulle ferite di diversa eziologia. Non sono state riscontrate significative variazioni statistiche in relazione a complicanze ed eventi avversi.

Conclusioni: Il PRP autologo è un trattamento avanzato, sicuro e promettente, tuttavia, nonostante vi sia un crescente interesse all'uso, non è pienamente dimostrato se favorisca la guarigione delle ferite di difficile guarigione rispetto ai trattamenti convenzionali. L'eterogeneità dei dati supportano la necessità di strutturare ulteriori studi con procedure uniformi e protocolli standard condivisi così da ottenere dati comparabili.

OP169 MONOCLONAL ANTIBODIES IN THE MANAGEMENT OF CHRONIC WOUNDS: A COMPREHENSIVE LITERATURE REVIEW

Flavia Manzo Margiotta[1], Alessandra Michelucci[1], Giammarco Granieri[1], Cristian Fidanzi[1], Giorgia Salvia[1], Matteo Bevilacqua[1], Agata Janowska[1], Marco Romanelli[1]

[1]*University of Pisa, Dermatology, Pisa, Italy*

Aim: Chronic wounds represent a clinical challenge of considerable complexity, given the articulated pathophysiology underlying their origin and the burden of long-term management with local dressings. Monoclonal antibodies (mAbs) are emerging as a novel therapeutic choice in clinical experiences of difficult to heal wounds, but no data are still available as a comprehensive view of their use in wound care. The goal of our work was then to review the use of those drugs in the existing literature.

Method: We performed a comprehensive literature review of 167 articles examining clinical cases of chronic wounds treated with mAbs. Inflammatory pathologies with possible ulcerative outcomes, such as hidradenitis suppurativa, were excluded from the analysis.

Results / Discussion: mAbs were found to be effective in treating wounds from 16 different etiopathogenesis. The most represented diseases were pyoderma gangrenosum treated with 12 different mAbs, necrobiosis lipoidica and cutaneous vasculitis treated with 3 different mAbs. The total number of different mAbs analyzed from the literature was 14. Rituximab was effective in 7/16 diseases (43.75%), followed by Tocilizumab used in 4/16 (25%) diseases and Etanercept and Adalimumab, both applied for 3/16 (18.75%) conditions.

Conclusion: mAbs represent a therapeutic opportunity in cases of chronic wounds recalcitrant to standard treatments. Due to the complex molecular landscape of wound healing, it is not possible to identify a single target molecule and for this reason the use of mAbs should be interpreted as a translational application to limited cases of multi-resistant conditions.

OP171 UTILIZZO DI UNA MATRICE EXTRACELLULARE DI ORIGINE OVINA IN LESIONI NON HEALING: VALUTAZIONE CLINICA

Maurizio Carnali[1], Domitilla Foghetti[2], Silvia Bertinelli[1], Silvia Chiavetti[3], Cinzia Ferretti[4], Sara Muzzini[5], Pamela Petroni[6], Sabina Sampaolo[6]

[1]*Ospedale Engles Profili, Centro Ferite Difficili, Fabriano, Italy*; [2]*Ospedale San Salvatore, Chirurgia Generale, Pesaro, Italy*; [3]*AST Ancona, Medicina Generale Territoriale, Fabriano, Italy*; [4]*AST Ancona, Cure Domiciliari, Fabriano, Italy*; [5]*AST Pesaro-Urbino, Poliambulatorio Chirurgico, Ospedale San Salvatore, Pesaro, Italy*; [6]*Ospedale Santa Croce, Ambulatorio Ferite Difficili, Fano (PU), Italy*

Scopo: Valutazione clinica della capacità di una matrice extracellulare (MEC) di origine ovina, di riattivare il processo di cicatrizzazione in lesioni cutanee *non healing*, ferme alla fase infiammatoria.

Metodi: 8 pazienti, affetti da lesioni cutanee croniche degli arti inferiori di diversa eziologia, presenti da almeno 12 mesi, caratterizzate da fondo inattivo non responsivo a trattamento con medicazioni avanzate e terapie fisiche, sono stati trattati con una MEC costituita per l'85% da collagene e per il 15% da glicosaminoglicani, proteine strutturali e di adesione.

L'applicazione della matrice è stata ripetuta ogni 7 giorni, per 4-6 settimane. Al cambio di medicazione, la completa assenza di residui della MEC è stata indicativa di elevati livelli di proteasi responsabili del blocco della lesione nella fase infiammatoria; in questo caso si è proceduto a riapplicarne un doppio strato. La presenza di moderati residui di MEC ha testimoniato invece la riduzione dei livelli di proteasi e l'inizio della fase proliferativa.

Risultati: La regolazione dei livelli di proteasi ha evitato la digestione dei tessuti neoformati, consentendone la rigenerazione sulla struttura di supporto fornita dalla MEC. Il superamento della fase infiammatoria ha riattivato il processo di cicatrizzazione, portando alla risoluzione della perdita di sostanza, in termini di profondità, nel 100% dei pazienti valutati e ad una riduzione media della superficie del 15%.

Conclusioni: L'utilizzo di una MEC in grado di modulare il livello di proteasi e di fornire un supporto al tessuto neoformato, ha consentito di modificare radicalmente l'andamento di lesioni ferme nella fase infiammatoria, non responsive a molteplici trattamenti.

OP172 L'UTILIZZO DI UNA NUOVA TECNOLOGIA PER LA DISINFEZIONE DELLE FERITE CON PLASMA FREDDO PER IL TRATTAMENTO DELLE LESIONI CRONICHE: VALUTAZIONE MULTICENTRICA DI 50 PAZIENTI

Claudio Ligresti[1]

[1]*Clinica Sant'Anna Asti - Direttore Italian Academy Wound Care*

Scopo: Nelle cellule il plasma provoca micropori locali e temporanei nella membrana cellulare consentendo la penetrazione di composti importanti per la riparazione tessutale come le specie reattive dell'ossigeno e dell'azoto che reagiscono con il DNA esposto nei batteri provocando la rottura del doppio filamento.

L'utilizzo di questa nuova tecnologia consente tramite un'applicazione easy to use la stimolazione del meccanismo di guarigione delle ferite attraverso un effetto battericida locale.

Alla luce di questo contesto si è voluto effettuare una valutazione multicentrica per la definizione di alcuni enpoint specifici.

Metodi: Sono stati arruolati 50 pazienti di età e sesso diverso portatori di lesioni ad eziologia varia in carico a 5 centri specialistici in Italia, con tampone microbiologico positivo.

Verranno effettuati due trattamenti con plasma freddo a settimana con step microbiologico intermedio a 15 giorni e 30 giorni (se non guarita in questo intervallo), sulle lesioni sarà applicata una medicazione assorbente non antisettica (alginato di calcio).

Risultati: Sono stati valutati i dati relativi a:

- Percentuale di riduzione area della lesione
- Valutazione microbiologica a step definiti T0 - T15 - T30
- Wound Bed Preparation
- Customer satisfaction.

Conclusioni: La tecnologia con plasma freddo, a seguito dei dati rilevati, attualmente in fase di completamento, rappresenta una importante opportunità per il trattamento delle lesioni hard-to-heal, e la sua semplicità di utilizzo ne consente il trattamento in diversi setting.

COMUNICAZIONI ORALI 4: AREA PEDIATRICA E FERITE NELL'ADULTO: CONTESTI E TRATTAMENTI

OP173 NURSING DELLE LE LESIONI DA DEVICES IN TERAPIA INTENSIVA NEONATALE

Claudia Baroncini Miscia[1], Valentina Vanzi[1]

[1]*Fondazione Policlinico Universitario Campus Bio-Medico, Terapia Intensiva, Roma, Italy*

Scopo: Lo studio ha lo scopo di ricercare le pratiche standardizzate per la cura della cute in TIN per giungere ad una modalità sistematica della gestione delle LdP del neonato pretermine. Evidenziare la ricerca attualmente disponibile e identificare le lacune che devono essere affrontate in modo che possano essere sviluppate linee guida per la prevenzione e il trattamento delle LdP basate sulla scienza e adeguate all'età, non sottovalutando la gestione del dolore procedurale e il coinvolgimento parentale.

Metodi: Si è condotta una revisione della letteratura e sono stati raccolti dati da un'ampia varietà di fonti tra cui CINAHL, COCHRANE, PUBMED, EBSCO, NPUAP. I dati sono stati estratti sulla base di articoli che trattano di gestione di LdP con efficacia dimostrata nella popolazione neonatale.

Risultati: Più del 50% delle lesioni da pressione in TIN sono dovute alla presenza di devices. La maggior parte dei protocolli di prevenzione e trattamento delle LdP nella popolazione pediatrica sono estrapolati dalla pratica degli adulti. L'importanza della gestione del dolore nei neonati con lesioni è spesso sottostimata tanto che in letteratura non si trova indicazione per l'utilizzo di uno strumento specifico per valutare il dolore nei neonati con LdP.

Conclusioni: Il futuro della gestione delle LdP per i neonati e altre popolazioni pediatriche dipenderà dalla continua ricerca e dalle linee guida create per assistere i sanitari nel trattamento delle LdP. Attualmente, esiste solo un numero limitato di linee guida pubblicate per la valutazione e la gestione delle lesioni nella popolazione neonatale e pediatrica.

La disciplina del Wound Care in TIN deve, quindi, costruire approcci standardizzati che comprendano una valutazione del rischio mirata, linee guida basate sull'evidenza, strategie di prevenzione, progettazione di attrezzature mediche e dispositivi specifici per questa popolazione speciale e vulnerabile.

Questo studio ha dimostrato, inoltre, l'importanza di un infermiere ben preparato, consapevole delle peculiarità legate alla cura del neonato, in particolare per quanto riguarda il mantenimento dell'integrità cutanea. Un corretta valutazione della ferita insieme alla conoscenza delle caratteristiche della medicazione, consentono all'infermiere di selezionare i prodotti appropriati per la gestione delle LdP.

OP174 GESTIONE DELLE ULCERE DA PRESSIONE (PU) NEI BAMBINI SETTICI: VALUTAZIONE DELL'USO DI MEDICAZIONE ANTIBATTERICA E SCHIUME POLIURETANICHE SU FERITE ACUTE

Mauro Pace[1]

[1]*Ospedale Pediatrico Bambino Gesù, Rianimazione Pediatrica, Roma, Italy*

Scopo: 1. Valutazione dell'effetto delle medicazioni con legame antibatterico sulla gestione del carico biologico della LDP infetta nei bambini settici.

2. Valutazione dell'efficacia delle schiume poliuretaniche, utilizzate come medicazione secondaria, nella gestione degli scarichi di pressione.

Metodi: Dal 2018, l'incidenza, i tempi di insorgenza, il carico biologico, la resistenza ai farmaci e il decorso longitudinale delle ulcere da pressione nell'incidenza settica ammessi in TIP sono registrati e confrontati con altri pazienti ammessi nella stessa unità Utilizzando la scala braden q come indice di valutazione del rischio. Altre condizioni della pelle insieme alla gestione della LDP sono condivise in un team multidisciplinare, supportato da documentazioni fotografiche. I bambini settici che presentano LDP vengono trattati secondo un protocollo costituito da una medicazione primaria DACC per gestire il carico biologico della ferita, in associazione con una medicazione secondaria in schiuma poliuretanica per gestire il carico di pressione. Dopo 3 anni è stata effettuata la medesima osservazione applicando le schiume come mezzo di prevenzione nei pz con maggior rischio LDP calcolato secondo l'indice Braden Q.

Risultati: Dei 548 bambini ammessi alla PICU in 18 mesi, 45 presentano uno stato settico, un'incidenza di LDP del 37,8% e il 90,6% delle ferite non-LDP correlate alla sepsi. I campioni colturali hanno riportato una significativa riduzione della carica batterica e della proliferazione nelle ferite trattate con medicazioni DACC, così come quelli che usano schiuma di poliuretano hanno presentato una risoluzione più rapida e nessun peggioramento della stadiazione LDP dovuta alla persistenza della pressione. I risultati sono riportati in tabella e successivamente confrontati con i dati del 2021.

Conclusioni: L'approccio multidisciplinare basato su un team addestrato e informato insieme all'uso combinato della medicazione DACC e delle schiume poliuretaniche ha consentito una gestione efficace delle ferite da pus e sepsi nei bambini settici critici riducendo gli oneri batterici e di pressione.

OP175 INSERIMENTO SCALA DI VALUTAZIONE DEL RISCHIO DI LDP IN TERAPIA INTENSIVA NEONATALE E PEDIATRICA

Simona Cavalieri[1], Monica Franzi[2]

[1]*IRCCS G. Gaslini, UOC Terapia Intensiva Neonatale e Pediatrica, Genova, Italy*; [2]*IRCCS G. Gaslini, Ambulatorio lesioni cutanee, Genova, Italy*

Scopo: Il paziente neonatale e pediatrico è considerato poco suscettibile allo sviluppo di lesioni da pressione (LdP) a causa della maggiore capacità rigenerativa della cute.

In realtà questi pazienti hanno caratteristiche peculiari che favoriscono lo *Skin Breakdown*. Questa è una problematica osservabile frequentemente nel setting di terapia intensiva dove il miglioramento continuo degli standard di cura ha prolungato il tempo di ricovero, aumentando così per i piccoli pazienti il rischio di sviluppare LdP.

L'obiettivo di questo studio è valutare l'effetto sull'outcome dell'introduzione di uno strumento validato per la valutazione del rischio di sviluppare LdP nel paziente pediatrico.

Metodi: Lo studio include tutti i pazienti ricoverati presso la Terapia Intensiva Neonatale e Pediatrica dell'Istituto Gaslini nel periodo 1° luglio -31 gennaio (7 mesi) negli anni 2019-2020, 2020-2021, 2021-2022.

Sono state selezionate scale di valutazione del rischio LdP per l'età pediatrica:

- SCALA DI BRADEN per i pazienti con età > 8 anni
- SCALA DI BRADEN Q per i pazienti con età compresa tra i 3 e gli 8 anni
- I pazienti con età inferiore a 3 anni sono stati sottoposti a valutazione clinica infermieristica

Sono stati raccolti ogni giorno i dati relativi agli indici LdP per eta, alla presenza di LdP e data di insorgenza, a fattori protettivi e fattori di rischio, in particolare:

- presenza di superfici/posizionatori fluidizzati di supporto;
- presenza di presidi di protezione cutanea (idrocolloidi, film di poliuretano, ecc.…);
- movimentazione del paziente;
- condizioni particolari di rischio (ECMO, ipotermia, fattori nutrizionali).

Risultati: Nei tre periodi di raccolta dati i pazienti totali inclusi nello studio sono stati 1176 (471, 386, 319). Sono state diagnosticate 21 LdP (incidenza 1,78%). Si è osservata una riduzione dell'incidenza di LdP durante questo periodo di osservazione rispetto al

periodo precedente all'implementazione del progetto (1.78 vs 5.6%). È stata evidenziata una maggiore incidenza di LdP in pazienti con fattori di rischio definiti (ECMO in età neonatale, 33% 7 di 21 di LdP). È stato inoltre osservato un progressivo incremento di utilizzo di superfici di supporto.

Conclusioni: L'utilizzo di uno strumento validato ha favorito un approccio olistico «all'argomento» LdP migliorando sensibilmente la percezione del problema, identificando fattori di rischio e fattori protettivi e identificando pazienti ad alto rischio di LdP (i.e. neonati in supporto ECMO).

Questo studio ha permesso di elaborare una *care-bundle* focalizzata alla prevenzione delle LdP presso la nostra UO:

- Ottimizzazione del tempo dedicato all'osservazione, alla valutazione e alla cura della cute.
- Utilizzo di scale validate per la valutazione del rischio di sviluppare LdP
- Implementazione dell'utilizzo di diverse superfici di supporto
- Incremento dell'assistenza con piani posturali personalizzati.

OP176 NUOVE TECNOLOGIE DI MEDICAZIONE IN PAZIENTI PEDIATRICI CON USTIONE GRAVE

Eleonora Durante[1], Carlotta Paola Maria Canonica[1], Giulia Lanfranchi[1], Ugo Maria Pierucci[1], Margherita Roveri[1], Carlotta Ardenghi[1], Alessia Musitelli[1], Michela Galati[1], Giulia Albo[1], Gloria Pelizzo[1 2]

[1]Ospedale dei Bambini "Buzzi", UOC Chirurgia Pediatrica, Milano, Italy; *[2]Università degli Studi di Milano, Dipartimento di Scienze Biomediche e Cliniche, Milano, Italy*

Scopo: L'ustione nei bambini piccoli necessita di una presa in carico dedicata a favorire il rapido processo di riparazione tissutale, il contenimento del rischio infettivo, le sequele estetiche e funzionali permanenti. Il dolore e lo stress devono essere prevenuti attraverso medicazioni idonee ai piccoli pazienti, arricchite di ossigeno e i suoi radicali liberi. Obiettivo dello studio è valutare indicazioni e efficacia di medicazioni soffici, planari, per ridurre i tempi di guarigione e ospedalizzazione, minimizzare il numero e gli effetti delle sedazioni.

Metodi: Nel 2022 presso il nostro Centro è stata introdotta una medicazione avanzata con un supporto planare a base di matrice oleica a rilascio di radicali[1], applicabile direttamente sulle lesioni con obiettivo ridurre le medicazioni in sedazione e favorire la rapida guarigione con ridotta analgesia.

Risultati: Sono stati ricoverati 53 pazienti di età media 3,3 anni con ustioni estese, di II e III grado. Il supporto ha trovato indicazione in 3 ustioni al volto di 2° grado, 2 ustioni delle mani e 2 donor site per innesto autologo. Questo ha ridotto il rischio infettivo, favorito una più rapida guarigione, richiesto minor analgesia e sospensione delle medicazioni avanzate. Le medicazioni[1] sono risultate confortevoli e il risultato estetico è stato ottimo, in assenza di reazioni cicatriziali o comparsa di tessuto ipertrofico.

Conclusioni: Riteniamo che la gestione delle ustioni pediatriche di 2° grado al volto e mani e il donor site possano beneficiare di medicazioni[1] favorenti la tutela del microambiente, la rapida riepitelizzazione e la prevenzione delle infezioni.

OP177 OSSIGENO SINGOLETTO, ACIDO IPOCLOROSO E IPOCLORITO DI SODIO NEL TRATTAMENTO NELLE FERITE NON HEALING CON OSTEOMIELITE NON OPTION

Barbara De Angelis[1], Chiara di Segni[1], Fabrizio Orlandi[1], Carlo Cossi[1], Ruggiero Marrano[1], Stefano Mogavero[1], Nico Preite[1], Valerio Cervelli[1]

[1]Tor Vergata/Medicina, Plastic and Reconstructive Surgery, Roma, Italy

Scopo: L'osteomielite è un processo infettivo dell' osso procurato da germi e batteri che si annidano nel tessuto e sono distinte in forma acuta e cronica a seconda del tempo in cui si presentano. Spesso si associano a ferite croniche infette e ne mantengono lo stato di non guarigione. Purtroppo l'eradicazione completa dell' infezione ossea è difficile e generalmente si attuano cure antibiotiche sistemiche lunghe come pure le ferite associate hanno strategie di cura aggressive. Sicuramente la parte importante è la bonifica del focus osteomielitico che può esser più o meno aggressiva ma in alcuni casi limite arriva all' amputazione dell' arto o del tratto di osso infetto. L'utilizzo della soluzione con ossigeno singoletto, acido ipocloroso e ipoclorito di sodio come antisettico battericida, funghicida e virucida permette di abbattere la carica infettiva locale aggredendo il biofilm e l' infezione nel focus interessato sia dell' osso e di conseguenza della ferita non healing.

Metodi: Presentazione di casi clinici con ferite croniche infette associate ad osteomieliti croniche non option con indicazione ad amputazione o demolizione chirurgica importante della parte infetta. I pazienti sono stati sottoposti a protocollo medico/chirurgico della ferita e dell'osso affetto. (eseguiti tamponi con abg ed istologici delle parti tissutali affette)

Risultati: Con il protocollo proposto abbiamo ottenuto dei buoni risultati sia nel contenimento e abbattimento dell' infezione locale soprattutto in quei casi dove il paziente non accettava interventi demolitivi. Inoltre la riduzione del dolore, odore e miglioramento della ferita sono stati molto soddisfacenti.

Conclusioni: L' utilizzo del liquido antisettico presentato ha dato ottimi risultati nella gestione delle ferite difficili con osteomielite. Bisogna calcolare che in alcuni casi risulta essere un trattamento palliativo perché il processo osteomielitico necessita in primis della demolizione del focus infetto. Quando la demolizione non è accettata o è preferibile posticiparla, (soprattutto nelle osteomieliti croniche che possono riaccendersi) in caso di compromissione grave del paziente, il protocollo presentato con gestione locale dell' infezione con ossigeno singoletto, acido ipocloroso e ipoclorito di sodio può essere una strategia che permette il mantenimento della parte dell' arto con funzionalità dello stesso mantenendo anche l' autonomia di movimento del paziente con una buona qualità di vita .

Actimaris Sensitive

OP178 L'O2 NELLA CURA DELLE FERITE: NOSTRA ESPERIENZA

Silvia Bertinelli[1], Maurizio Carnali[1]

[1]*Ospedale Engles Profili, Chirurgia , Fabriano, Italy*

Scopo: L'ossigeno è un noto elemento essenziale per la vita, nello specifico per tutte quelle reazioni che permettono la vita. Di qui è nato l'impiego di questo gas per la cura non solamente le patologie polmonari ma anche di quelle cutanee.

Il poster ha come obiettivo quello di sottolineare come l'ossigeno ai diversi livelli somministrato sia un sinergico elemento di cura nel processo di presa in carico delle diverse tipologie di ferite.

Metodi: Si sono raccolti i dati riferiti alle casistiche degli anni 2017-2022 e si sono valutate in termini di esiti clinici. Nell'attività di un ambulatorio di ferite, all'interno di un dipartimento chirurgico "il bisogno di ossigeno" che presentavano determinate ferite si era abituati, sino alla prima decade del nuovo secolo, a compensarlo con una scelta prettamente chirurgica di bypass, superando l'ostacolo e promuovendo il ritorno ad una situazione di stabilità.

Risultati: Nella revisione della casistica ,la percentuale di pazienti che venivano inclusi per by-pass non era superiore al 4 % e generalmente trattavasi di pazienti con patologie da ostruzione arteriosa. É noto che non tutte le ferite e forse nemmeno alcuni pazienti necessitano di un intervento, per situazioni cliniche, per scelta od altro ancora. Nel contempo altre tipologie di possibilità terapeutiche potevano essere impiegate. La camera iperbarica (11% della casistica) è stata certamente la seconda opportunità terapeutica impiegata e poi ancora l'ossigeno utilizzato topicamente con erogatori cutanei (29%), attraverso il legame con matrici oleiche (16%), attraverso infusioni di sangue arricchito di una miscela di ozono e ossigeno (6%). Oppure ancora attraverso l'impiego sinergico di terapia con pressione negativa alternata ad erogazione di ossigeno seguendo un percorso terapeutico specifico (34%).

Conclusioni: La combinazione delle diverse tipologie di trattamento ha consentito di portare ad un netto miglioramento di tutte le ferite. Guarigione nel 100% dei casi sottoposti a bypass ma con recidive al follow-up a tre anni per deterioramento del quadro vascolare arterioso. Miglioramento e riduzione della complicanza infettiva nel 86% dei pazienti sottoposti ad iperbarica. Ripresa del processi riparativi nei pazienti sottoposti ad ossigeno topico continuo (100%), e stesso dato riscontrato in quelli sottoposti al trattamento con TPN e O_2 ma con una migliore ripresa del riempimento del letto di ferita (58% vs 69%).

PAPER POSTERS (ENG)

PP001 TREATMENT OF PERINEAL AND SCROTAL NECROTIZING FASCIITIS USING A CARBOXYMETHILCELLULOSE (CMC) WITH SILVER IONS (AG) AND SUBSEQUENTLY, WHIT EQUINE COLLAGEN TYPE 1 ASSOCIATED WITH HYALURONIC ACID

Jessica Fugazza[1]

[1]*Ospedale Civile di Vigevano, Chirurgia Ambulatorio, Vigevano, Italy*

Aim: Efficacy evaluation of carboxymethylcellulose (CMC) dressing with Silver ions + Benzethonium chloride + EDTA in antibiofilm activity and exudate management in a 66 years-old patient with perineoscrotal necrotizing fasciitis (Fourniere's gangrene). Clinical history: decompensated diabetes mellitus, not compliant to treatments. Initial wound size 18x4 cm.

Method: On June 25 extensive surgical debridement was implemented, as well as antibiotic therapy and glycemic compensation. From July 7 to 28 he underwent hyperbaric oxygen therapy. While treated with CMC Ag dressing.

On July 25 he was discharged. The wound was moderately exudative and covered with fibrin whit gradual improvement. Wound size 15x4 cm. Wound dressing changes were carried out twice a week.

From August 7 to 13, the hypergranulating wound bed was effectively treated with Diprosone cream. Further reduction of the wound (Size: 12x 2cm).

From August 13 to September 24 the wound was dressed with collagen and hyaluronic acid.

Results / Discussion: In 6 weeks we observed a significant reduction in wound size (6x2cm) and exudate level. The wound reached complete healing at the end of September.

Conclusion: The adopted treatments led to complete healing in 2 months.

CMC dressing with Ag, Benzethonium chloride and EDTA was helpful in the wound bed preparation phase and to break up and inhibit biofilm.

This strategy has avoided the patient having to undergo plastic surgery.

PP002 A CASE SERIES OF ACUTE WOUND TREATED WITH BLUE LIGHT

Elia Ricci[1], Monica Pittarello[1], Andrea Pietro Ricci[1]

[1]St Luca's Clinic, Difficult Wound Healing Unit, Pecetto Torinese, Italy

Aim: evaluation of a phototherapy device based on the use of blue light in the treatment of acute lesions at risk of becoming chronic.

Methods: 15 patients with acute skin lesions, trauma or surgical dehiscence of lesions were enrolled, all patients at risk of becoming chronic due to underlying pathologies. Analysis on a single parameter, the reduction of the area. Patients underwent a 4-week run-in period with advanced medication treatment. In a second 4-week period, they underwent a double weekly blue light treatment. Finally they were observed for a further 4 weeks. Data were collected on a biweekly basis. The area was analyzed using a photographic detection system based on an artificial intelligence algorithm.

Results: at the end of the 12-week period we obtained resolution of all treated lesions. At the end of the 4 weeks of treatment we obtained the resolution of 7 lesions (46.7%), at 6 weeks 13 healings were obtained (86.7%). The average reduction in the area was 10.6% at the end of the Inn run and 71% at the end of the 4 weeks of treatment.

Conclusions: The device was found to be effective in preventing chronicity and accelerating repair. Further study will be needed to confirm this observational analysis.

* Emoled

PP003 THE TREATMENT OF A PERISTOMAL WOUND IN A YOUNG TRACHEOSTOMIZED WOMAN: A CLINICAL CASE

Antonino Lombardo[1], Barbara Forino[2], Francesco Stivala[1], Enrica Fontana[1], Lorenza Migliore[3], Francesco Tullio[2], Ilaria Lo Vetro[2], Sarah Schiena[2], Stefania Laganà[2], Brizilda Fiannaca[2], Paola Curto[2], Antonello Campeggio[2], Chiara Gammarota[2], Nicolò Di Massa[2], Eleonora Aloi[4], Mario Paleologo[4], Carmela Gentile[1]

[1]Città della Salute e della Scienza di Torino, Molinette Hospital, General and Specialist Surgery - Otolaryngology, Turin, Italy; *[2]Città della Salute e della Scienza di Torino, CTO Hospital, Anesthesia, Resuscitation and Emergency - Intensive Care Unit 3, Turin, Italy*; *[3]Città della Salute e della Scienza di Torino, Molinette Hospital, Orthopedics, Traumatology and Rehabilitation - Physical Medicine and Rehabilitation, Turin, Italy*; *[4]Città della Salute e della Scienza di Torino, Molinette Hospital, DiPSa, Turin, Italy*

Aim: Explain the multidisciplinary methodological approach used for the treatment of a post – surgical peristomal wound

Method: Female patient, 17 years old, polytrauma, intubated and underwent tracheostomy. In the post – operative, presence of a peristomal wound (3 x 3,3 cm), stage III of European Pressure Ulcer Advisory Panel (EPUAP). Treatment:

- Debridement: Surgical, autolytic and chemical
- Cleansing: Polyhexamethylene Biguanide
- Antimicrobial action and exudate management: Azatiractica Indica + Iphyercum Perforatum + Hidrofibra with silver + Silicone foam with silicone border and border support with polyurethane film
- Scar care: Elasticizing cream with massage therapy, silicone gel and lymphatic drainage with functional tape (kinesiology taping)
- Nutrition: 30 Kcal/Kg; Proteins 1,8 g/Kg; Water 30 ml/Kg
- Pain treatment: Lidocaine cream 5%.

Results / Discussion:

- Wound healing: 6 weeks
- Average dressing change: 72 hours
- Average pain: VAS = 2
- Scar healing: 6 weeks.

Conclusion: Using a multidisciplinary approach to wound healing has proven to be an effective choice. The use of interactive dressings to prepare the bottom of the wound, accelerate neo angiogenesis, granulation, epithelization and reduced healing times. Appropriate nutritional intake allowed the patient not lose weight and supply the wound with the nutrients necessary for healing. The focused use of counseling for motivational support permit to manage the fragile emotional condition of the patient due to an altered perception of his own image which, unavoidably, the wound had generated. Finally, the treatment of the scar with kinesiological tape and silicone gel made it possible to healing the wound with a good aesthetic result.

PP004 SAFETY, EFFICACY AND EASE OF SELF-MEDICATION IN PATIENTS UNDERGOING POST-OPERATIVE DRESSING WITH BIODYNAMIC MICROCELL TAPING WITH GRADUAL RELEASE OF STABLE OZONIDES

Michele Ruggiero[1], Vincenzo James Greco[1], Carlo Alessandro Talarico[1], Roberto Cassino[2]

[1]"Villa dei Gerani" Clinic, Department of Medicine and Surgical Sciences, Vibo Valentia, Italy; [2]"Sacra Famiglia" Korian Nursing Home, Geriatrics - Long Term Care, Pieve del Cairo, Italy

Aim: Post-operative surgical wound management is still a much debated topic and in clinical practice there is no definitive treatment guideline. There are several methods for dressing the post-operative wound: bare wound or wound covered with sterile gauze; in the first case, self-management is simple, but the infection rate is slightly higher; in the second case self-medication is more difficult. We have not found any studies in the literature that analyze the efficacy, safety and comfort of home self-medication of post-operative surgical wounds: the purpose of this work is the evaluation of the three aforementioned items with the use of a biodynamic rechargeable taping.

Method: We subjected 628 patients, operated in elective clean surgery, to post-operative medication, from the second day, with biodynamic* microcell taping with gradual release of Ozoile®, refillable with Ozoile®-based Spray**; daily refill and replacement every five days. At the sutures removal (random with silk, prolene and metal clips) each patient was subjected to a questionnaire to evaluate the surgical wound management, and the possible appearance of infection of the surgical site was evaluated with ASEPSIS SCORE.

Results: all 628 patients evaluated the home management of the medication as extremely simple; no induced pain, no post-operative complications of the surgical wound, no adverse events and no allergies.

Conclusion: Post-operative dressings with rechargeable biodynamic taping can be considered effective, safe, easy to manage even in self-medication and with a high evaluation of well-being by the patient.

*Rigenoma Nastro Ricaricabile **Rigenoma Spray (Erbagil, Italy)

PP005 GAS FOAMED SCAFFOLDS FOR CHRONIC WOUND REGENERATION

Elanora Bianchi[1], Marco Ruggeri[1], Barbara Vigani[1], Cinzia Boselli[1], Antonia Icaro Cornaglia[2], Silvia Rossi[1], Giuseppina Sandri[1], Caterina Valentino[1], Gaia Zucca[1]

[1]The University of Pavia, Department of Drug Sciences, Pavia, Italy; [2]The University of Pavia, Department of Public Health, Experimental and Forensic Medicine, Pavia, Italy

Aim: This work aims on the design and development of cricket-based gas foamed fibers enriched with hydroxyapatite, able to mimic the native extracellular matrix and to restore the wound site.

Method: Pullulan (PL), Hydroxyapatite nanopowder (HP), Citric Acid (CA) and crickets (CR) were used for scaffold preparation. Three different solutions were prepared: PL-HP, PL-CR, PL-CR-HP. The polymeric blends were electrospun using an electrospinning apparatus and cross-linked by heating. Subsequently, the electrospun fibers were immersed in sodium borohydride solution (NaBH4) for 15 min at room temperature to allow the gas foaming. The surface morphology of the 3D scaffolds was studied by SEM and the compression test was conducted using a Texture Analyser. Cell adhesion and proliferation were assessed on human fibroblasts and human adipose stem cells. An in vivo efficacy evaluation was also performed on male rats.

Results / Discussion: The morphological analysis evidenced a nanofibrous structure, and HP was dispersed into the matrix. The 2D electrospun fibers were gradually modified into 3D structure during the treatment with NaBH4 solution. Moreover, the compression test highlighted that the presence of both HP and CR increased the systems resistance. Both cell lines were able to adhere and proliferate onto the systems. Moreover, the in vivo efficacy evaluation confirmed the re-epithelialization of the wound site when treated with the systems.

Conclusion: Cricket-based gas foamed fibers enriched with HP were successfully developed, representing an interesting tool to effectively tackle wounds.

PP006 HYDROXYAPATITE NANOPARTICLES IN MICROSPHERES TO REVERSE PERIODONTITIS PROGRESSION

Marco Ruggeri[1], Barbara Vigani[1], Elanora Bianchi[1], Silvia Rossi[1], Giuseppina Sandri[1], Caterina Valentino[1]

[1]*The University of Pavia, Department of Drug Sciences, Pavia, Italy*

Aim: Periodontitis is a set of inflammatory conditions affecting the tissues surrounding the teeth and is predominantly a bacterial infection that attacks the protective and supportive tissues of the tooth. Microparticles based on crickets/seaweed polysaccharides and doped with hydroxyapatite nanoparticles were manufactured using spray-drying aiming at restoring the integrity of the periodontal tissue.

Method: Whole frozen crickets were treated with acetic acid, homogenized using an Ultraturrax and associated to fucoidan or carrageenan. In addition, the blends were doped with hydroxyapatite, a bioceramic material able to mimic the mineral content of extracellular matrix. Microparticles were prepared by means of a spray-drier and then cross-linked by heating. The microparticles were characterized by chemico–physical properties, and antioxidant properties. Moreover, preclinical properties were assessed.

Results / Discussion: The microparticles are characterized by a predominantly spherical shape. The cross-linking by heating does not alter microparticles morphology and triggers the interaction between Ca2+ and anionic groups of fucoidan or carrageenan to form ionic bonds, preventing the loss of 3D structure and the systems solubilization in aqueous media. The microparticles are characterized by antioxidant properties (radical scavenging activity and ferrous ion chelating activity), favored not only by the seaweed polysaccharides but also by the macro and micronutrients that are present in the crickets (lipids, proteins, vitamins, proteins).

Conclusion: The preclinical results suggested that the microparticles were biocompatible towards fibroblasts and osteoblasts, promoting skin tissue repair in an in vivo wound healing model

PP007 A CASE SERIES OF INFECTED WOUND TREATED WITH PHOTODYNAMIC THERAPY

Monica Pittarello[1], Elia Ricci[1]

[1]*St. Luca's Clinic, Difficult Wound Unit, Pecetto Torinese, Italy*

Aim: evaluation of a photodynamic therapy designed for bacterial killing which uses a photosensitizer applied to the lesion, illuminated by a red light LED source *.

Methods: 11 patients with 12 colonized wounds according to the WUWHS classification were recruited. The data collected were: the Cutting and Harding score for the evaluation of the infection, the evaluation of the bacterial load using the Moleculight System. Patient observation was extended for 4 weeks with weekly re-evaluation and re-treatment in case of positive findings. The dressing set up next with inert dressing.

Results: in 6 cases (50%) defervescence of the infection was obtained with a single treatment. In 5 cases (41.7%) 2 treatments were required while only 1 case (8.3%) required three treatments. In the last case C&H was negative but the Moleculight showed the presence of contaminants in high charge. At 4 weeks all infection parameters were negative with a 100% success rate. Follow-ups extended to 4 weeks after the end of treatment demonstrated no recurrences. Absence of side effects.

Conclusions: The treatment of colonized lesions using the photodynamic system is very effective in a short time. Further studies are needed in order to better define the effective dosages for the treatment of the different degrees of infection. The only problem is the time required which requires the reagent to be tested for 40 minutes in addition to an 8 minute treatment time.

* Vulnofast-Vulnolight

PP008 THE SOFTENING OF SIMULATED DEVITALISED TISSUE BY A WOUND DEBRIDEMENT GEL IN VITRO

Angelique Dudman[1], Jonathan Roberts[1], Dan Metcalf[1]

[1]*Convatec Group, Advanced Wound Care, Deeside, United Kingdom*

Aim: To develop a simulated devitalised tissue and explore the ability of a chemo-mechanical wound debridement gel (WDG) to soften the tissue in comparison to saline.

Method: A simulated necrotic tissue was prepared by homogenising small quantities of 50% pork mince, 36% pork liver and 14% defibrinated horse blood and drying at room temperature for 30 hours. Tissue softening by various short duration applications of saline or WDG were examined by observing the penetration of the treatments into the tissue and by measuring the hydration of the dried tissue using light microscopy and subsequent image analysis.

Results / Discussion: In a simulated necrotic tissue model, WDG was observed to penetrate the tissue more readily than saline. Using image analysis to calculate tissue dryness values, WDG was also shown to have softened the tissue significantly more than saline after 2 min ($p<0.05$), 2x2 min ($p<0.05$), 5 min ($p<0.01$) and 2x5 min ($p<0.05$) treatment times. Ideally, wound debridement methods should be fast and effective at managing both devitalised tissue and biofilm as part of regular wound hygiene. Debridement methods should also be easy to use by all levels of health care professionals. While standard biofilm models exist, simulated devitalised tissue models that are complex enough to satisfactorily mimic necrotic tissue are lacking.

Conclusion: WDG has been demonstrated to soften simulated devitalised tissue more effectively than saline in a realistic, newly developed laboratory model. This aligns with recent clinical findings that WDG facilitates the softening and removal of devitalised tissue in hard-to-heal wounds.

PP009 FINGER COMPARTMENT SYNDROME DUE TO A HIGH-PRESSURE WASHER INJURY

Jae Ha Hwang[1], Jun Ho Choi[1], Kwang Seog Kim[1], Sam Yong Lee[1]

[1]*Chonnam National University Hospital, Department of Plastic and Reconstructive Surgery, Gwangju, Korea, Rep. of South*

Aim: Although finger compartment syndrome is not common, it compresses the neurovascular bundles in a limited space and blocks blood flow to the fingers, causing necrosis of the fingertips. Finger fasciotomy through midlateral release of the finger can achieve decompression of the finger compartment. Herein, we report a case of compartment syndrome in a finger injury caused by a high-pressure water flow commonly used in car washing stations.

Method: A 60-year-old man injured his right middle finger while using a high-pressure washer at a car washing station. The patient complained of severe pain in his middle finger and a 0.2-cm punctured wound on the volar side of distal phalangeal joint of the middle finger. The fingertip was pale, numb, and characterized by severe swelling and a limited range of motion. Finger radiography showed that there was no fracture in the finger.

Results / Discussion: Digital decompression was performed through finger fasciotomy. On the second day after surgery, the color of the fingertip returned to pink, swelling was resolved, and the range of motion returned to normal. The sensation of the fingertip was completely restored, and the capillary refill test and pinprick test were positive.

Conclusion: Fingertip compartment syndrome can be caused by high-pressure water flow damage to the fingers when using high-pressure washers at a car washing station. To avoid finger necrosis, rapid diagnosis of finger compartment syndrome and digital decompression are essential.

PP010 PROTEIN C DEFICIENCY, TREATMENT OF ECCHYMOTIC WOUNDS IN PURPURA FULMINANS WITHOUT SURGICAL INTERVENTION AND PROTECTION OF THE LIMB

Omer Faruk Atalay[1], Deniz Yahci Bilgi[2]

[1]Istanbul Medeniyet Universitesi, Cardiology, Istanbul, Turkey; [2]ARDİS Sağlık Hizmetleri, Koç University, Istanbul, Turkey

Aim: Sharing experience in Ecchymotic Wounds at Purpura Fulminans.

Method: Fresh frozen plasma and anticoagulent treatment was started first on the patient who started to have ecchymosis first on his hips, then his legs and partially in his testicles on the 2nd day postpartum and the borders of ecchymosis were drawn with a pencil to keep track of the process. Later on, it was observed that borders were widened, ecchymosis had turned into necrotic and eschar wounds descending to all muscle layers and considering it could progress to a lower extremity amputation in the future, patient was transfered to our wound monitoring unit.

By monitoring eschars with a hydrocolloid product, demarcation lines was formed and eschars were separated from the skin. After autolytic debridement of the underlying necrotic tissues with hydrogel products, plasmaderm was performed on the wounds, wound care and treatment was done by a foam cover over collagen and thus a rapid granulation and epithelialization was aimed. **Results / Discussion:** As a result of wound care along with the medical treatment in neonatal intensive care unit, infant baby's limb was saved without the need of a surgical intervention and without a development of infection. **Conclusion:** Wounds were fully healed and at the end of approximately 1.5 months, patient was transfered to another institution for eye surgery.

PİC 1

PİC 2

PİC 3

PİC 4

PİC 5

PİC 1

PİC 2

PİC 3

PİC 4

PİC 5

PP011 POST-SURGICAL HOLISTIC APPROACH IN THE TREATMENT OF PATIENT WITH TOTAL NECROSIS OF THE NECK

Antonino Lombardo[1], Francesco Stivala[1], Enrica Fontana[1], Eleonora Aloi[2], Mario Paleologo[2]

[1]Città della Salute e della Scienza di Torino, Molinette Hospital, General and Specialist Surgery - Otolaryngology, Turin, Italy; [2]Città della Salute e della Scienza di Torino, Molinette Hospital, DiPSa, Turin, Italy

Aim: Closure of the loss of substance to allow the recovery of oral nutrition.

Method: 80-year-old male patient, body weight 50 Kg, height 162 cm, with T4 vocal cords cell carcinoma. In 2016 he underwent radiotherapy in the cervical region (35 sessions – 70 Gy) due to a carcinoma at the base to the tongue and in 2018 he underwent to total laryngectomy and reconstruction with pectoralis major muscle flap. In postsurgical he has total necrosis of the donor flap (10 x 8 cm).

Results / Discussion: Reassurance and patient's emotional support with his active involvement in the treatment process.

- High-protein and high-calorie diet setting with daily intakes of 1520 Kcal (30 Kcal/Kg); Proteins – 94 g (1,8g/Kg); Water – 1800 ml (35 ml/Kg)
- Surgical, mechanical, autolytic and chemical debridement
- Exudate management with hydrofibre and silicone foam dressing reinforced at the edges with polyurethane film
- Management of pain according to analgesic protocol (Lidocaine cream 5% and/or Tramadol 50-100 mg intravenous if pain NRS > 3 (Numerical Rating Scale)
- Wound Bed Preparation and reconstruction with pectoralis major muscle flap.

Conclusion: Holistic management with a methodological approach, which consist in wound bed preparation, management of pain and emotional state and patient's active involvement in healing process, permit to reach complete healing. We can remove the patient's nasogastric tube and start the oral nutrition. He began the rehabilitation phonatory speech exercises to be able to speak with an erygmophonic voice. Furthermore, he was discharged home, where he lives independently and resumed his usual social life, cultivating his passion for playing cards. All this had positive effects on the staff self-confidence who support the patient along the treatment path, and it had positive effects on the recovery, not certain, and on the patient's quality of life.

PP012 EHO-85 A NEW ANTIOXIDANT HYDROGEL CONTAINING AN EXTRACT OF OLEA EUROPAEA: EXCELLENT OPTION FOR THE TREATMENT OF WOUNDS

Bárbara Torrecillas Baena[1], marta Camacho-Cardenosa[1], Mª Dolores Cramona-Luque[2], Miriam Berenguer Pérez[3], Antonio Casado-Diaz[1]

[1]Hospital Universitario Reina Sofia, Maimonides Institute of Biomedical Research in Cordoba (IMIBIC) and Endocrinology and Nutrition Unit, Córdoba, Spain; [2]Hospital Universitario Reina Sofia, Maimonides Institute of Biomedical Research in Cordoba (IMIBIC) and Cellular Therapy Unit, Córdoba, Spain; [3]University of Alicante, Department of Community Nursing, Preventive Medicine, Public Health and History of Science, San Vicente del Raspeig, Spain

Aim: To evaluate the healing capacity of EHO-85 in a rat model of excisional wounds, using negative and positive controls (topical treatment with Centella asiatica / Hyaluronic acid / Dexpanthenol).

Method: Five groups of 8 male Wistar rats were randomly distributed: negative control, positive controls (Centella asiatica; Hyaluronic acid; Dexpanthenol), and experimental group: EHO-85. Two 15 mm parallel excisional wounds were made on rats dorsum. Every two/until 14 days the wounds were treated, and images were obtained to measure the healed surface. At 7 and 14 days, skin samples were obtained for histological evaluation assessing epithelialisation, inflammatory status, wound vascularisation and collagen formation.

Results / Discussion: At seven days, the wounds with the best healing progress were those treated with EHO-85, hyaluronic acid and dexpanthenol. EHO-85 and dexpanthenol showed a higher degree of epithelialisation ($p<0.05$). At 14 days: EHO-85 produced a reduction in inflammation vs. control and the other treatments; all treatments tended to reduce vascularisation vs. control, with the decrease being significant in the subepidermal region (dexpanthenol) and deeper (EHO-85 and dexpanthenol). The lower vascularisation suggests greater maturation of the scar tissue in the extracellular matrix, EHO-85 induces a higher production of collagen fibres. The percentage of the extracellular matrix area occupied by collagen was higher in the EHO-85 and dexpanthenol treatments. This suggests a higher degree of maturation of the extracellular matrix in wounds treated with EHO-85 compared to the other treatments.

Conclusion: Among the wound-healing properties evaluated, EHO-85 stands out for its ability to promote wound closure, reduce inflammation and enhance the maturity of the extracellular matrix, making it an excellent therapeutic option for wounds.

PP013 WOUNDS AND INJURIES SUSTAINED AMONG DETAINED MIGRANTS. EPIDEMIOLOGY, TREATMENT, AND LEVEL OF HEALING

Anastasia Papachristou[1], Vasileios Saridakis[2]

[1]ICRC, Health in Detention, Surgery, Athens, Greece; [2]General Hospital of Nikaia 'Agios Panteleimon', General Surgery, Athens, Greece

Aim: This study describes injury patterns, wounds and traumas of migrant detainees. Penetrating or superficial traumas from improvised weapons, self-traumas, anterior abdominal stabs, shank wounds are frequent. The purpose of this study is to describe the epidemiology, the healing, and complications of traumatic injuries. **Method:** All cases of wounds, complications, referred from the penitentiary and administrative detention settings, to the NHS Hospitals or treated on site, are reviewed. The population consisted of migrants, listed in a 2-year period. An analysis of cases is concluded, which involved 228 cases, meeting the criteria.

Results / Discussion: The analysis revealed that their injuries involved:

Interpersonal violence with 42% presenting self-inflicted injuries and 48% having a medical history of psychiatric disorder or drug abuse. 1/4 of the population required hospitalization and other operative interventions. 18% of them faced infections and needed further approach. Upper and lower limb lesions represented the 38%. Lip sewing as an act of protest is seen in 3% of the incidents. Many patients had swallowed sharp pointed foreign bodies, having caused lesions in the oral cavity and maxillofacial area. In the initial phase of handling severe trauma, the contribution of the first responders was crucial following the protocols. The reconstruction for the 10% of the acute cases consisted of flaps and skin grafts.

Conclusion: It was observed an absence of a concrete preventive mechanism of injuries. The initial management followed a rapid transfer of acute cases. The follow-up needed the inclusion of detention health teams regarding the implementated treatment plan. Hygiene and living conditions were highly related to the degree of healing and the number of post trauma infections.

PP014 THE UTILITY OF NOVEL FISH-SKIN DERIVED ACELLULAR DERMAL MATRIX (KERECIS) AS A WOUND DRESSING MATERIAL

Ha Jong Nam[1], Syeo Young Wee[1], Se Young Kim[1], Hyun Gyo Jeong[1]

[1]Soonchunhyang University Gumi Hospital, Department of Plastic and Reconstructive Surgery, Gumi-si, Gyeongsangbuk-do, Korea, Rep. of South

Aim: Whether the wound is caused by direct trauma or a burn, proper management is one of the essential concerns for early wound healing. Acellular dermal matrix (ADM) is one of treatments which accentuating spontaneous healing at molecular levels. We introduced a newly-approved ADM[1], which is a piscine acellular dermal xenograft and has specific bioactive lipid mediators called omega-3 polyunsaturated fatty acids. We therefore aimed to investigate the utility of this novel material as a dressing material, comparing healing rates between applied group and a control group.

Method: A total of 48 Patients who visited the hospital with acute or chronic deep dermal wounds were enrolled in the study. All wounds in the experimental group were treated only once with the novel ADM[1] and a non-adherent absorptive foam material to cover the ADM. In the control group, daily conventional dressings were provided. We compared the initial wound size when ADM was applied, with the wound size at 7th post-application day. The healing rate was calculated by the change in epithelialization over the course of a week in each group [Fig.1].

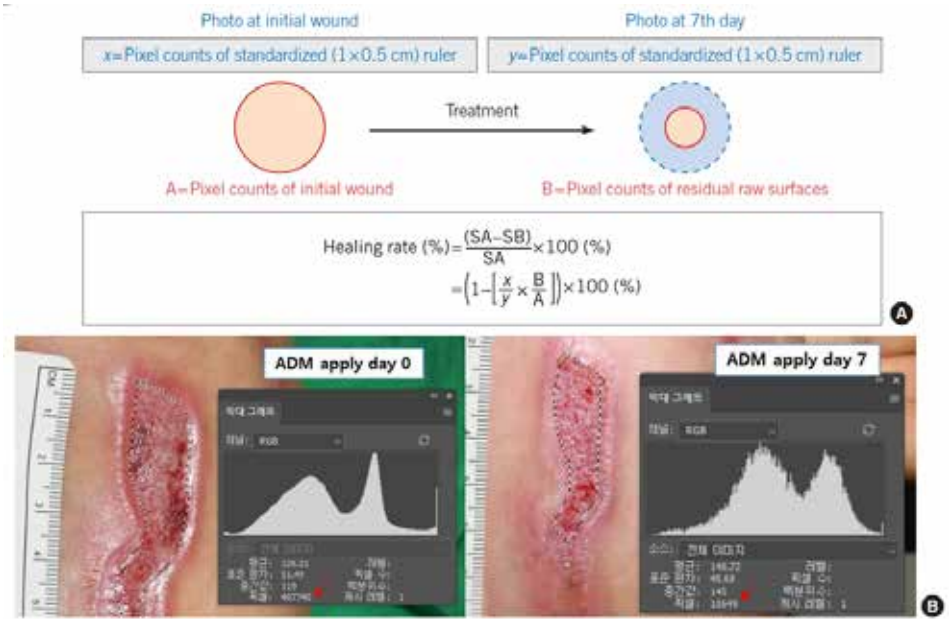


Fig. 1. *The calculation of the healing rate. (A) The formula of healing rate in this study. (B) The size of the wound was assessed by our new method of measuring wound sizes using computer software. SA, initial surface area; SB, day 7 surface area. Raw surface tracing (dotted line), pixel counts (red arrows).*

Results / Discussion: The average healing rate of all wounds with the ADM application in this study was 77.7%±18.2% and 53.3%±22.0% for the control group, demonstrating statistical significance with a P-value of <0.05[Table 1,2]. In particular, our stratification analysis revealed that managing burn wounds with the ADM had much better results(P<0.05).

Table 1. *Comparison of healing rate and duration among the causes of injuries.*

Cause	Healing rate, mean±SD		P-value
	Kerecis group	Conventional group	
Burn	86.5±15.2	55.7±17.1	<0.05
Trauma	71.4±18.4	55.7±16.4	0.11
Spontaneous	64.7±18.4	27.9±7.9	0.03
Total	77.7±18.2	50.5±18.7	<0.05

Table 2. *Comparison between wound types in the piscine ADM group.*

Cause	No.	Healing rate, mean±SD	P-value	
Burn	8	86.5±15.2	0.093[a)]	0.225[b)]
Trauma	5	71.4±18.4		
Spontaneous	3	64.7±18.4		
Total	16	77.7±18.2		

[a)]Burn vs. trauma;
[b)]Burn vs. trauma vs. spontaneous.

Conclusion: This study establishes that managing wounds with the novel ADM[1] is likely to heal wounds faster than traditional dressings especially to the burn wounds.

Reference:

1. Kerecis, a piscine acellular dermal xenograft derived from the Atlantic cod (*Gadus morhua*).

PP016 SKIN SAFETY HUDDLE – INCORPORATING SAFETY PRACTICES INTO THE PREVENTION AND TREATMENT OF SKIN INJURIES

Amanda C.M.A.G. Brandão[1], João Victorino[1], João Barbosa[1], Stephanie Gracio[1], Maria Emília Gaspar Ferreira Del Cistia[1]

[1]*Hospital Israelita Albert Einstein, Intensive Care Center, Brazil*

Aim: To develop and implement a screening script to identify and monitor patients at high risk for developing skin injuries, or even those already diagnosed with impaired skin integrity, in particular stage 3 and 4 pressure injury (PI).

Method: It was performed a PDSA based on the Institute for Healthcare Improvement in a private-quaternary hospital in São Paulo. Brazil. The study was carried out at an adult intensive care unit composed by 37 beds. The reasons we developed the study was related to the increased number of critically ill patients at higher risk for developing skin injuries, weakness in following the established interventions, fragility in communication and recognition of the need for greater supervision of practices aimed at preventing and treating injuries. Incorporation of the screening instrument as a walking routine and conducting the Skin Safety Huddle in collaboration with intensive care nurses and mobilization assistants.

Results / Discussion: From January 2015 to December 2021, we had 9 stage 3 and 4 PI. In 2021, a structured script was created for conducting the Skin Safety Huddle. We had four PI stage 3 and 4. In February 2022, the instrument was updated. Currently, there are 318 days, the last never event occurred in January 2022.

Conclusion: The implementation of a huddle guided by a structured script has been shown to be an important component to the quality of care provided in the prevention and treatment of skin lesions, as well as regarding to patient safety.

PP017 SURGICAL OFFLOADING FOR CHARCOT FOOT IN JAPAN

Shinobu Ayabe[1]

[1]*Yao Tokushukai General Hospital, Department of Plastic and Reconstructive Surgery, Yao, Japan*

Aim: The number of patients with diabetes continues to explode in Japan. This has been accompanied by an increase in the number of patients with diabetic foot ulcers. The treatment of diabetic feet requires knowledge of wound management, revascularization, infection control, footwear, and surgical offloading. However, surgical treatment of foot deformities is not widely available in Japan due to the lack of podiatrists. Surgery for foot fractures is performed by orthopedic surgeons, but orthopedic surgeons tend to avoid operating on patients at risk of infection or ischemia. Therefore, at our hospital, plastic surgeons have been performing surgical offloading for patients with diabetic foot deformities since 2009.

Method: The number of surgeries performed for Charcot foot between 2009 and 2021 was reviewed.

Results / Discussion: A total of 33 surgeries were performed, and the number has been increasing in recent years. Tendon lengthening, tendon transfer, arthrodesis, and osteotomy were performed.

Conclusion: Since the number of patients with diabetic foot deformities is expected to increase in Japan, plastic surgeons with expertise in wound management should actively participate in the treatment of Charcot foot.

PP018 IMPORTANCE OF INFECTION CONTROL IN DIABETIC FOOT CASE

Omer Faruk Atalay[1], Deniz Yahci Bilgi[2]

[1]*Istanbul Medeniyet Universitesi, Cardiology, Istanbul, Turkey;* [2]*ARDİS Sağlık Hizmetleri, Koç University, Istanbul, Turkey*

Aim: Diabetic foot ulcers are one of the most prominent and serious complications of diabetes. It can cause the amputation of a lower extremity. This issue of gradually increasing rate has a prevalence of 6,4% according to 2019 International Diabetes Federation. In this study, we present an infected and complicated case which amputation was decided by several medical centers. Infection control is the most important factor in monitoring the status of the wound, for this we benefited from not only antibiotics treatment but also wound rinsing solutions consisting of polyhexadine and polyhexamer to contain the infaction. Wound healing was achieved by the means of modern wound care products to protect the extremity. Based on these observations and practices, we would like to put emphasize on the place and importance of combined treatments of multidisciplinary approach in treating diabetic foot wounds without major amputation of extremities.

Method: Patient with Type 1 diabetes of a year, age 47 male, was accepted to our polyclinic suffering from a necrotizing infection covering 2nd, 3rd, 4th and 5th fingers of his left foot after another center had made a below-knee amputation decision. (Pic 1) Following the examination, CV clinic in our hospital did a saphenous vein graft application and lower left extremity bypass surgery. Afterwards, finger amputations and negative pressure wound therapy were applied respectively.

Results / Discussion: Within 6 months of modern wound care products applications, patient made a full recovery. (Pic 4-5).

Conclusion: Our priority is to do wound debridation. Wound wash solution containing polycsanite + poloxamer is used to provide infection control.

PİC 1

PİC 2

PİC 3

PİC 4

PİC 5

PP019 INFECTION CONTROL IN DIABETIC FOOT

Omer Faruk Atalay[1], Deniz Yahci Bilgi[1]

[1]Istanbul Medeniyet Universitesi, Cardiology, Istanbul, Turkey; [2]ARDİS Sağlık Hizmetleri, Koç University, Istanbul, Turkey

Aim: This issue of gradually increasing rate has a prevalence of 6,4% according to 2019 International Diabetes Federation. In this study, we present an infected and complicated case which amputation was decided by several medical centers. Infection control is the most important factor in monitoring the status of the wound, for this we benefited from not only antibiotics treatment but also wound rinsing solutions consisting of polycsanite + poloxamer to contain the infaction. Wound healing was achieved by the means of modern wound care products to protect the extremity. Based on these observations and practices, we would like to put emphasize on the place and importance of combined treatments of multidisciplinary approach in treating diabetic foot wounds without major amputation of extremities.

Method: Patient with Type 1 diabetes of 33 years and chronic renal failure of 5 years, age 51 male, was accepted to our polyclinic after another center had made a below-knee amputation decision and previously undergoing finger amputations for his 4th and 5th fingers. He was suffering from a necrotic and infected wound on his foot (Pic1). Wound area was debrided by plastic surgery while patient continued to receive dialysis treatment (Pic2). Infection at the wound area was contained by antibiotics treatment along with wound rinsing solutions consisting polyhexadine and polyhexamer.

Results / Discussion: Then, split thickness skin graft was applied and followed by a negative pressure wound therapy with instillation, recovery in this case was observed.

Conclusion: Our priority is to do wound debridation. Wound wash solution containing polycsanite + poloxamer is used to provide infection control.

PP020 A TECHNICAL EVALUATION OF A DRESSINGS ABILITY TO REDUCE MALODOUR IN WOUNDS

Sören Lafendt[1], Stephanie Krause[2], Patrick Schütz[3]

[1]Essity GmbH, Global Marketing & Innovation, Hamburg, Germany; [2]Essity GmbH, Global Marketing Innovation, Hamburg, Germany; [3]Essity GmbH, Global Marketing & Innovation, Hamburg, Germany

Aim: Determination of the odor concentration of artificial wound odor after diffusion through different wound dressings.

Method: 50ml of artificial wound malodour solution was placed in a cylindrical cavity cut into a stainless-steel plate. The dressings (plain superabsorber (reference) /gauze with carbon/compress with carbon/ superabsorber with carbon/ superabsorber with carbon + zeolithes) are fixed on this plate and stored in Nalophan® sampling bag for 24 hours. In a measurement using dynamic olfactometry, the concentration of the odor that diffused through the dressings were detected (EN 13725:2003).

Results / Discussion: The plain superabsorber results in the highest odor concentration. Followed by the dressings with additional odor-absorbing layers in this order: gaze with carbon/superabsorber with carbon/compress with carbon and supersabsorber with carbon and zeolithes.

In a direct evaluation the odor intensity and hedonic tone were determined. Whereby the superabsorber with carbon and zeolithe resulted in the weakest measured odor intensity in this test as well. The gaze with carbon/superabsorber with carbon resulted in the highest odor intensity followed by the superabsorber and compress with carbon. Regarding the hedonic tone the superabsorber was evaluated slightly more unpleasant compared to gauze with carbon/compress with carbon as well as to the superabsorber with carbon. The superabsorber with carbon and zeolithe was evaluated lowest in hedonic tone.

Conclusion: The superabsorber with two different odor absorbing layers, carbon and zeolithes, shows the lowest odor concentration and lowest hedonic tone within the described test conditions. This novel product design thus shows a significantly better odor reduction than currently available compositions on wound dressings.

PP021 SERVICE EVALUATION OF A CINNAMON ANTI-ODOUR DRESSING FOR MALODOROUS WOUNDS

Kate Bowling[1], Hannah Harwood[2], Victoria Michaels[3], Sussy Pramod[1], Alison Thompson[4], Joy Tickle[5], Clemence Desjardin[3]

[1]Christies Hospital, Tissue Viability Service, United Kingdom; [2]New Milton Community , Care Team, United Kingdom; [3]Cemag Care, France; [4]Homeless Health, United Kingdom; [5]Saint Mary's Hospital, Tissue Viability, United Kingdom

Aim: Malodour from malignant wounds can be extremely distressing for patients, and often leads to social isolation. This study evaluates the performance of a secondary cinnamon anti-odour dressing in a primary care setting and how it may be used in clinical practice.

Method: Ten patients with malodourous wounds participated in the study conducted in four clinics in the UK. Healthcare professionals (HCP) collected patients' wound information (including odour intensity), and other usability questions before using the cinnamon dressing, at day 0, and 14 days after using the cinnamon dressing. A secondary dressing was used as required over a period of 14 days. The number of dressings used varied depending on the characteristics of the patients' wound.

Results / Discussion: The non-adhesive secondary dressing which consists of an absorbent layer together with a sachet containing cinnamon powder was used in combination with different primary dressings and is adapted for any wound type, location and exudate levels. The cinnamon dressing has a superior effectiveness in managing malodour than previous dressing regimens. A dressing change minimum frequency of 3-times per week appears to be adequate to reduce malodour. HCP unanimously agreed that the cinnamon dressing is very easy to use.

Conclusion: For patients, the used of a cinnamon dressing was essential to improve their quality of life: they found the dressing regimen comfortable and they felt less anxious during family visits.

PP022 COMBINATION OF 2 DRESSINGS FOR THE CONTROL OF EXUDATE AND MICROBIAL LOAD: PROPOSAL FOR AN UPDATE

Alessandro Corsi[1], Ornella Forma[1]

[1]Ospedale San Raffaele, Spedale San Raffaele, U.O. Vulnologia, Milan, Italy

Aim: In the treatment of skin lesions, the management of infection and exudate (often interrelated) certainly represent the aspect of greatest interest and economic impact.

This analysis evaluates the effectiveness of the combination of highly absorbent dressings with an interface capable of controlling the microbial load by hydrophobic uptake.

Method: Over 50 patients with chronic lesions, with critical microbial load or local infection, and with medium-high exudate, were treated with the combination of an absorbent polymer dressing with a DACC (DiAlkyl Carbamoyl Chloride) texture with bacterial uptake. The clinical outcome in terms of control of microbial load and exudate was evaluated.

Results / Discussion: 90% of the lesions showed excellent control of the microbial load; In about 75% the exudate was well controlled.

All patients were largely compliant and there were no side effects.

Conclusion: The encouraging results obtained justify the hypothesis of seeking a dressing that brings together the characteristics of the two heads, ensuring the management of the 2 complications, with less manipulation of the lesion and reduction of dressing's time and its costs.

PP023 EVALUATION OF A NEW DRESSING IN PET WITH RIGENASE AND PHMB

Monica Pittarello[1], Elia Ricci[1]

[1]St. Luca's Clinic, Difficult Wound Unit, Pecetto Torinese, Italy

Aim: Case control study of a dressing composed of stimulin of vegetable origin added with polyhexanide, on a new triple layer PET support in the treatment of chronic skin lesions of the lower limb. The aim of the study was to evaluate the bacterial bioburden in terms of repair and control.

Method: Twenty patients with a 6-week run-in period on gold standard therapy were enrolled; followed by a similar period of treatment with the medication under study. The points under consideration were the evolution of the area, measured with a system based on artificial intelligence as primary. Secondary end points: level of infection/colonization, WBP and pain, all collected using validated scales.

Results: The data collected regarding the area reduction in the control period versus the treatment period showed a statistically significant difference ($p<0.0001$). Significant differences were also highlighted in terms of signs of infection with 3 during control vs 0 in treatment ($p<0.001$), WBP score ($p<0.001$) and pain with NRS score with a reduction of 27,5% in control period versus 41,3% during treatment($p<0.0001$). No adverse events or side effects were found.

Conclusion: The authors conclude that the dressing demonstrates a high capacity to stimulate the resumption of repair phenomena in lesions with little spontaneous tendency to repair.

PP024 HIGH PERFORMANCE GELLING FIBER DRESSING EVALUATED BY 1272 HCPS - ONLINE SURVEY IN SPAIN

Jorge García Dominguez[1], Sharon Castilla[2], Leticia de Mauricio Euba[2], Adoracion Pegalajar-Jurado[3]

[1]Centro de Saúde A Doblada, Vigo, Spain; *[2]Coloplast Productos* Médicos, S.A, Wound Care, Madrid, Spain; *[3]Coloplast A/S, Wound and Skin Care, Humlebæk, Denmark*

Aim: To assess the opinion of healthcare professionals (HCPs) in Spain on performance of a gelling fiber dressing[#].

Method: An online survey was performed in Spain between 2020-2022. After using 1-3 dressings in a suitable patient, a questionnaire was filled in by the HCP where opinion on dressing performance was evaluated (5-point scales). Wound data at inclusion was collected in a subset of data.

Results / Discussion: Results (1272 responses):

- Moist wound healing: 'very good' or 'good' in 98%
- Absorption: 'very good' or 'good' in 99%
- Retention: 'very good' or 'good' in 98%
- Reduce exudate pooling: 'very good' or 'good' in 97%
- Debridement: 'very good' or 'good' in 84%
- Shrinkage: 'very good' or 'good' in 98%
- Application: 'very easy' or 'easy' in 99%, including when applied on 29 cavity wounds
- Removal: 'very easy' or 'easy' in 98%
- In 87% no residues were left in the wound
- 99% could remove the dressing in one piece
- 99.8% were 'very satisfied' of 'satisfied' with the gelling fiber versus other gelling fibers, would use the product in the future, and would recommend it to colleagues

Wound data (954 responses):

- Wound type – 41.6% leg ulcers, 28.3% pressure ulcers, 9.4% donor sites and surgical wounds, 9% diabetic ulcers, 4.9% traumatic wounds, 1.6% partial thickness burns and 5.1% other. Highly or moderate exuding in 887 cases (93%)
- Exudate was classified as viscous in 48.1% and aqueous in 45.6%.

Conclusion: HCPs satisfaction with the dressing was very high on absorption, retention, easy application and minimal shrinkage.

[#]Biatain® Fiber (Coloplast)

PP025 MULTIFUNCTIONAL AND PHOTOCROSSLINKABLE HYDROGEL DRESSING FOR ACCELERATING WOUND REPAIR

Asghar Eskandarinia[1]

[1]*Empa, Swiss Federal Laboratories for Materials Science and Technology, St Gallen, Switzerland, Laboratory for Biointerfaces, St Gallen, Switzerland*

Aim: Wound healing is a complex process that involves various cells and factors. Hydrogel dressings have been used widely for wound management due to their biocompatibility and water retention properties. Photocrosslinking is preferred to enhance the stability of hydrogels and avoid the release of agents. This technique does not require toxic solvents or high temperatures. In this study, the authors aimed to develop a carrageenan-based hydrogel dressing that can be crosslinked using light exposure and has the potential to accelerate wound healing.

Method: The authors successfully developed a carrageenan-based hydrogel dressing that can be crosslinked using light exposure. The hydrogel dressing exhibited excellent mechanical strength, biocompatibility, and antibacterial activity. The authors evaluated the chemical and physical structure and morphology of the hydrogel dressing. The multifunctionality of the fabricated dressing was assessed by the antibacterial assay. The viability and proliferation of the fibroblasts seeded on the surface of the hydrogel were evaluated. In vitro experiments showed that the hydrogel dressing promoted cell proliferation, migration, and tissue regeneration.

Results / Discussion: The results of this study suggest that the carrageenan-based hydrogel dressing crosslinked using light exposure has great potential for wound healing applications. The dressing's biocompatibility, mechanical strength, and antibacterial activity make it a promising candidate for wound management. The use of light exposure to crosslink the hydrogel dressing offers a non-invasive and convenient method for application. **Conclusion:** The study provides a novel approach to developing a hydrogel dressing for wound management that has the potential to accelerate wound repair.

PP026 HOW TO GUIDE THE WBP USING LOCAL DRESSING CONTAINING OZOILE

Silvio Cardinale[1], Corrado Durante[1], Gaetano Manfredi[1], Alberto Serra[1], Napoli N[1]

[1] Italy

Aim: Ozoile-containing dressings appear to have several positive effects within the microclimate of non-healing wounds, as reported by recent studies. The potential actions of Ozoile, thanks to its natural properties, address the various phases of the WBP with different targets: 1. Cleansing and debridement of the devitalized tissue of lesions with abundant necrotic burden. 2. Unblocking of stalled wounds through the anti-inflammatory and immunomodulatory action. 3. Attenuation of the microorganism load through its antimicrobial properties.

Method: A study on 20 patients affected by non-healing wounds resulting from acute mechanical trauma and surgical dehiscence following orthopedic surgery was conducted at the wound care clinic of the Orthopedics and Traumatology Complex Operative Unit - Rome Army Military Hospital. This type of patients therefore included a wide range of lesions ranging from traumatic wounds with loss of tissue substance to chronic skin lesions with healing problems.

Results / Discussion: The possibility of using a trousse of Ozoile-based dressings including, in our case, a no-rinse detergent, a hydrogel and a cream, has made possible to treat correctly and resolve brilliantly the corollary of tissue situations related to complex tissue trauma and surgical dehiscences - observed in our experience - and which must be counteracted in order to achieve stable healing of these lesions.

Conclusion: The combined and sequential use of Ozoile-based products, able to obtain cleansing, debridement and stimulation of cell proliferation, has significantly contributed to bringing the complex and complicated wounds, that a Trauma Department must face, back on track for correct repair.

PP027 COLLAGEN/CHITOSAN-BASED POROUS SCAFFOLD FOR SKIN WOUNDS REPAIR AND REGENERATION

Silvia Rossi[1], Caterina Valentino[1], Gaia Zucca[1], Barbara Vigani[1], Cinzia Boselli[1], Antonia Icaro Cornaglia[2], Giuseppina Sandri[1]

[1]The University of Pavia, Department of Drug Sciences, Pavia, Italy; *[2]The University of Pavia, Department of Public Health, Experimental and Forensic Medicine, Pavia, Italy*

Aim: The present work aims to develop a porous cross-linked scaffold based on collagen (Coll) and chitosan (Cs) intended for skin repair and regeneration.

Method: Different cross-linking methods have been investigated: UV irradiation in presence or in absence of glucose, treatment with tannic acid and ultrasonication. Freeze-drying process was employed allowing to achieve more stable systems, characterized by high porosity and stability. To assess the influence of critical variables, especially the concentration of CS and the CS and Coll concentration ratio, on scaffold mechanical properties, a Design of Experiments (DoE) approach was exploited. Scaffolds morphological, mechanical, hydration and degradation properties were assessed. In vitro and in vivo assays on fibroblast model cell line and on a murine model were also performed.

Results / Discussion: The ultrasonication method was found to be the ideal cross-linking method, because it allowed to obtain hydrogels with the best compromise between mechanical and elastic properties. Furthermore, the DoE approach was successfully employed to investigate the influence of Cs concentration (% w/w) and Cs and Coll weight ratio on ultrasonicated cross-linked scaffold mechanical properties, finding the best Coll/Cs quantitative composition. Highly porous scaffolds able to absorb huge amounts of aqueous fluids, characterized by good mechanical resistance to compression and suitable degradation properties, were obtained. In vitro studies confirmed the scaffold capability to promote cell proliferation and adhesion. The regenerative potential of the scaffold developed was confirmed in vivo. **Conclusion:** A promising biodegradable cross-linked porous scaffold consisting of Coll and Cs was successfully developed for the treatment of chronic skin ulcers

PP028 DESIGN AND DEVELOPMENT OF BIOMIMETIC DRESSINGS FOR THE TREATMENT OF CHRONIC WOUNDS: IN VITRO AND IN VIVO STUDIES

Barbara Vigani[1], Daiana Ianev[1], Caterina Valentino[1], Paolo Pino[2], Marco Ruggeri[1], Cinzia Boselli[1], Antonia Icaro Cornaglia[3], Marco Adami[4], Giuseppina Sandri[1], Silvia Rossi[1]

[1]The University of Pavia, Department of Drug Sciences, Pavia, Italy; *[2]Politecnico di Torino, Department of Applied Science and Technology, Turin, Italy*; *[3]The University of Pavia, Department of Public Health, Experimental and Forensic Medicine, Pavia, Italy*; *[4]Associazione Farmaceutici Dell'Industria, Milano, Italy*

Aim: Functionally Graded Scaffolds (FGS) are promising dressingsin mimicking the skin environment and enhancing an effective wound healing. Aim of this work was to design a freeze-dried FGS based on k-carrageenan (k-CG), arginine (Arg) and whey proteins (WP) for the chronic wounds management.

Method: Three polymeric solutions were prepared at 55°C and poured into a mold to obtain the following layering: i) kCG05 inferior layer (1% kCG + 0.05% CaCl2 (w/v)); ii) kCG05-Arg middle layer (1% kCG + 0.05% CaCl2 + 0.5% Arg (w/v); iii) kCG-WPI superior layer (1% w/v kCG + 5% w/v WPI (w/v)). After freeze-drying, FGS superior surface was functionalized with 50 mM oleic acid (OA). Layer morphological, mechanical, hydration properties and in vivo wound healing potential were investigated.

Results / Discussion: k-CG interactions with the other components were responsible for the production of a polymeric matrix characterized by three interconnected layers with a pore size continuous gradient. kCG05, characterized by the maximum pore size, was able to absorb a considerable amount of simulated wound exudate and to enhance fibroblastic migration (in vitro) and re-epithelialization (murine model). kCG05-Arg showed an intermediate pore size and was able to release Arg, modulating inflammatory reactions and supporting tissue remodeling. kCG-WPI mimicked the upper skin layer due to its dense structure, smaller pore size and high mechanical strength. FGS functionalization with OA reproduced the hydrophobicity of the stratum corneum (contact angle values >90°).

Conclusion: A multilayer porous FGS, containing biomimetic physicochemical gradients, was able to enhance wound closure in a murine model.

PP029 EVALUATION OF A DRESSING WITH RIGENASE E PHMB

Elia Ricci[1], Monica Pittarello[1], Roberto Cassino[2]

[1]St Luca's Clinic, Difficult Wound Healing Unit, Pecetto Torinese, Italy; [2]"Sacra Famiglia" Korian nursing home, Geriatrics-long term care, Pieve del Cairo, Italy

Aim: Evaluation of the clinical performance of an interactive dressing* device on ulcers non healing over 6 weeks**.**

Methods: 25 patients with 25 ulcers were recruited, the cases are shown in table 1. The data were analyzed using a system capable of defining the area**. The lesion was cleaned with physiological solution and replaced every 3 days in case of controlled exudate and every 2 days in case of uncontrolled exudate. All patients received treatment of the cause of injury according to gold standards.

TAB. 1	Num.	
Patients	25	
Male/female	14/11	
Mean age	79,6	65 - 89
Wound's Age, months	14,8	9 – 21
Treatment period	12	

Results: 17 resolutions (68%), 3 improvements (12%), 3 unchanged (12%), 1 worsening (4%) and one DROP's case (4%) due to infection were obtained. We had positive results in 80%. The mean area reduction in the 25 cases was 78,3%. No adverse events occurred.

Conclusions: The device is presented as a product able to favor the recovery of the repair phenomena, patients with en bloc lesions were chosen through the analysis of the area with the WV system. We hypothesize that the result occurs through an interaction of Rigenase with the microenvironment, it should be noted that the cases of non-response were characterized by large lesions with multiple recurrences.

*Fitostimoline Plus

**Wound Viewer®

PP030 BUILDING A SUCCESSFUL PRIVATE-PUBLIC PARTNERSHIP: THE WOUNDPEDIA™ AND THE ARMED FORCES OF THE PHILIPPINES STORY

Paula Benilda Aromin[1]

[1]Armed Forces Of The Philippines, Quezon City, Philippines

Aim: This paper aims to illustrate the journey of the Private-Public Partnership (PPP) between the Philippine Air Force - Armed Forces of the Philippines (AFP) and WoundPedia™ in implementing an annual wound care educational series for the Nursing Service Personnel of the AFP and health care professionals of the Philippines as a whole.

Method: Crucial to the PPP was fostering collaboration between WoundPedia and the AFP. Establishing a partnership with a university brought credibility and accreditation to the course. While enhancing benefactor partnership was the element in the sustainability of the PPP.

Results / Discussion: The current state of wound care in the AFP has a big potential for improvement. There is an increased number of combat wounds due to insurgencies as well as unusual wounds encountered during humanitarian missions, locally and abroad. There is no current formal training on wound care management as well as a lack of wound care training among the health care personnel of the AFP and the Philippines in general.

Since 2013, the WoundPedia Basic and Intermediate Courses are valued educational programs in the Philippines.

Table 1. List of participants for the WoundPedia Basic and Intermediate Courses

YEAR	LOCATION	BASIC			INTERMEDIATE		
		Total	Civilians	Military	Total	Civilians	Military
2013	Eurotel, Pedro Gil	Exclusive for PGH employees 35	35	-------	NONE		
2014	Eurotel, Pedro Gil	60	58	2	TBC-	TBC-	2
2015	Eurotel, Pedro Gil	47	39	8	49	36	13
2016	Villamor Air Base	54	22	32	49	22	27
2017	Villamor Air Base	68	31	37	71	28	43
2018	Villamor Air Base	69	28	41	74	28	46
2019	Villamor Air Base	77	61	15	66	40	26
2020	University of the Philippines - Manila	82	38	44	81	46	35
Total		491	312	179	390	200	190

Conclusion: The AFP have:

- Increased wound care capacity for health care workers who are taking care of the injured solders in battle & other military personnel
- Started to develop an interprofessional team of local wound care champions for patient care, education, & research
- Linked education to accreditation & university programs
- Established a Memorandum of Understanding with a premier university in the Philippines for future interprofessional collaboration in education, the care of patients, and research.

PP031 WOUNDS AND CARTOONS: USING MANGA TO ENGAGE LEARNERS IN WOUND EDUCATION

Frances Henshaw[1 2], Brian Byrne[2]

[1]Western Sydney University Campbelltown Campus, School of Medicine, Campbelltown, Australia; [2]Convatec, Glen Waverley, Australia

Aim: Online professional-education provided by industry is a key source of information for wound-care practitioners. Traditionally, this education has been delivered didactically, either face-to-face or online. A method often referred to as 'chalk-and-talk'. Accompanying visual resources, such as PowerPoint presentations inevitably have to be adapted to accommodate language preferences in individual markets.

Current evidence suggests that adults learn better by building on their own experiences. Problem-based-learning (PBL) is a method where learners construct their own knowledge through identifying, analysing and solving real-world problems. This enables learners to acquire new knowledge which they can easily translate into clinical practice.

Harnessing the popularity of Japanese Manga-style cartoons, the aim of this study was to develop and evaluate a visual PBL resource which could be deployed in any of the 100+ markets in which the commissioning client, an advanced wound-care company, has commercial activity.

Method: Five wound-related case-scenarios were developed as Japanese style Manga cartoons (Figure 1). Each fortnight, participants collaborated in 45 minute online-discussions guided by four experts, where assessment, management and evaluation options for the scenario were discussed. Data was collected from the participants at the conclusion of the series using online polling.

Results / Discussion: Analysis of feedback from participants (n=208) showed that >90% reported increased confidence in wound management. >95% agreed that PBL is an enjoyable way to learn.

Conclusion: PBL is a novel and effective method of delivering professional education which can be deployed in many markets. Successful implementation of cartoon PBL represents a paradigm-shift in industry led wound education.

Fig 1. The Manga Cartoon

PP032 DEVELOPING AND ESTABLISHING A WOUND DRESSING TEAM: EXPERIENCE AND RECOMMENDATIONS

Prof. Seung Kyu Han[1], Prof. Sik Namgoong[1], Dr. Seung Hee Baik[1], Mrs. Ji Won Son[2], Ms. Saes Byeor Kim[3], Ms. Jae-Yeon Kim[3]

[1]Korea University Guro Hospital, Department of Plastic and Reconstructive Surgery, Seoul, Korea, Rep. of South; *[2]Korea University Guro Hospital, Department of Nursing Service/Department of Plastic and Reconstructive surgery, Seoul, Korea, Rep. of South*; *[3]Korea University Guro Hospital, Departmnet of Nursing Service/Wound Dressing Team, Seoul, Korea, Rep. of South*

Aim: The existing literature has comprehensively examined the benefits of specialized wound-care services and multidisciplinary team care. However, information on the development and integration of wound-dressing teams for patients who do not require specialized wound care is scarce. Therefore, the present study aimed to elucidate the benefits of a wound-dressing team by reporting our experiences with the establishment of a wound-dressing team.

Method: The wound-dressing team was established at Korea University Guro Hospital. Between July 2018 and June 2022, 180,872 cases were managed for wounds at the wound-dressing team. The data were analyzed to assess the types of wounds and their outcomes. In addition, questionnaires assessing the satisfaction with the service were administered to patients, ward nurses, residents/internists, and team members.

Results / Discussion: Regarding the wound type, 81,898 (45.3%) were catheter-related, while 48,976 (27.1%), 26,557 (14.7%), and 21,250 (11.7%) were pressure ulcers, dirty wounds, and simple wounds, respectively. In the satisfaction survey, the scores of the patient, ward nurse, dressing team nurse, and physician groups were 8.9, 8.1, 8.2, and 9.1, respectively. Additionally, 136 dressing-related complications (0.08%) were reported.

Conclusion: The wound dressing team can enhance satisfaction among patients and healthcare providers with low complications. Our findings may provide a potential framework for establishing similar service models.

PP033 A CLINICAL JUDGEMENT MODEL-BASED EDUCATIONAL PROGRAM FOR PALLIATIVE WOUND CARE IN NURSING HOMES

Ye-Na Lee[1], Young-Rim Choi[2], Dayeong Kim[2], Won Hee Park[2], Dai Young Kwon[3], Sung Ok Chang[2]

[1]Department of Nursing, University of Suwon, Republic of South Korea; *[2]College of Nursing, Korea University*; *[3]Gifted Education Center, Korea University, Republic of South Korea*

Aim: Many issues can be combined to produce complicated wound management scenarios, including the types of wounds and symptoms most commonly affecting palliative care patients and the presence of concurrent disease and associated treatment in nursing homes. In that complex situation, the nursing staff's clinical judgment is essential for effective clinical decision-making. This study aimed to (1) develop an electronic educational program using the clinical judgment model to enhance clinical decision-making competencies and (2) test the educational program to evaluate its effectiveness.

Method: In step 1, the characteristics of the learners and the educational contents were identified by analyzing the learner's needs through interviews. Then, the program was designed and created considering the educational goals and contents identified in the analysis. In step 2, its effectiveness was evaluated using a quasi-experimental nonequivalent pretest-posttest design. The participants(n=51) were randomly allocated into an experimental group(n=25) and a control group(n=26).

Results / Discussion: The educational program was developed according to the analysis of the educational needs of 10 participants and figured out and applied 11 questions including noticing, interpreting, responding, and reflecting elements based on the clinical judgment model by the researcher to suit this study. The result of effectiveness indicated that the e-learning program significantly improved clinical judgment in the experimental group compared with the control group($p<0.001$).

Conclusion: This study developed an e-educational program for palliative wound care and identified its effect on the nursing staff's clinical judgment in nursing homes. The result is expected to improve palliative wound care competency and contribute to effective nursing care for the elderly.

PP034 WHAT, WHEN AND WHY? EXPLORING THE FACTORS THAT INFLUENCE WOUND DRESSING SELECTION AMONGST COMMUNITY NURSES

Sam Hogan[1], Kate McBrides[1], Frances Henshaw[1 2]

[1]Western Sydney University Campbelltown Campus, Campbelltown, Australia; [2]Convatec, United Kingdom

Aim: Wounds cost Australia nearly $3 billion a year. The aim of this study was to understand the barriers and facilitators to wound dressing selection amongst community nurses in Australia.

Method: A series of semi-structured interviews (n=13) were conducted amongst nurses with experience in treating individuals with wounds (including hard-to-heal wounds). The interviews were transcribed and de-identified, then thematic analysis performed to identify key themes and subthemes.

Results / Discussion: Four major themes influencing dressing selection were identified:

- Industry support of clinicians
- Clinician knowledge and experience
- Approach to patient care
- Cost and availability.

Community nurses broadly agreed education and communications from wound dressing companies (suppliers) was clear, and that sales representatives were accessible for product-related information. However, adoption of supplier-provided recommendations was inconsistent within community settings. This was perceived to be due to low levels of wound management knowledge among more generalist nursing roles and lack of standardised protocols. Participants expressed that this could lead to occasional inappropriate dressing use. Lack of staff continuity across different wound services was also reported to result in inconsistent wound-management and poorer patient outcomes. Cost was implicated as a major barrier to several types of dressings, thus higher cost dressings were often not used.

Conclusion: This work shows that suppliers of wound dressings clearly articulate information regarding the applications of their products. However, dressings cost may prohibit use. Dissemination of product information can be variable with some nurses not interested in current educational offerings. While the issue of cost of dressings is difficult to address, wound dressing suppliers should consider approaches to increase the reach of their communications to community nurses.

PP035 DO NOT PUT YOUR FOOT IN IT! A CASE REPORT

Marta Torrebadella Armengol[1 2], Elisa Vilalta Arolas[1 2]

[1]Institut Catalá De La Salut, Primary Health Care, Cornellà de Llobregat, Spain; [2]Centre d'Atenció Primària (CAP) Berguedà, Primary Health Care, Berga, Spain

Aim: highlight the importance of determining the presence or absence of pedi and tibial posterior pulses manually since the Ankle-Brachial Index (ABI) can give falsely normal figures among the diabetic population (an 11'7-20%) with arteriosclerosis or calcification.

Method: presentation of a case of an 82-year-old patient affected by diabetes mellitus 2 of 20 years of evolution. He had an infracondileal amputation of his left lower extremity in 2017.

Without a traumatic history, it presents a sloughing circular lesion in the 1st and another in the 2nd toe of the right foot that in a month and a half does not respond to care treatment in a humid environment. Osmotic debridement is applied when the tendon of the 2nd finger is exposed as an ABI of 0'9mmhg is checked on the limb; Pedi and tibial pulses are audible with the doppler. A dry cure is ruled out. In the face of the involution of care, a telematic consultation is carried out in the hospital vascular nursing unit.

Results / Discussion: The value of the given ABI is discarded as real, although repeated on two occasions by two different professionals. In the case of acute ischemia of the patient, a face-to-face visit is advanced; in angiography the occlusion of the popliteal artery is evident. Transmatarsal amputation of the right foot is performed.

Conclusion: From primary care, peripheral arteriopathy could have been detected from the first moment and without invasive tests, although the resolution of the case would have been the same.

PP036 RADIAL HEMATOMA POST CARDIAC CATHETERIZATION

Elisa Vilalta Arolas[1 2], Marta Torrebadella Armengol[2 3]

[1]Institut Catalá De La Salut, Primary Health Care, Cornellà de Llobregat, Spain; *[2]Centre d'Atenció Primària (CAP) Berguedà, Berga, Spain*; *[3]Institut Catalá De La Salut, Cornellà de Llobregat, Spain*

Aim: The use of the radial approach for cardiac catheterization is the most frequent technique since there are fewer complications than the femoral approach. Hematomas, pseudoaneurysms, and arteriovenous fistula may appear.

Method: to avoid hematoma at discharge and other complications. A pneumatic bracelet is used during hospitalization.

Results / Discussion: 81-year-old woman who underwent radial catheterization and came to the primary care center after the first post-discharge treatment, with a circular compressive bandage to the radial area of the left upper extremity where a 3x3 cm hematoma was found, with dry eschar, swelling, non-painful induration, and preserved radial pulse.

Healed with collagenase and hydrocolloid dressing and referred to the hospital emergency department for evaluation of hematomas.

Return to the center and heal according to guidelines.

After fifteen days, it is instrumentally debrided and cured with hydrogel wound dressing and hydrocolloid. It is debrided during three more visits. It is clean and a change of cure is made with collagen + occlusive dressing, at thirty days healed. The patient is discharged.

Conclusion: after discharge, the patient should not have been bandaged with circular compression, only occlusive bandaging. According to the literature, compression can be performed in AV fistula or pseudoaneurysm by placing a swab or gauze over the puncture site, and three elastic bands in the shape of an X of 14 cm, without impeding venous return through the dorsal part of the wrist. Use of Burow's water to reduce hematoma.

Despite the risk involved, they decided on instrumental debridement and it was resolved satisfactorily.

PP037 DERMATOPOROSIS: DRIVING A DIAGNOSIS. EDUCATIONAL INTERVENTION

Elisa Vilalta Arolas[1 2], Marta Torrebadella Armengol[2 3]

[1]Institut Catalá De La Salut, Primary Health Care, Cornellà de Llobregat, Spain; *[2]Centre d'Atenció Primària (CAP) Berguedà, Berga, Spain*; *[3]Institut Catalá De La Salut, Cornellà de Llobregat, Spain*

Aim: To improve the knowledge of professionals about dermatoporosis through an educational intervention in primary care centers and nursing homes in rural areas.

To compare the previous level of knowledge of the professionals and after the intervention.

Method: Random sample for convenience. Training session of 90 minutes: the origin of the term, causes and clinical manifestations, types, and stages of dermatoporosis. A case report. Preventive measures and lesion management.

At the beginning of the session, the validated test from the study by Palomar-Llatas (2019) is administered to determine the baseline knowledge status of the participants. At the end of the session, it is passed again in Kahoot® format and, at the end of the month, through a Google forms® questionnaire to know the level of knowledge maintained over time.

Results / Discussion: only 13.6% have heard the term; 7.14% know what it consists of and another 7.14% admit having treated a patient. Questions with an open answer confirm ignorance: 88,3% are incorrect or blank. However, the percentage of correct answers increased to 78,8% in questions about the importance of prevention and the need for training, all of which are questions of low difficulty and little discrimination.

It should be noted that in the post-intervention test, 86,9% of the professionals admit having treated patients with dermatoporosis although they didn't know the term.

Conclusion: Although having improved the knowledge personnel's level, the use of the diagnosis code included in CIE-11 cannot be effective in clinical practice because we already work with version 10.

PP038 GOLD PROJECT: A TEAM TO PROTECT INSTITUTIONALIZED ELDERLY PEOPLE

Roberto Cassino[1], Gabriela Sofia Barrionuevo Moreno[1], Lorella Bettaglio[1], Irena Cela[1], Cristina Galuzzi[1], Elisa Illuminato[1], Federica Maggi[1]

[1]"Sacra Famiglia" Korian Nursing Home, Geriatrics - Long Term Care, Pieve del Cairo, Italy

Aim: As Allman did about 35 years ago, with the G.O.L.D. Project (Group of Operators Lesions Dedicated) we wanted to create a heterogeneous working group aimed at the treatment of skin lesions in nursing homes, but above all to increase the surveillance to protect the elderly, to heal quickly the ulcers present and avoiding their development.

Method: Within a Korian Nursing Home, we established a "working group" called G.O.L.D. made up of Doctors, Nurses and Social and Health Operators (OSS). Once a week, the "Medications Round" is performed with the presence of doctors, a nurse and an OSS: all the figures supervise the skin integrity of the guests and the maintenance of the medications in place, reporting every event that allows to evaluate dressing frequency, prescription adequacy and patient comfort. Anyone who detects a skin alteration informs the whole group, thus intervening in real time.

Results: After the first 6 months the prevalence decreased from 65.6% (4.7% already present at admission) to 32.8% (50% at admission); healing was achieved in 44.6% and the incidence decreased to 9.1%. Currently traumatic injuries, which represented 29%, have been eliminated (none in the last 3 months), while incidence decreased: 6.1%.

Conclusion: The establishment of this "working team" reached absolutely significant results; the main targets (attention, surveillance and prevention) have been achieved and healing times have been reduced. We also underline a considerable approval by the administrative sector which is recording a significant reduction in costs and an improvement in the quality of assistance.

PP039 APPROPRIATENESS AND COST-EFFECTIVENESS: SHARING AN ADVANCED DRESSINGS MANAGEMENT PROCEDURE

Gianna Ignesti[1 2], Patrizia Madeo[2], Mariangela Altieri[1]

[1]Asl Toscana Centro, Ospedale San Jacopo, Pistoia, Italy; [2]Ospedale San Jacopo, Italy

Aim: To outline the USL Toscana Centro's working procedure that regulates the skin lesions' dressing material supply in the hospital-community continuity of care.

Methods: The sample comprises two nursing home's residents: (i) Woman, 78 y.o., traumatic injury of the Achilles zone with tendon exposure. The infected lesion did not tend to heal, (ii) Man, 80 y.o., suffering from depressive syndrome, peri malleolar ulcer active since 1995. Given the complexity of the cases, specialist nurses' advice was requested.

Results: The family and community nurse and the wound care specialist nurse were consulted, and the appropriate dressings were provided. The wound of the first patient completely healed in a 6-month timespan and the second patient's wound showed a marked improvement with an 80% reduction.

Conclusions: The communication and collaboration among different specialist nurses was the key to the resolution of the patients' issues and led to a shared and appropriate management of advanced medication, clinical effectiveness and appropriate use of the Health Care Authority's resources.

PP040 THE EXTENT OF THE EVENT "PAEDIATRIC LESIONS" IN THE LOCAL HEALTH AUTHORITY USL TOSCANA CENTRO

Maristella Mencucci[1], Francsesca Falciani[2 2 2], Eleonora Bastarelli[1], Monica Raspini[2], Irene Costoli[2], Giovanna Sabatini[2]

[1]Azienda USL Toscana Centro, Firenze, Italy; [1]Azienda USL Toscana Centro, Firenze, Italy

Aim: The aim of this preliminary study is to standardise the management of paediatric lesions and provide an epidemiological estimate of the phenomenon in the Local Health Authority (LHA) USL Toscana Centro.

Method: The USL Toscana Centro is the second Italian LHA by extension and catchment area: 1,700,000 residents distributed over 5000 Km2. It counts seven birth centres, two Neonatal Intensive Care Units (NICUs), six neonatal pathology units and five paediatric units, with an annual patient volume of about 2,900 units. In 2020, an LHA team of paediatric and neonatal nurses with the aim of monitoring and analysing paediatric lesions was created. An ad hoc database collected the number of hospitalizations, the device-related injuries cases and diaper dermatitis cases that occurred in the whole LHA's NICUs, Paediatrics and Neonatology Units. The records formed a sample for the year 2021, divided up in two semesters.

Results: Data analysis showed that within the 2021 hospitalized population (n=2934), a 0.65% developed device-related lesions and the 5.5% developed diaper dermatitis. Results were subsequently divided and investigated into different care settings and different types of patients.

Conclusion: This preliminary investigation quantifies the size of some aspects hitherto unknown. A structured recording of occurrences, and the subsequent analysis, qualifies itself as an organizational intervention that in the future will address a literature gap.

PP041 WOUND CARE FLASH: LOCAL HEALTH AUTHORITY USL TOSCANA CENTRO HEALTHCARE PERSONNEL'S WOUND CARE INTRODUCTION MANUAL

Carlotta Bini[1], maristella Mencucci[1], Giovanna Sabatini[1], Francsesca Falciani[1], Eleonora Bastarelli[1], Alessandra Pavanelli[1], Andrea Lazzeri[1]

[1]*Azienda USL Toscana Centro, Firenze, Italy*

Aim: The aim of the intervention is to standardize at LHA level the management of the patient with skin injuries by providing different settings' nurses a tool for immediate use, the "Wound Care Flash".

Method: The training needs expressed by nurses were compared with the topics covered in the wound management courses conducted by the Wound Care Team (WCT) from January 2021 to My 2022. This led to the creation of a list of topics that served as a base to build an essential manual to be consulted every time a skin lesion had to be treated, with the explicit aim of standardization of treatments. The manual can be consulted in its paper, electronic and app versions.

Results: The manual consists of macro topics, each of which divided into ready-to-use cards for every need. Each card contains the indication on the techniques to use for the selected topics.

Conclusion: The creation of this manual stands as a starting point in the process of supporting nurses in the skin injuries' treatment and it is a WCT commitment in keeping it updated according to the latest scientific evidence.

PP042 MANAGEMENT OF MOISTURE INJURIES AT HOME USE OF HYPOCHLOROUS ACID PH 5.5: CASE REPORT

Paola Araya-Santander[1]

[1]*Chile, Hospital Carlos Van Buren, Valparaíso, Chile*

Aim: Describe evolution of peristomal lesion in a patient with an ileostomy with the application of Hypochlorous Acid pH 5.5 solution.

Method: Case report, house records and series of images were used. Erythema was compared with Visual Erythema Scale (EVE). Four day follow up. The images were obtained with a cellphone, artificial light, and supine position. Ethical safeguards: The current national regulations were respected.

Results: An 84-year-old male, with a total ileostomy for 11 months, dependent on care, presented a peristomal lesion after patient manipulation, protective spray barrier film was applied, erythema progressed to category 3 (Image 1). The application of Hypochlorous Acid pH 5.5 began with a reduction of erythema category 1 at 4 th day (Image 4).

Discussion: Peristomal lesions, and intestinal problems are recurrent up to 2 years after intestinal exteriorization, factors such as advanced age, and traumatic bag removal are consistent with the case report. Some studies of application and use of Hypochlorous Acid pH 5.5 report favorable evolution without complications.

Conclusion: Success in the treatment of peristomal lesions requires a structured nursing management with a holistic vision, with the integration of the patient and/or the provider of care, improves the results. The use of Hypochlorous Acid pH 5.5 in peristomal dermatitis could be improved with a good response from the patient if its management is protocolized.

Image 1

Image 2

Image 3

Image 4

PP043 IN VITRO VERIFICATION OF THE MICROBIAL BARRIER PROPERTIES OF A SKIN ADHESIVE

Michael Dietrich[1], Bettina Schultz[1]

[1]BSN medical GmbH - an Essity Company, Hamburg, Germany

Aim: Skin adhesives are a well-established, minor traumatic method for wound closure. No follow-up is required to remove sutures or staples, making it a useful alternative. Additionally, the barrier properties of skin adhesives could prevent bacterial penetration. This could potentially reduce the risk of surgical site infections, which are one of the most common healthcare-associated infection. The aim was to test the microbial barrier properties of a skin adhesive against a variety of bacterial species.

Method: A strike through test with agar media, which thus changes color in the presence of acidic microbial metabolites was used. A uniformly thick film of skin adhesive (combination of octyl- and n-butyl-cyanoacrylate) was applied to the agar surface and was inoculated with $1x10^3$ colony forming units of Staphylococcus aureus, Escherichia coli, Streptococcus or Pseudomonas aeruginosa. All plates were incubated for 72h at 37°C and were observed for growth and color change every 24h.

Results / Discussion: The experimental results support the presumption that the tested skin adhesive provides an effective microbial barrier for at least 72h. This was demonstrated against both Gram-positive and Gram-negative, as well as against motile and non-motile species.

Conclusion: An animal model has demonstrated that contaminated wounds closed with octyl-cyanoacrylate adhesive had a lower rate of infection than wounds closed with suture materials. There are notable differences between in vitro models compared to in vivo models or clinical situations, therefore supplemental clinical information is needed. However, the higher sensitivity of the in vitro test should be taken into account.

PP044 IN VITRO ASSESSMENT OF THE ABILITY OF VARIOUS WOUND DRESSINGS TO PHYSICALLY REMOVE PLANKTONIC AND BIOFILM BACTERIA

Kate Meredith[1], Dan Metcalf[1]

[1]*Convatec, United Kingdom*

Aim: To compare the ability of four different non-antimicrobial wound dressings to physically remove antibiotic-resistant planktonic and biofilm bacteria.

Method: Test dressings (carboxymethylcellulose dressing [CMC], dialkylcarbomoyl chloride coated dressing [DACC], polyurethane foam dressing [PU] and standard knitted viscose gauze [VG]) were applied to filter discs containing planktonic extended-spectrum beta lactamase Pseudomonas aeruginosa (RPA) or methicillin-resistant Staphylococcus aureus (MRSA), or gauze-cultured biofilms of MRSA or RPA. Test dressings (n=5) were incubated at room temperature for 2, 4 and 6 hours, prior to enumeration of bacteria in each dressing. One-way ANOVA and Tukey grouping were performed to establish statistically significant differences ($p<0.05$).

Results / Discussion: In the planktonic bacteria models, CMC physically removed significantly more RPA and MRSA (41–58% and 77–79%, respectively, compared with the total amount of bacteria present), than the other dressings tested over the testing period (4–27% and <1–25% for RPA and MRSA, respectively). Likewise, in the biofilm models, CMC dressings generally removed notably (and in some cases, significantly) more RPA (58–60%) and MRSA (16–42%) biofilm than DACC and PU dressings (15–39% for RPA and <1–3% for MRSA). Planktonic bacteria removal data was more consistent, suggesting that biofilm bacteria removal was more difficult for non-antimicrobial dressings tested, possibly due to the presence of biofilm extracellular polymeric substances.

Conclusion: Using in vitro test methods, CMC dressings physically removed more antibiotic-resistant bacteria in both planktonic and biofilm form than the other non-antimicrobial dressings tested.

PP045 COMPLEX LOWER EXTREMITY WOUND CASES WITH EXPOSED HARDWARE AND MANAGEMENT WITH APPLICATION OF SKIN SUBSTITUTE AND NEGATIVE PRESSURE WOUND THERAPY (NPWT): CASE SERIES

Rimvydas Statkus[1], Patrick McEneaney[1], Peter Lovato[1]

[1]*Northern Illinois Foot & Ankle Specialists, Crystal Lake, United States*

Aim: Surgical wounds with exposed hardware are a perpetual concern and challenge. Infection involving internal hardware can jeopardize bone healing and result in lifelong issues with bone infection, limb loss or death. When hardware is prematurely removed, complications arise if the fracture or osteotomy sites have not adequately healed rendering instability and loss of correction. Each of the five cases presented demonstrate various approaches for successful wound management without hardware removal.

Method: Five patients with recent arthrodesis or deformity correction procedures sustained wound dehiscence/soft tissue loss leading to deep wounds with exposed hardware. Hardware removal was not appropriate as it would lead to instability and loss of correction across osteotomy sites. Each underwent aggressive treatment with appropriate antibiotic therapy, wound debridement, application of skin substitute and application of NPWT.

Results / Discussion: All wounds healed within 4-8 weeks depending on the extent of initial soft tissue loss. In each case there was early detection of infection and immediate treatment including surgical debridement and appropriate antibiotic coverage. Multiple applications of fish skin graft were used to assist with immediate coverage over exposed hardware and initiation of NPWT assisted with promotion of granulation tissue formation and rapid wound closure. None of the patients required further surgery for residual infection.

Conclusion: The standard for infection management (I&D/debridement, thorough irrigation and removal of hardware) has been routinely implemented for decades. Contrary to previous standard of care, this case series showcases that salvage of hardware is possible with early, aggressive management.

PP046 INTERCULTURAL CARE OF VENOUS LEG ULCER: CASE REPORT

Pedro Alberto Arévalo Catalán[1]

[1]*Atención Primaria en Salud, Departamento de Salud Rural, Lautaro Chile, Lautaro, Chile*

Aim: Describe evolution of Venous Leg Ulcer (VLU) using Mapuche treatment with Llantén leafs, and Intercultural Facilitator (IF) as a complement to standard treatment with multilayer-multicomponent compressive system.

Method: Case report, descriptive. Clinical record and image series were used to assess the evolution of the lesion. This report used informed consent. Care triad was used: 1) Registered Nurse (RN), care manager and coordinator 2) Intercultural Facilitator, makes the link between the care therapy and patient's worldview 3) Mapuche ethnicity patient, 91 years old, with Diabetes Mellitus, Arterial Hypertension, Deep Vein Thrombosis.

Results / Discussion: Through scheduled medical appointment it was detected right leg VLU, 0.6 x 0.4 x 0.1 inches, reddened and scaled perilesional skin. Patient treated with Llantén leafs for a month at home (image 1-2). Care therapy was scheduled between RN- IF, and patient. The standard treatment was application hypochlorous acid pH 5.5 solution, and multilayer-multicomponent compressive system at 40 mmHg at the ankle, while perilesional skin was treated with Llantén leafs, a traditional Mapuche medicine with antiseptic, anti-inflammatory effects. Care triad therapy were 3 times per week with good adherence. On the fourth week, the VLU was heal (image 3-4).

Conclusion: The multilayer-multicomponent compressive system is gold standard in the management of VLUs. Mapuche worldview considers for diseases of the body and soul the use of herbs and infusions. The IF connects both visions, they interact towards the achievement of common goals. In this case, the recovery of the skin and therapeutic adherence.

PP047 OPEN MONOCENTER OBSERVATIONAL STUDY TO ASSESS A DEFINED THERAPEUTIC CONCEPT IN PATIENTS WITH CHRONIC WOUNDS

María José Valencia López[1], Matthias Augustin[1], Sandra Wolf[1], Natalia Kirsten[1]

[1]*Institute for Health Services Research in Dermatology & Nursing, Universitätsklinikum Hamburg-Eppendorf, Hamburg, Germany*

Aim: Chronic wounds have a high medical and socio-economic impact related with high costs and an impaired quality of life of patients. Therefore, the feasibility of a therapeutic concept with defined outcomes within a routine clinical setting regarding the wound healing rate and benefit for the patient was assessed.

Method: The study was performed between 2016 and 2018. Patients ≥ 18 years with leg ulcers of different etiologies were included and treated for 12 weeks according to a systematic therapeutic approach following a decision tree. Follow-up visits were performed 14 weeks and 27 weeks after the last treatment visit (Visit 5). Study endpoints included changes in wound pain and size of edema, assessment of exudate level, wound and wound margins, wound infection and accelerated wound closure.

Results / Discussion: 59 patients, thereof 32 males (58.2%) and 23 females (41.8%), were included in the study. The median age was 67 (range 32 - 90 years). Most patients had cardiovascular comorbidities (98.8%) and received non-opioid analgesia (WHO Grade I [41.8%]) and anticoagulants (34.5%). Most patients had a venous leg ulcer (58.8%) or mixed ulcer (11.8%) localized at the lower thigh (70.9%) or ankle (20.4%). Wound area (31.04 ±48.53 cm; 21.71 ±27.93 cm) and depth (0.27 ±0.39 cm; 0.13 ±0.11 cm decreased and wound characteristics (incl. exudate level, infection, wound pain) improved during treatment. Safety incidences were not observed.

Conclusion: The use of a standardized decision tree for the treatment of chronic wounds is feasible and facilitates the management of chronic wounds.

PP048 RISK FACTORS CONTRIBUTING TO DELAYED HEALING OF VENOUS LEG ULCERS (VLU) – A RETROSPECTIVE STUDY

Roberto Polignano[1], Alessandro Polignano[2], Sara Rowan[3]

[1]*SOS Medicina Vascolare, Firenze, Italy*; [2]*Humanitas University, Milano, Italy*; [3]*Clinical Nurse Specialist, freelance, Firenze, Italy*

Introduction: It is recognized that ulcer's dimension and duration have an impact on time to healing. No definite evidence exists regarding infection and wound bed (1,2,3,4,5,6)

Aims: To identify which risk factors have a correlation with healing of VLU within a defined population.

Methods: This was an observational retrospective study. Data of 55 patients with VLU were analyzed for possible co-relation between rate to healing for the following aspects: size of the wound at start of the study, pain score (VAS), edema reduction, durations of the ulcer (1-6 months, 6-12, >12 months), age and gender.

All patients received the same treatment; Unna boot and a hydrofiber dressing for a max of 12 weeks. Pearson correlation coefficient (r) was used to measure correlation.

Results: 45/55 patients were analyzed, ten patients withdrew from the study, 9 due to infection and 1 due to intolerance to the therapy.

The univariate analysis revealed statistically significant difference (SSD) for rate of healing and wound size (p=0,0079) and to initial pain (P = 0,0001). No SSD for edema reduction (p=0,28) or for age (p=0,55). No SSD was found for gender. Better healing outcome was found for those patients that wound duration was from 1-to 6 moths (95,5% vs 79%).

Conclusions: From this study, it would appear that pain and wound dimensions are important risk factors and deserve serious attention, considering from the start more advanced therapy options.

Onset of intense pain during the treatment, in this study, was indicative of infection and eventually delayed healing.

Bibliography:

1. Vladica M. Veličković, Tim Spelman, Michael Clark, Sebastian Probst, David G. Armstrong, and Ewout Steyerberg Individualized Risk Prediction for Improved Chronic Wound Management Advances in Wound Care 1 nov 2022
2. Margolis, D.J., Allen-Taylor, L., Hoffstad, O. and Berlin, J.A. The accuracy of venous leg ulcer prognostic models in a wound care system. Wound Repair and Regeneration, 12: 163-168. 2004
3. Marian Simka, Prognostic Factors for delayed healing of venous leg ulcers, Przegląd Flebologiczny 2014; 22, 2: 58–61
4. Franks P.J., Bosanquet N., Connolly M., Oldroyd M.I., Moffatt C.J., Greenhalgh R.M., McCollum C.N. Venous ulcer healing: effect of socioeconomic factors in London. J Epidemiol Comm Health 1995; 49: 385-388.
5. Lantis J.C. 2nd, Marston W.A., Farber A., Kirsner R.S., Zhang Y., Lee T.D., Cargill D.I., Slade H.B. The influence of patient and wound variables on healing of venous leg ulcers in a randomized controlled trial of growth-arrested allogeneic keratino-cytes and fibroblasts. J Vasc Surg 2013; 58: 433-439.
6. Meaume S., Couilliet D., Vin F. Prognostic factors for venous ulcer healing in a non-selected population of ambulatory patients. J Wound Care 2005; 14: 31-34

PP049 SPINAL CORD STIMULATION IMPROVED THE CONDITION FOR CHRONIC LIMB-THREATENING ISCHEMIA-ASSOCIATED PAIN

Yuta Terabe[1]

[1]*Kasukabe Chuo General Hospital, Limb Salvage Center, Kasukabe, Japan*

Aim: Chronic limb-threatening ischemia (CLTI) is the end stage of lower extremity arterial disease (LEAD). The patients suffered from pain due to ischemia and ulcer during the treatment period. The painkillers are gradually increased and strengthen generally. There are some adverse events caused by several painkillers included a narcotic. The events sometimes dropped treatment of CLTI.

Spinal cord stimulation (SCS) uses pulsed electrical energy near the spinal cord to manage pain. The chronic pain managed by SCS. In this time, the patients received puncture trial and the pain relief was investigated.

Method: The 41 CLTI patients felt uncontrol pain despite of taking enough painkillers underwent SCS. 33 patients were men and mean age was 70.4 ± 9.58 years. The comorbidities included diabetic mellitus (n=27), chronic kidney disease stage G5d (n=27), coronary artery disease (n=26) and cerebrovascular disease (n=6). The mean C-reaction protein was 5.63 ± 17.5 (mg/dL) and mean white ball count was 1.1 x 103 ± 1.5 x 103 (/μL).

Results / Discussion: They underwent puncture trial for two weeks. Average numerical rating score improved 7 to 2 (P<0.01). Wound results were healing (n=22), major amputation (n=9), minor amputation (n=8), and death (n=2).

SCS is simple procedure for there are two approaches, trial approach and implant approach. All patients undergo a trial first, because it may help improve symptoms, mainly pain. Wound care is making steady progress in trial term.

Conclusion: SCS may serve as an important method for pain control to CLTI.

PP050 EVALUATION OF PAIN-, AND ANXIETY-RELATED BEHAVIOUR IN A RODENT WOUND MODEL, AND INVESTIGATION INTO THE ENDOCANNABINOID SYSTEM

Catherine Healy[1 2 3 4], Maria Redmond[1 2 3 4], Maria Lipceanu[1 2 3], Georgina Gethin[4 5 6], Abhay Pandit[4], David Finn[1 2 3 4]

[1]*Pharmacology and Therapeutics, School of Medicine, University of Galway, Galway, Ireland*; [2]*Galway Neuroscience Centre, University of Galway, Galway, Ireland*; [3]*Centre for Pain Research , University of Galway, Galway, Ireland*; [4]*CÚRAM, SFI Research Centre for Medical Devices, University of Galway, Galway, Ireland*; [5]*School of Nursing and Midwifery, University of Galway, Galway, Ireland*; [6]*Alliance for Research and Innovation in Wounds , University of Galway, Galway, Ireland*

Aim: Wound-associated pain is a significant unmet clinical need, and anxiety is a prevalent comorbidity. The endocannabinoid system (ECS) is involved in skin homeostasis, nociception and anxiety. This study aimed to characterise pain- and anxiety-related behaviour following incisional wounds and associated alterations in levels of endocannabinoids and N-acylethanolamines.

Method: Male and female Sprague-Dawley rats (4-5 per group) underwent incisional wound or sham surgery. Mechanical hypersensitivity (MH) and cold hypersensitivity were assessed from baseline to post-surgery day (PSD) 33. Anxiety-related behaviour was investigated via Elevated Plus Maze (EPM) on PSD 6 and 26, Light Dark Box on PSD 9 and 29 and Open Field on PSD 13 and 32. Wound and brain tissue were analysed via LC-MS/MS.

Results/Discussion: Male incision rats showed MH vs male sham (p<0.05). No pain-related behavioural differences were observed between the female incision and the female sham (p>0.05). Anxiety-related behaviour was observed at PSD 6 via the EPM in male and female incision rats vs shams (p<0.05) and PSD 26 in female incision rats vs female shams. There was no difference in wound levels of 2-AG, AEA, PEA or OEA between male and female incision rats vs shams. There were significantly higher levels of 2-AG in the male incision rats vs male sham in the PFC and PAG (p<0.05). There were significantly lower levels of PEA in the right hippocampus of female incision rats vs female sham (p<0.05).

Conclusion: Results from this investigation indicate potential sex differences in 1) pain- and anxiety-related behaviour post-incisional wounds and in the ECS, and provide a basis for further investigation into the role of ECS in the wounds and wound-related behaviour.

PP052 A TEN-YEAR NATIONWIDE SURVEY ABOUT PRESSURE ULCER PREVALENCE AND PREVENTION INTERVENTIONS IN SWEDEN

Carina Bååth[1 2], Ami Hommel[3], Madeleine Borgstedt Risberg[4], Lena Gunningberg[5], Eva Sving[5], Ulrika Källman[6]

[1]Karlstads Universitet, Department of Health Sciences, Karlstad, Sweden; *[2]*Østfold University *College, Faculty of Health, Welfare and Organisation, Norway*; *[3]Malmö University, Department of Care Science, Malmö, Sweden*; *[4]Unit for Public Health and Statistics, Region Östergötland, Linköpings University, Linköping, Sweden*; *[5]Uppsala University, Department of Public Health and Caring Sciences,, Uppsala, Sweden*; *[6]Southern Älvsborg Hospital, Head Office, Departure of patient safety,, Borås, Sweden*

Aim: To describe pressure ulcer prevalence and prevention interventions in hospital care in Sweden based on nationwide surveys conducted over a 10-year period.

Method: A cross-sectional research design was used. The methodology used was that recommended by the European Pressure Ulcer Advisory Panel. Inclusion criteria were all adults (≥18 years) who were admitted to the unit before 7 am on the day of each survey. PUs were identified by visual skin assessment of the patients. Existing PUs were categorized according to EPUAP–NPIAP-PPPIA classification system. Data were collected by two nurses visiting each patient; one registered nurse who was a team member and one nurse from another unit in order to guarantee objectivity.

Results / Discussion: In total, more than 130 000 patients were included in the 10 prevalence surveys between 2011 and 2020. The pressure ulcer prevalence decreased from 17.0% to 11.4% . The majority of PUs were located on the sacrum and heels. The preventive interventions such as the use of pressure-reducing mattresses, sliding sheets, repositioning plans and heel protection increased during the years. The national patient safety program was successful in engaging hospitals to work systematically with pressure ulcer prevention. However, one in ten patients in Swedish hospitals still suffers from pressure ulcers.

Conclusion: In the 10-year period of the study, PU prevalence has decreased while preventive measures have increased. However, the burden of PUs remains substantial in Swedish hospital care indicating that the need to continue to dedicate resources to PU prevention remains.

PP053 EFFICACY OF "TAPE"-BASED NURSING TREATMENT IN THE III – IV STAGE PRESSURE ULCERS

Giorgio Badino[1], Marco Marchelli[1], Deborah Cesura Granara[1]

[1]Asl3 Liguria, Vulnologia - Villa Scassi, Italy

Aim: A good perfusion have a significant effect help wound healing. Kinesio taping is applied to accelerate a good recovery in the muscholo-scheletric injury, improving local blood circulation and lymphatic drainage. This study aims at showing if kinesio taping applied close to an uninfected wound can improve wound healing.

Method: Twenty unselected elderly poly-pathological patients (8 men, 12 women) with non-infected III-IV-stage sacral bed sores were treated at home by our home-care service team. KT was applied close to a portion of the ulcer, while the contralateral portion was treated according to the standard protocol ('control', C). The surface reduction of both portions was measured every 4 days after KT application (5 follow-up visits: V1-V5).

Results / Discussion: Right from the first measurement, treated wounds presented a significantly higher percentage of reduction than untreated areas. On each visit, the mean percentage reduction was significantly greater in the KT-treated areas (KT-A) than in C: V1= 21.9% vs 8.3%, $p<0.001$; V2= 38.3% vs. 17%, $p<0.001$; V3= 58.1% vs 25.8%, $p<0.001$; V4= 70.3% vs 36.9%, $p<0.001$; V5= 81.1% vs 46.3%, $p<0.001$, respectively (paired-sample t-test). Furthermore, starting from V2, the number of ulcers that halved their extension was significantly higher in KT-A, with the maximum difference on V4 (8 ulcers halved in KT-A vs 2 in C, $p=0.007$; Chisquared test).

Conclusion: The use of tape in uninfected pressure ulcers appears to represent a very effective therapy, with rapid clinical response and low cost.

PP054 OPTIMISING THE OUTCOMES OF MANAGING COMPLEX PRESSURE INJURIES IN INPATIENT PALLIATIVE CARE SETTING IN SINAGPORE: A CASE STUDY

Yee Yee Chang[1], Lay Kian Joyce Goo[1]

[1]*Dover Park Hospice, Nursing, Singapore*

Aim: Complex pressure injuries (PI) are a significant worldwide issue for the healthcare system and are prevalent in advanced illness populations. This paper aims to share the holistic management of complex PI in advanced dementia patient to achieve the best outcomes.

Method: Mdm T, a 67 years lady with advanced dementia was admitted from a nursing home. She had diabetes mellitus, bullous pemphigoid and multiple pressure injuries. On admission, Mdm T's stage 4 sacral PI measured at 22x14x2cm, undermining 10-1 o'clock 2 cm, bone, ligaments visible with 60% full-thickness necrotic tissue, malodour, and heavy hemopurulent discharge. Scattered of skin erosion over periwound skin. Patient was tachycardia and febrile since one week ago.

The goals of wound care manage ongoing infection, malodor, and excessive exudation. Wound bed preparation (TIME concepts) was adopted in wound management after comprehensive wound assessment. The approach of regular wound cleansing with the antimicrobial solution, autolytic debridement, and periodically conservative sharp wound debridement to remove bioburden and non-viable tissue—subsequently, Negative Pressure Wound Therapy initiated for short term to promote cell proliferation and enhance sacral wound contractions. Ciprofloxacin was started after two days on top of Augmentin to treat Pseudomonas infection.

Results / Discussion: After 16 days, Mdm T's sacral wound shown vast improvement with 90% of pinkish granulation tissue, nil odour and with wound infection resolved. Mdm T's son feedback that patient shown subjective improvement to be able to interact with him by maintaining eye contact on his visits.

Conclusion: It is indeed challenging to manage patient with multiple complex pressure injuries. This case demonstrated with access to specialized wound care nurse in inpatient palliative setting, it helps to improve the wound outcome and QoL for patients. Most importantly, it enhances overall nursing practices on wound management.

PP055 POTENTIAL EFFECTS OF STAPHYLOCOCCUS EPIDERMIDIS EIR/HS-2 ISOLATED FROM HUMAN SKIN MICROBIOTA ON WOUND MANAGEMENT AND INFECTION CONTROL

Emine OmerOglou[1], Hazal Kibar Demirhan[1], Sultan Golpek[1], Buket Celik[1], Fadime Kiran[1]

[1]*Ankara University, Turkey*

Aim: The aim of this study is to determine the potential effects of microbiota-derived postbiotics originated from skin microbiota for wound healing.

Method: *Staphylococcus epidermidis* EIR/HS-2 isolated from human skin microbiota and identified using 16S rRNA sequencing was used as the main source of postbiotics. Following the fermentation process, postbiotics as cells free supernatant were obtained and its anti-microbial and anti-biyofilm activities were tested against important skin pathogens. Anti-oxidant activity was also analyzed. Cytotoxic effects and migration ability were assessed on human keratinocyte cells. Besides, effects on immune marker and collagen synthesis were determined using ELISA and RT-PCR, respectively. Finally, its metabolites were clarified using chromatographic methods.

Results / Discussion: Postbiotics were found effective against all tested pathogens and significantly reduced their biofilm formation. DPPH radical scavenging activity was determined as 78.07 ± 0.39%. Doses below 1000 ug/mL did not exhibit cytotoxic effects and not induce pro-inflammatory cytokine synthesis. However, postbiotics were significantly induced collagen synthesis of human keratinocyte cells. Among the 37 fatty acids, only oleic acid, palmitic acid, and stearic acid were detected. Lactic acid, B complex vitamins, glucose, syringic acid and gallic acid were found as the most abundant metabolites.

Conclusion: Our results suggest that postbiotics including active metabolites obtained from *Staphylococcus epidermidis* EIR/HS-2 may represent an alternative bio-control strategy against skin infections with its antimicrobial, anti-biofilm, and antioxidant activity. In addition, postbiotics should be used as an important biomaterial candidate for skin tissue regeneration with its proliferative effect as well as its contribution to migration and collagen synthesis.

PP056 AN ALTERNATIVE APPROACH FOR WOUND HEALING: BACTERIAL BIOACTIVE MEDIATORS

Hazal Kibar Demirhan[1], Emine Omer Oglou[1], Ilknur Agun[1], Fadime Kiran[1]

[1]*Ankara University, Turkey*

Aim: The aim of this study is to investigate the anti-microbial, anti-biofilm, anti-quorum sensing and anti-oxidant activity of bioactive mediators (BM) of *Lactobacillus curvatus* EIR/SpX-2 against skin pathogens and to characterize the potential properties using L929 mouse fibroblast cell line.

Method: Following the fermentation process, BMs as cells free supernatant were obtained and its anti-microbial and anti-biyofilm activities were tested against MRSA ATCC 43300, *Pseudomonas aeruginosa* 27853, *Staphylococcus epidermidis* ATCC 35984 by agar well diffusion method. Minimum inhibitory concentration (MIC) against all tested pathogens were determined by microtiter plate assay. Anti-biofilm activity was evaluated by crystal violet staining. Quorum sensing related gene expressions were analyzed using RT-PCR. For the anti-oxidant activity, DPPH radical scavenging assay was also applied. In addition, effects of BMs on cytotoxicity and migration ability of L929 cell line were assessed using cell culture assays.

Results / Discussion: BM was displayed anti-microbial effect against all tested pathogens and its sub-MIC value eradicated their biofilm production. It was also proven that the gene expression levels related with the quorum signal transduction system was significantly down-regulated in a dose-dependent manner. DPPH radical scavenging effect of MIC-25 value of BM was determined as 72.6±3.5%. It was observed that BM did not display cytotoxic effects on L929 and not induce apoptosis. As a result of migration, scratch on L929 cells were closed after 24 hours.

Conclusion: This study highlights the potential effects of BM against important skin pathogens and demonstrates its multifaceted roles in wound healing.

PP057 HOW DO YOU DO MRS SWANSON?

Kristina Nordin[1], Rut Öien[1]

[1]*Region Blekinge, Blekinge Centre of Competence, Karlskrona, Sweden*

Aim: To perform a national mapping of quality of life for patients with hard-to-heal ulcers in Sweden in order to visualize the patients' limitations in daily life.

Method: An on-going national mapping on quality of life covering patients treated in primary, community and inpatient care in all of Sweden's 21 regions. To get substantial data we include 4000 patients. i.e. 10% of all patients with hard-to-heal ulcers in Sweden. We have also performed in-depth interviews with 10 patients with hard-to-heal ulcers of any etiological diagnosis and scrutinized scientific articles to cover all aspects of patients' stories.

Results / Discussion: Results for the first 1137 patients show that many patients have reduced quality of life and suffer from pain, anxiety, depression and severe limitations in their daily life. Patients also experience feelings of lack of competence and powerlessness when not being listened to.

Conclusion: Valuable results from the national mapping linked to patients' interviews are being visualized as patients' feelings, thoughts, fears and sensations. The poster is closely linked to the symposium on A national mapping of quality of life, where different aspects are discussed regarding how to capture quality of life information from patients' interviews, research studies and the newly introduced national guidelines. Patient empowerment is being addressed through information and education on the national digital healthcare platform '1177'.

PP058 THE HOLISTIC APPROACH IN THE TREATMENT OF PHARYNGO – CUTANEOUS FISTULA IN PATIENTS UNDERGOING TOTAL LARYNGECTOMY

Antonino Lombardo[1], Francesco Stivala[1], Enrica Fontana[1], Gabriella Della Pace[1], Giuseppe Riva[1], Sandra Iannarino[2], Eleonora Aloi[3], Mario Paleologo[3]

[1]Città della Salute e della Scienza di Torino, Molinette Hospital, General and Specialist Surgery - Otolaryngology, Turin, Italy; [2]Città della Salute e della Scienza di Torino, Molinette Hospital, General and Specialist Surgery - Ophthalmology, Turin, Italy; [3]Città della Salute e della Scienza di Torino, Molinette Hospital, DiPSa, Turin, Italy

Aim: Activate all the factors of healing process of pharyngocutaneous fistula through the holistic approach of Wound Bed Preparation (WBP) which actively involves the patient in the treatment process.

Method: Were treated 60 patients from 2002 to 2022, 51 men and 9 women aged between 39 and 87 years. Treatment:

- Debridement: surgical, autolytic, chemical
- Cleansing: Polyhexamethylene Biguanide
- Antimicrobial action: silver dressing + Azatiractica Indica + Iphyercum Perforatum, systemic antibiotic (antibiogram)
- Fluid management (saliva and exudate): elastic therapeutic tape used to compress and reduce the lumen of the cutaneous fistula; hydrofiber inside the fistulous tract (if diameter > 1 cm); absorbent pad as a secondary dressing
- Dressing closure: self – adhesive dressing
- Nutritional intake: 30 kcal/Kg; proteins 1,6 - 2 g/kg; Water 30 ml/kg
- Pain management during dressing change: if VAS > 3 intravenous Paracetamol 1 g or Tramadol 50 mg – 100 mg (based on body weight)
- Emotional status management: counseling.

Results / Discussion:

- Healed: 60/60
- Average healing time: 8 weeks
- Average dressing change: 72 hours
- Average pain: VAS > 3
- Surgical requirement: 9/60
- Weight loss: 1,2 kg

Conclusion: Using the WBP, gained through twenty years of experience, permit us to manage patients holistically and make them active in the treatment process. This methodology, based on a personalized path and on the use of the most advanced technologies in the field of wound care, has made it possible to reach the healing for all the patients (result not guaranteed). All this allowed the patients to be able to feed orally, after a long and difficult clinical pathway.

PP059 EBC-1013 INDUCES AN ACUTE INFLAMMATORY RESPONSE IN SKIN RELEVANT CELL TYPES, PROMOTING INNATE IMMUNE CELL RECRUITMENT AND SUBSEQUENT CLOSURE OF CHRONIC, INFECTED WOUNDS

Jason Cullen[1 2], Glen Boyle[1 2 3], Pei-Yi Yap[1], Carly Pierce[1], Jenny Johns[1], Alberto Pagani[4], Giovanni Appendino[4], Victoria Gordon[5], Paul Reddell[5], Peter Parsons[1 2]

[1]QIMR Berghofer Medical Research Institute, Herston, Australia; [2]The University of Queensland, School of Biomedical Sciences, Saint Lucia, Australia; [3]QUT Gardens Point Campus, School of Biomedical Sciences, Brisbane City, Australia; [4]University of Eastern Piedmont, Vercelli, Italy; [5]QBiotics Group Ltd, Brisbane, Australia

Aim: Chronic, infected skin wounds, including VLU and DFU, are a major public health issue with limited treatment options. We have recently identified a class of small molecules, known as the epoxytiglianes, with the potential to treat these wound types.

Method: Here, we assessed the ability of our current lead, EBC-1013, to treat non-healing veterinary wounds and a physiologically relevant preclinical mouse model (*db/db*) of chronic wounds that spontaneously develops a biofilm infection. The indirect antimicrobial and wound healing associated effects of EBC-1013 were also studied *in vitro*/*in vivo* (microarray, qPCR, respiratory burst, NETosis and cytokine bead assays) using human dermal fibroblasts (HDF), keratinocytes (HEK), blood-derived neutrophils (PMNL), peripheral blood mononuclear cells (PBMCs) and the aforementioned *db/db* model.

Results / Discussion: EBC-1013 promoted wound closure in both veterinary cases and the *db/db* model detailed above. In terms of mechanism, EBC-1013 induced respiratory burst and NETosis in PMNL, and promoted the secretion of TNF, IL-1β and IL-8 from PBMCs. EBC-1013 treatment of HEKa/HDFa also led to the upregulation of innate immune defence genes encoding host defence peptides (*DEFB4*, *DEFB103A*, *DEFB104A*, *RNASE7*), various pro-inflammatory cytokines/chemokines (*TNF*, *IL1B*, *IL6*, *IL8*, *CXCL12*, *CCL20*), ECM components (*LCE/KRT/SPRR* genes, *TNC*, *FN1*, *LAMC1*) and pro-resolution molecules (*IL1RN*, *IL1F5*, *SLPI*) in these cell types. Consistent with the *in vitro* data, EBC-1013 also significantly upregulated several of these genes (*Defb3*, *Defb14*, *Rnase6*, *Camp*, *Tnf*, *Il1b*, *Il6*, *Il1rn*, *Cxcl2*, *Sprr2e*, *Lce3d*, *Tnc*) in *db/db* mouse wounds, together with promoting PMNL recruitment to these lesions *in vivo*.

Conclusion: EBC-1013 can help resolve chronic, infected wounds through inducing an acute inflammatory response, which helps clear bacterial infection and resets the wound microenvironment.

PP060 THE CLASSIFICATION OF TRACHEOSTOMIC SKIN WOUND: PRELIMINARY PROJECT

Antonino Lombardo[1], Francesco Stivala[1], Enrica Fontana[1], Roberta Moretti[2], Carla Martinuzzi[3], Eleonora Aloi[4], Mario Paleologo[4], Angela Peghetti[5], Barbara Forino[1]

[1]Città della Salute e della Scienza di Torino, Molinette Hospital, General and Specialistic Surgery - Otolaryngology, Turin, Italy; [2]ORL Ravenna, Otolaryngology, Ravenna, Italy; [3]ORL Pordenone, Otolaryngology, Pordenone, Italy; [4]Città della Salute e della Scienza di Torino, Molinette Hospital, DiPSa, Turin, Italy; [5]Assessorato alla Sanità, Regione Emilia Romagna, Turin, Italy

Aim: Implementation of an assessment scale of post – surgical and oncological tracheostomy peristomal wound through a multi – center study, with the purpose of standardizing and objectifying clinical choice.

Method: Different Italian hospital structures that work with the treatment of peristomal wound related to tracheostomy, will be contacted and eventually involved in the study. Video conference meetings will be planned between the adhering centers in order to define a protocol for the classification and staging of tracheostomy wound. The second stage provide for a trial to evaluate the effectiveness of the tools and the assessment scale created and successively the validation of the classification scale realized.

Results / Discussion: The Gantt chart is described below.

Data				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Project's Stages	**Start**	**End**	**Duration**	01/10/22	15/10/22	29/10/22	12/11/22	26/11/22	10/12/22	24/12/22	07/01/23	21/01/23	04/02/23	18/02/23	04/03/23	15/03/23	27/03/23	10/04/23	24/04/23	08/05/23	22/05/23	05/06/23	19/06/23	02/07/23	16/07/23	30/07/23	13/08/23	27/08/23	10/09/23	24/09/23
Selection of the centers	01/10/22	14/10/22	14																											
Coordination working group	15/10/22	28/10/22	14																											
Realization preliminary project	29/10/22	23/12/22	56																											
Project discussion	23/12/22	16/02/23	56																											
Scale assessment	17/02/23	15/03/23	27																											
Trial	16/03/23	14/08/23	152																											
Assessment - Trial data report	15/08/23	24/09/23	41																											

Conclusion: The realization of an assessment scale of post – surgical and oncological tracheostomy peristomal wounds, thank to better staging, will allow health professionals a simpler identification of the peristomal wound and an easier approach to treatment, with positive effects on the quality of treatment and on the patient's quality of life.

POSTER CARTACEO (ITA)

PP062 LA PRESSIONE TOPICA NEGATIVA NEL TRATTAMENTO DELLE LESIONI DIFFICILI DEI TESSUTI MOLLI

Carmen Rita Rizzella[1], Giuseppina De Martis[2], Ilaria Cerino Badone[3], Alessandra Demartini[4], Francesca Pasquali[5]

[1]S. S. Vulnologia ASL-AL, Distretto di Tortona, Tortona, Italy; [2]S. S. Vulnologia ASL-AL, Distretto di Novi Tortona, Tortona, Italy; [3]S. S. Vulnologia ASL-AL, Distretto di Casale, Casale Monferrato, Italy; [4]S. S. Vulnologia ASL-AL, Distretto Patria Alessandria, Alessandria, Italy; [5]S.S. Vulnologia ASL-AL, Distretto Patria Alessandria, Alessandria, Italy

Scopo: Si presentano due casi di pazienti con lesione lacro-contusa post-traumatica dei tessuti molli del ginocchio e guarite dopo l'uso di pressione topica negativa (NPWT) monouso senza canister.

Per entrambe le pazienti è stato importante programmare un trattamento che portasse a guarigione la lesione e che nello stesso tempo consentisse di mantenere attiva la mobilità per non incorrere in una possibile perdita di funzionalità.

Metodi: I due casi sono sovrapponibili per I seguenti aspetti: sesso, mobilita' compromessa per eta' e per patologia sistemica , lesione lacero contusa dei tessuti molli del ginocchio, terapia con coumadin, ferita complessa per dimensioni superiori a 40 cm quadrati, infarcimento ematico dei tessuti profondi, estesa area necrotica, margini irregolari, dolore importante,

Eseguito accurato debridement fino a scopertura quasi totale del tessuto sottostante la necrosi , detersione dei coaguli, disinfezione del letto della ferita,applicazione di NpWt monouso senza canister con cambi bisettimanali.

Conclusioni: In entrambe le pazienti con motricità compromessa NPWT ha dimostrato un ottimo supporto compliante alla terapia per la semplicita' d'uso e la facile maneggevolezza.

A conclusione del ciclo di terapia durata tre settimane si è registrata la comparsa del tessuto di granulazione in senso centripeto dal margine esterno della ferita portando l'area dellla lesione a 8 centimetri quadrati. La chiusura definitiva è stata ottenuta con innesto eterologo.

PP064 LESIONE IN PAZIENTE PEDIATRICO ORTOPEDICO: TRATTAMENTO CON MEDICAZIONI AVANZATE E PRESSIONE NEGATIVA MONOUSO DI DIASTASI DI FERITA CHIRURGICA COMPLICATA DA LESIONE DA PRESSIONE

Monica Franzi[1], Raffaella Zaccone[1], Dott.ssa Silvia Scelsi[2]

[1]IRCCS G.Gaslini Genova; [2]IRCCS G.Gaslini Genova, Responsabile D.I.P.S.

Scopo: Il 26/10/2021 abbiamo gestito una diastasi post chirurgica in paziente cronico ortopedico di anni 18 seguito fin dall'infanzia presso IRCCS Gaslini affetto da sindrome di Klippel-Trenaunay-Weber.

Metodi: Il paziente giunge in ricovero con fissatore esterno posizionato presso altro ospedale dopo frattura della rotula. Successivamente e' stato sottoposto ad intervento di Judet e, poichè la frattura non non era consolidata è stato riposizionato fissatore esterno. Il paziente viene affidato all'equipe vulnologica per diastasi di ferita chirurgica che si estendeva lateralmente dall'anca fino al ginocchio in obliquo. Eseguito tampone, per segni clinici di infezione, risultato positivo per Pseudomonas aeruginosa per cui è stata aperta th antibiotica mirata. La lesione è stata medicata con CMC sodica e Argento e schiuma in poliuretano con idrofibra per contenere l'abbondante essudato. Il paziente effettuava riabilitazione con kinetec per 24 ore. La lesione presentava tessuto non vitale per cui è stato effettuato debridement chirurgico con bonifica dei 2/3 prossimali e del terzo inferiore della coscia, vicino al ginocchio.Durante il trattamento si è creata una "lesione nella lesione": LdP causata da bullone del cerchiaggio posizionato perpendicolarmente alla cute. Il paziente, per molte ore/die, effettuava la riabilitazione e questo ha creato una depressione nella lesione già presente, complicando la gestione della stessa. E' stata posizionata per 18 giorni, sulla lesione alla coscia e, con ponte di idrofibra con argento e idrocolloide, sulla lesione al ginocchio, una TPN monouso portatile (-80 mmHg) con idrofibra.

Risultati: Abbiamo ottenuto ottimi risultati con risalita fondo e contrazione lesione. Successivamente è stato medicato con idrofibra argento e idrocolloide come medicazione secondaria. La completa risoluzione è stata ottenuta dopo sospensione della riabilitazione e spostatamento del bullone. Il paziente è stato dimesso con medicazioni a domicilio, sotto la supervisione della nostra struttura. Il 31 gennaio si è chiusa la lesione sulla coscia e l'11 febbraio 2022 anche la lesione sul ginocchio.

Conclusioni: La gestione delle lesioni in ambito pediatrico richiede una grande competenza e grande lavoro di equipe per dare sostegno al paziente / famiglia nel minor tempo possibile.

PP065 INNESTO DI PELLE DI PESCE: REVIEW DELLA LETTERATURA E GESTIONE DI UNA COMPLESSA DEISCENZA DELLA PARETE ADDOMINALE IN ETA' PEDIATRICA

Marco Di Mitri[1], Annalisa Di Carmine[1], Giuseppe Iacobacci[2], Eduje Thomas[1], Edoardo Collautti[1], Simone D'Antonio[1], Tommaso Gargano[1], Mario Lima[1]

[1]IRCCS Policlinico S.Orsola-Malpighi, Chirurgia Pediatrica, Bologna, Italy; [2]IRCCS Policlinico S. Orsola-Malpighi, Sviluppo Professionale e Implementazione della Ricerca Nelle Professioni Sanitarie, Bologna, Italy

Scopo: L'innesto di pelle di pesce (IPP) è utilizzato per il management di complesse ferite chirurgiche, ulcere cutanee ed ustioni. Lo scopo di questa *review* è riassumere gli usi dell'IPP descritti in letteratura e presentare il primo caso di IPP in età pediatrica per una deiscenza completa di ferita chirurgica addominale.

Metodi: Utilizzando *Pubmed* e *UptoDate*, abbiamo condotto una revisione della letteratura, includendo 21 articoli. Inoltre, abbiamo presentato il *case report* di un paziente di 7 anni, sottoposto ad IPP per una deiscenza di ferita chirurgica presso il nostro reparto di Chirurgia Pediatrica, Sant'Orsola, Bologna.

Risultati: L'IPP è stato applicato ad un paziente di 7 anni con una deiscenza (di 5 x 5 cm) di ferita chirurgica laparotomica in malattia di Hirschsprung, verificatasi in VII giornata post-operatoria (GPO). In L GPO, per lo scarso beneficio ottenuto con le medicazioni avanzate (riduzione di 0,5 x 0,4 cm), è stato applicato l'IPP con contestuale posizionamento della VAC per una miglior gestione dell'essudato. Dopo 7 giorni, il patch è stato riassorbito e la VAC rimossa. Abbiamo osservato una riduzione della deiscenza di 4 x 3,5 cm e la guarigione completa rispettivamente dopo 30 e 40 giorni dall'applicazione.

Conclusioni: Nel caso da noi riportato, l'applicazione dell'IPP ha consentito di ottenere una rapida guarigione della ferita chirurgica deiscente. Le applicazioni dell'IPP descritte in letteratura su ustioni, ferite acute e croniche ed ulcere da piede diabetico garantiscono numerosi vantaggi, specialmente in termini di tempo di guarigione e di risultato estetico, comparato agli innesti comunemente usati.

PP066 INFEZIONI CUTANEE DA GERMI MULTIRESISTENTI: CASO CLINICO

Matteo Costa[1], Elisabetta Blasi Vacca[1], Roberta Prinapori[1], Nicoletta Bobbio[1], Silvia Boni[1], Filippo Del Puente[1], Marcello Feasi[1], Andrea Parisini[1], Barbara Picchi[1], Daniela Fiorellino[1], Stefania Puppo[1], Emanuele Pontali[1]

[1]Ente Ospedaliero "Ospedali Galliera", Malattie Infettive, Genova, Italy

Scopo: Valutazione e trattamento di fascite e osteomielite arto inferiore da *Pseudomonas aeruginosa* multi-drug-resistant (MDR) in paziente affetto da co-infezione HIV/HCV.

Metodi: Analisi retrospettiva di caso clinico di soggetto ricoverato presso la Struttura Complessa Malattie Infettive dell'Ente Ospedaliero Galliera di Genova dal 23/05/2022 al 05/10/2022.

Risultati: Accesso in pronto soccorso per ulcera settica arto inferiore destro. Riscontro radiologico di osteomielite e fascite con edema dei piani fasciali cutanei e sottocutanei pancompartimentali con falde fluide e colata nel contesto del sottocute. Avviava terapia antibiotica empirica con daptomicina cui veniva associata piperacillina/tazobactam per mancata risposta clinica. In data 16/6 eseguiva fasciotomia e curettage delle ulcere trofiche. Dal 27/6 sostituiva terapia antibiotica con meropenem a seguito di peggioramento clinico. Eseguiva quindi biopsia cutanea con isolamento di *Pseudomonas aeruginosa* respistente a piperacillina/tazobactam. Si assisteva a iniziale risposta clinica cui tuttavia seguiva nuovo peggioramento per cui il 12/8 effettuava nuova biopsia con isolamento colturale di *P.aeruginosa* resistente ai carbapenemi. Avviava terapia di associazione con ceftolozane/tazobactam+ ciprofloxacina con successiva negativizzazione degli indici di flogosi e progressiva granulazione del fondo della lesione per cui in data 23/9 si procedeva ad intervento di innesto cutaneo con completo attecchimento. Concluso in data 25/9 il trattamento antibiotico. Successivo regolare follow presso il Centro Lesioni Cutanee con prosecuzione medicazioni avanzate antisettiche e completa riepitelizzazione cutanea e regressione radiologica del focolaio osteomielitico.

Conclusioni: In corso di fascite, soprattutto se sostenuta da germi MDR è essenziale l' approccio combinato medico e chirurgico .

PP067 GESTIONE DOMICILIARE IN UN PAZIENTE CON LESIONE COMPLESSA DI GAMBA

Fabio Bellini[1], Ilaria Teobaldi[2]

[1]Resana Srl; [2]Sanitaria Ortopedia Borgo Roma, Verona, Italy

Scopo: Gestione domiciliare di un paziente complesso con lesione di gamba post ricostruzione chirurgica con tessuti autologhi.

Metodi: Donna,75 anni, cardiopatia, obesità. Asportazione chirurgica di sarcoma arto inferiore dx e successivo trapianto di tessuto autologo da addome, post trattamento chemio e radio terapico. Lesione gamba destra, 80x80 cm, gestita a domicilio da maggio a novembre 2020 attraverso debridement (meccanico, enzimatico, autolitico), medicazioni non aderenti e bendaggio multistrato anelastico a pressione graduata. In agosto 2020 innesto di cute su tessuto non sano, parzialmente rigettato.

Risultati: In sei mesi di gestione infermieristica domiciliare modulando il tipo di debridement, medicazione e bendaggio multistrato è stato possibile portare la lesione a guarigione, promuovendo la deambulazione e una buona qualità della vita della paziente.

Conclusioni: La conoscenza e le competenze dell'Infermiere Specialista in Wound Care e Flebologia sono essenziali nella gestione delle lesioni, in particolare quelle complesse in cui è necessario saper modificare il trattamento locale, identificare e raggiungere obiettivi intermedi per ottimizzare la fisiologica riparazione tissutale e, in ultimo, arrivare alla guarigione/remissione della lesione.


10/09/2020
10/09/2020
05/10/2020
01/11/2020
25/11/2020
25/11/2020

PP068 UNA PASTA LENITIVA COME TRATTAMENTO LOCALE NEL LINFOMA ANAPLASTICO CUTANEO PRIMITIVO A GRANDI CELLULE (C-ALCL): CASO CLINICO

Maria Tangianu[1], Nella Mosca[1], Alessia Bartolini[1], Luciano Del Papa[1], Jacopo Fiorini[2], Alessandro Sili[2]

[1]Policlinico Tor Vergata, Ambulatorio Infermieristico, Roma, Italy; *[2]Policlinico Tor Vergata, UOC Direzione Infermieristica, Roma, Italy*

Scopo: Comprendere attraverso un case-report come l'applicazione di una pasta lenitiva insieme alla gestione del wound care nurse (WCN) riduca il dolore e favorisca la guarigione delle lesioni da C-ALCL. Questo è un raro linfoma non-Hodgkin, caratterizzato da neoformazioni/placche cutanee eritematose che possono ulcerarsi e/o essere pruriginose.

Metodi: Previo consenso, un paziente con C-ALCL di sesso maschile, etiopico, 48 anni, con lesioni su mammella e ipocondrio sx è stato arruolato nell'ambulatorio Infermieristico a Novembre 2021. Il WCN ha valutato la lesione secondo il protocollo TIMERS®, eseguito tampone microbiologico e implementato un approccio che prevedeva (1) applicazione locale 2 volte/settimana di una pasta lenitiva a base frazioni di insaponificabili di estratti vegetali e ossido di zinco, agente come eutrofizzante e di rigenerazione tissutale, (2) gestione del dolore (medicazione atraumatica/antiaderente) e (3) dell'essudato (medicazioni primaria in alginato e secondaria schiuma in poliuretano). Il dolore è stato valutato con la NRS scale e le lesioni documentate fotograficamente.

Risultati: Il paziente è stato seguito per 21 accessi con l'approccio WCN, associato a terapia chemioterapica e antibiotica. All'ingresso è stata gestita la carica batterica per tampone positivo: Enterococcus faecium (multiresistente, nosocomiale). Il paziente ha proseguito l'approccio del WCN al domicilio, grazie agli interventi educativi di self-care, fino alla guarigione a Marzo 2022, registrando una diminuzione del dolore contemporanea alla riparazione tissutale.

Conclusioni: L'applicazione della pasta lenitiva ad ogni medicazione in associazione alla terapia chemioterapica e antibiotica, ha ridotto il dolore e ha permesso la riparazione tissutale, dimostrandosi efficace dal percorso ambulatoriale all'educazione domiciliare del self-care.

PP070 LA RIATTIVAZIONE DEL TROFISMO TISSUTALE E DI RIGENERAZIONE VASCOLARE, ANCHE SU CUTE LESA ED IN CORSO DI PROCESSI INFIAMMATORI, AD OPERA DI UNA MISCELA DI FRAZIONI INSAPONIFICABILI DI OLI VEGETALI E POLLINE – CASI CLINICI

Sonia Silvestrini[1], Marta Nassi[2]

[1]Az Ospedaliera San Giovanni Addolorata di Roma, Medicina, Roma, Italy; *[2]Az Ospedaliera san Giovanni Addolorata di Roma, Cardiologia, Roma, Italy*

Scopo: La miscela di frazioni insaponificabili di oli vegetali e polline, di consistenza oleosa, favorisce la rigenerazione del circolo e del trofismo dei tessuti, essendo cheratoplastico, idratante ed un potente agente anti invecchiamento, riattiva e ristbilisce il trofismo cutaneo.

Metodi: Nello specifico, è stato impiegato nel trattamento di ferite complesse, lesioni da pressione, prevenzione e trattamento di cicatrici, lesioni cutanee a riparazione tardiva e no-healing, ulcere del cavo orale e nell'esfoliazione cutanea secondaria a reazioni iatrogene. Previo detersione con soluzione fisiologica (consigliato) è stata applicata la miscela 2 volte al giorno, sia su cute lesa, che nello spazio perilesionale e in aree necrotiche.

Risultati: L'applicazione ha favorito lo sbrigliamento delle aree necrotiche, nelle ferite altamente essudanti ne ha ridotto la produzione, nelle lesioni no-healing ha favorito la risoluzione.

Conclusioni: I pazienti trattati hanno dimostrato un notevole abbassamento della sintomatologia dolorosa percepita e rapportata alle lesioni cutanee di cui erano affetti, complianti e collaborativi alle procedure di trattamento. Tutte ferite trattate hanno tratto beneficio, grazie alle particolari caratteristiche anti lipoperossidative e cheratoplastiche in grado di far penetrare i principi attivi quantitativamente a livello profondo, anche su cute intatta o ipercheratosica e nei pazienti con esfoliazione totale di causa iatrogena è stato riscontrato il ripristino totale e valido del piano cutaneo, con trofismo valido.

PP071 DEBRIDEMENT CON TAGLIENTI E INFERMIERE ESPERTO IN WOUND CARE: LA LETTERATURA E LA REALTÀ CLINICA

Maria Teresa De Rose[1], Paola Gobbi[2], Ornella Forma[3]

[1]Istituti Clinici Zucchi Monza, Monza, Italy; [2]ATS Brianza - Sede di Monza, Monza, Italy; [3]San Raffaele, Milano, Italy

Scopo: Il debridement è la rimozione di tessuti non vitali o contaminati da una lesione. Esistono varie tecniche fra cui quella con taglienti, che presenta il vantaggio della rapidità ma anche rischi come dolore, sanguinamento e danneggiamento del tessuto vitale. Nel debridement con taglienti l'infermiere esperto in Wound Care utilizza forbici e bisturi. Per capire se questa pratica in Italia sia legittima vengono analizzate le leggi 42/1999, 8 marzo 2017 n. 24 e il Codice Deontologico dell'Infermiere.

Metodi: Per indagare il rapporto fra debridement con taglienti e infermiere esperto in Wound Care viene analizzata la letteratura (PUBMED e CINAHL). Sulla base dei risultati, viene definita l'intervista strutturata posta agli infermieri esperti in Wound Care di 3 ospedali lombardi.

Risultati: La letteratura: l'ambito di applicazione del debridement con taglienti varia in ogni Nazione, perciò è obbligatorio riferirsi alla propria giurisprudenza. Emergono l'importanza della formazione avanzata e di algoritmi per supportare il processo decisionale. Il 92% degli infermieri intervistati in un articolo lo definisce legittimo.

Le interviste: gli infermieri esperti utilizzano il debridement con taglienti e sono consapevoli che il bisturi sia un device medico. Ritengono che la formazione avanzata unita all'esperienza autorizzino tale pratica. Viene suggerita la creazione di indicazioni guida.

Conclusioni: Quanto emerso dalle interviste è in linea con la letteratura. Si avverte la necessità di creare un documento di posizionamento sull'uso degli strumenti taglienti (in particolare del bisturi) da parte di un team multidisciplinare. In uno dei centri ospedalieri coinvolti nello studio è stato istituito un gruppo di lavoro per la produzione di tale documento.

PP072 WOUND CARE E TECNOLOGIA: RITORNO ALLA NATURA

Alessandro Corsi[1], Ornella Forma[1], Bertulli Gianluca[1]

[1]Ospedale San Raffaele, U.O. Vulnnologia, Milan, Italy

Scopo: La Tecnologia è ormai presente in Vulnologia in tutti i settori, dalla diagnostica al trattamento, dall'elaborazione delle immagini e dei dati alla rielaborazione del rapporto tra sanitario e paziente tramite la TeleMedicina. Nonostante il rilevante influsso della elettronica, è possibile, tuttavia, riscontrare come, ancora oggi, siano presenti chiari richiami alla "Medicina Tradizionale", rilevabili attraverso il ricorso a prodotti e sostanze di derivazione del tutto naturale. Il tentativo di questa analisi è quello di evidenziare come viene percepita, da sanitari e pazienti, la presenza di prodotti di origine naturale nei vari aspetti della Wound Tech Care.

Metodi: È stata effettuata una revisione delle medicazioni, tradizionali, interattive e con tecnologi applicata, oltre che dei devices e dei sostituti cutanei di più comune utilizzo, evidenziando i prodotti in cui è possibile evidenziare la presenza di una o più sostanze derivanti dal Mondo Animale o Vegetale. Un questionario è stato distribuito a 30 operatori sanitari del Wound Care è a 30 pazienti vulnologici.

Risultati: Pressoché in tutti i settori del Wound Care è possibile riscontrare l'utilizzo di prodotti che, seppur tecnologicamente modificati o manipolati, non sono completamente di sintesi, provenendo da realtà che percepiamo come "naturali".

Conclusioni: Anche se apparentemente di scarsa rilevanza, il ricorso a materiali e sostanze appartenenti a classi considerate come basilari nel ciclo esistenziale, può comportare non solo un possibile risparmio in fase di produzione dei prodotti che le incorporano, ma può anche far crescere la fiducia nell'utilizzatore e, soprattutto, nel paziente che con questi viene trattato, per la naturale tendenza a valorizzare il potere autorigenerante e riparativo della Natura.

PP073 DEBRIDEMENT ENZIMATICO PRECOCE A BASE DI BROMELINA PER IL TRATTAMENTO DI USTIONI A TUTTO SPESSORE

Filippo Azzarone[1], Vincenzo Abbasciano[1], Emiliana Spina[1], Giulio Maggio[1], Claudio Termite[1]

[1]*Policlinico di Bari, Bari, Italy*

Scopo: Le ustioni estese e profonde costituiscono una patologia severa e presentano un alto indice di mortalità (12%). Si presenta il caso di un paziente gravemente ustionato ricoverato presso il Centro Grandi Ustionati del Policlinico di Bari affetto da ustioni termiche provocate da liquido ad elevata temperatura. Obiettivo dello studio è valutare l'efficacia di un nuovo prodotto a base di bromelina ed enzimi proteolitici nell'effettuare una escarolisi enzimatica selettiva precoce, in grado di rimuovere nelle prime 24 ore tutti i tessuti necrotici, migliorando la sopravvivenza del paziente.

Metodi: Valutazione della percentuale delle ustioni a tutto spessore (20%) attraverso la regola del 9 di Wallace, rilevando le caratteristiche del tessuto secondo i principi della WBP e del TIME. Detersione con soluzione salina e preparazione del letto di ferita mediante la applicazione tempestiva (nelle prime 24 ore) di un prodotto enzimatico e base di bromelina , copertura dello stesso con film protettivo in poliuretano per 4h e successiva medicazione atta a mantenere l'ambiente umido.

Risultati: La metodica proposta ha consentito lo sbrigliamento selettivo e precoce del tessuto necrotico preservando il derma vitale residuo che, opportunamente trattato con medicazioni avanzate, costituisce un wound bed ideale per l'attecchimento degli innesti cutanei.

Conclusioni: L'escarolisi enzimatica precoce è utile nella rimozione totale dell'escara nelle prime 24 ore, soprattutto nelle ustioni circonferenziali degli arti, ottimizzando la preparazione del letto della ferita pronto per essere innestato ed incidendo in maniera ottimale sulla durata della degenza ospedaliera e sulla sopravvivenza del paziente.

PP074 IMPIEGO DI MULTITECNOLOGIE IN UN PERCORSO ASSISTENZIALE COMPLESSO: ANALISI DI UN CASO CLINICO

Sara Sandroni[1], Elisa Marinelli[1]

[1]*Azienda USL Toscana Sudest, Italy*

Scopo: L'Azienda Sanitaria a cui appartengo si avvale di una struttura di assistenza domiciliare con diversi livelli di competenza con possibilità di gestione di casi complessi o con percorsi da allineare in team multidisciplinare al domicilio dell'assistito, luogo di cura principe per l'assistito.

Il case report rappresenta uno standard of care dove oltre al team multiprofessionale sono state messe in campo anche tecnologie differenti di dispositivi medici.

Metodi: Donna 88 anni, insufficienza venosa cronica, in terapia anticoagulante orale ed antiipertensiva. Post trauma domestico effettua un accesso in DEA per lesione traumatica lacero-contusa arto inferiore sinistro, estensione 10x9x1cm, con trattamento da parte di medico specialista chirurgia generale di emergenza di parziale accostamento del lembo cutaneo (in parte mancante) con punti di sutura, steri-strip e medicazione di copertura con garza grassa successivamente inviata all'ambulatorio specialistico lesioni cutanee. Effettuata terapia compressiva post valutazione specialista vascolare.

E'stato impostato un piano di trattamento post valutazione e rimozione dei punti di sutura e debridement baseline TIME 0, impostato un piano di medicazioni bisettimanali con medicazioni avanzate antisettiche/bioattive di nuova generazione e terapia a pressione negativa monouso.

Risultati: Sono stati valutati i dati relativi a:

- Percentuale di riduzione area della lesione
- Wound Bed Preparation WBP – BWAT Score
- Customer satisfaction – Likert Scale
- Valutazione dolore VAS Scale.

Conclusioni: La costruzione di piani strutturati multiprofessionali con un portafoglio di dispositivi medici a diversa complessità rappresenta un valore aggiunto imprescindibile per il miglioramento della qualità assistenziale e degli esiti assistenziali.

PP075 IL RUOLO DELLE MEDICAZIONI A CAPTAZIONE BATTERICA NELLE USTIONI CUTANEE DI II-III GRADO COMPLICATE: DESCRIZIONE DI UN CASO CLINICO

Giuseppe Giannetto[1]

[1]*Ospedale "Giuseppe Fogliani", Chirurgia Generale, Milazzo, Italy*

Scopo: Dimostrare la sicurezza e l'efficacia delle medicazioni a captazione batterica nel trattamento delle ustioni cutanee di II-III grado complicate.

Metodi: Trattamento di un'ustione cutanea in un paziente 80enne mediante l'impiego di medicazioni a captazione batterica in varie formulazioni e formati.

Risultati: Le medicazioni a captazione batterica seguendo un determinato timing e secondo la progression e lo stadio delle ustioni cutann hanno consentito di reggiungere ottimali risultati in termini di complete guarigione e di controllo delle complicanze prima fra tutte l'infezione.

Conclusioni: Un corretto utilizzo delle medicazioni a captazione batterica ha consentito di raggiungere la guarigione di multiple ustioni di II-III grado a carico della cute dell'arto inferior in un paziente 80enne assolvendo il compito del controllo dell'infezione d dell essudato senza applicazione topica di agenti antimicrobici che rilasciano sostanze antibatteriche con potenziali reazioni cruciate, tossicita' e sviluppo di antibioticoresistenza.

PP076 EFFICACY OF EXTRACORPOREAL SHOCK WAVE THERAPY (ESWT) IN THE TREATMENT OF KELOIDS AND HYPERTROPHIC SCARS: PRELIMINARY RESULTS

Roberto Cassino[1]

[1]*"Sacra Famiglia" Korian Nursing Home, Geriatrics - Long Term Care, Pieve del Cairo, Italy*

Aim: ESWT demonstrated great efficacy in reactivating chronic lesions by increasing tissue oxygenation, stimulating endogenous growth factors and optimizing local metabolism. Such actions can be very effective in the treatment of scar tissue, keloids and hypertrophic scars.

Method: The work is still in progress. We have currently enrolled 11 patients with keloids and hypertrophic scars; 5 of them completed the study; the enrollment target is 20. We used an electro-hydraulic focal shock wave generator (360 shocks/min; 0.23-0.33 mmJ/mm^2)*. The protocol provides for two weekly treatments for 6 weeks: 1500 shocks for each treatment in scars ≤5 cm, 2000 from 5 to 15 cm, 2500 >15 cm. We evaluated not only the visual result but also pain (spontaneous and with movement) and tissue elasticity.

Results: In all patients spontaneous pain completely disappeared within two treatments and pain on movement decreased (-71.7%); the tissues elasticity strongly improved (76.1%) and the visual results can be defined as very good to excellent.

Conclusion: Even if the sample is still small, this work is demonstrating the effectiveness of shock waves in the treatment of scars, not only from an aesthetic point of view. The analgesic effect is remarkable and the tissue elasticity has also shown a significant improvement.

*dermaPACE (Sanuwave - GA, USA)

PP077 RIGENERAZIONE TESSUTALE TRAMITE PRP ARRICCHITO IN MONOCITI. ESPERIENZA CLINICA SU 30 PAZIENTI

Alessandro Corsi[1], Ornella Forma[1]

[1]*Ospedale "San Raffaele", U.O. Vulnologia, Milano, Italy*

Scopo: Evidenza dei risultati clinici, in termini di ripresa del processo riparativo tisssutale, dell'applicazione di un gel arricchito in piastrine e monociti, in termini di guarigione ed esisti estetici e funzionali.

Metodi: 30 pazienti con lesioni cutanee croniche e acute sono stati trattati con innesto di gel piastrinico arricchito in monociti, su scaffold in collagene o cellulosa. Sono stati valutati i tempi di guarigione e le caratteristiche del tessuto neoformato.

Risultati: Tutti le lesioni trattate sono giunte a guarigione in tempi tanto più rapidi quanto più recente era il danno da riparare, con formazione di neotessuto con caratteristiche del tutto sovrapponibili a quelle originali.

Conclusioni: L'utilizzo del gel piastrinico arricchito in monociti rappresenta sicuramente uno dei trattamenti rigenerativi di maggiore efficacia, con risultati rapidi e stabili, in termini di qualità del neotessuto formato.

PP078 USE OF AN ACELLULAR FISH SKIN GRAFT IN THE TREATMENT OF "DIFFICULT" SKIN LESIONS

Alessandro Corsi[1], Ornella Forma[1], Giulia Vidotto[1], Lina Ognibene[1], Sara Maria Lupi[1], Anna Aloise[1], Umberto Cazzaro[1], Gaetano de Angelis[1], Bertulli Gianluca[1], Gaetano Pitoia[1]

[1]*Ospedale San Raffaele, U.O. Vulnologia, Milan, Italy*

Aim: Treatment of some wound defined "hard to heal" due to their aetiology and characteristics is at times limited due to the absence of biomaterials able to provide correct stimulation for healing. In this case series, we demonstrate the potential of acellular fish skin to re-start the tissue repair process. **Method:** Use of an acellular skin graft of fish origin, in the regenerative treatment of 20 wounds, both acute and chronic, which are considered to be "hard to heal" (Pyoderma Gangrenoso, digital ischemia, sternal surgical dehiscences, scalp wounds with bone exposed, necrotising fasciitis, chronic decubiti).

Results / Discussion: All the wounds treated showed strong re-start of the healing process, with a rapid response, and in 75% of cases, complete healing, with the resulting new tissue stable and with characteristics totally similar to the native one.

Conclusion: Bio-stimulation with acellular fish skin grafts proved to be effective even when treating "hard to heal" wounds, with optimal response timing and excellent regenerative outcome, both from a functional and an aesthetic point of view.

PP079 RETROSPECTIVE ANALYSIS OF A RANDOMIZED TRIAL PROTOCOL ON THE USE OF INTERACTIVE DRESSINGS AND NPW ON PATIENTS UNDERGOING MAJOR GASTROENTEROLOGY SURGERY

Alessandro Corsi[1], Ornella Forma[1], Riccardo Rosati[2]

[1]*Ospedale San Raffaele, U.O. Vulnologia, Milan, Italy*; [2]*Ospedale San Raffaele, U.O. Chirurgia, Milan, Italy*

Aim: Infections are one of the leading causes of postoperative morbidity in gastroenterological surgery. A negative pressure incision system has been shown to reduce the incidence of groin infections, although RCT data are not yet available. The objective is to evaluate the impact of negative pressure incision management in high-risk patients on surgical wound infections and/or wound dehiscence as well as the impact of DACC-coated dressings in low-risk patients.

Method: Patients meeting the requirements to undergo major gastroenterological surgery were enrolled and randomized into four arms, stratified according to the *Infection score Risk Scores for major infection after Coronary Artery bypass graft* (CABG):

Low-risk group (150 patients): Adhesive dressing with bacterial binding texture coating.

Low-risk control group (150 patients): standard dressing.

High-risk group (100 patients): topical negative pressure.

High-risk control group (100 patients): standard dressing.

Results / Discussion: 398 patients were enrolled in the present study.

250 low-risk patients: 125 were treated with the standard plaster: 30 of them developed a surgical site infection. Of the other 125 low-risk patients who received the experimental treatment, only 4 developed an infection.

148 patients were classified in the high-risk group: 74 were treated with the standard patch, 29 developed an infection; 74 high-risk patients treated by topical negative pressure developed a surgical site infection 4 patients.

Conclusion: An actual reduction in the incidence of surgical site infection was observed in both high-risk and low-risk patients approached with the investigational treatment

PP080 VALUTARE L'EFFICACIA CLINICA NELL'UTILIZZO DI UN SISTEMA CON FLUSSO IDROMOLECOLARE CONTROLLATO NELLA GESTIONE DELL'IGIENE DEL PAZIENTE NELL' AMBULATORIO VULNOLOGICO

Sara Maria Lupi[1], Gianluca Bertulli[1], Anna Aloise[1], Umberto Cazzarò[1], Gaetano De Angelis[1], Lina Carmela Ognibene[1], Giulia Vidotto[1], Ornella Forma[1], Alessandro Corsi[1]

[1]*San Raffaele, Milano, Italy*

Scopo: Monitorare i risultati che si possono ottenere con l'utilizzo del flusso idromolecolare controllato con aggiunta di soluzione detergente, nella gestione dell'igiene e soprattutto della cute perilesionale nei pazienti portatori di ulcere degli arti inferiori.

Metodo: Questo nuovo principio, assolutamente unico nel suo genere, permette di frazionare il flusso d'acqua in uscita in molecole e di erogarla con estrema precisione sulla parte del corpo che si intende trattare. L'impatto della pressione di erogazione sulla pelle avviene alla bassissima pressione di circa 1,7 BAR *(o 24,6 Libbre)* inferiore alla pressione dell'acqua in uscita da qualsiasi rubinetto domestico e da questo si comprende l'estrema delicatezza e gradevolezza che viene percepita sulla pelle dal paziente. L'altra importante caratteristica è che il flusso idro-molecolare è controllato, cioè non crea dispersioni di liquido e permette di evitare di bagnare le parti del corpo che devono essere lasciate asciutte (medicazioni, drenaggi ecc…).

Risultati: Abbiamo arruolato 60 pazienti con accesso bi-settimanale per 3 settimane. Ottima riduzione rapida della xerosi con idratazione della cute. Rimozione immediata di residui di creme e di medicazioni.

Conclusioni: Tutti i pazienti hanno dichiarato un senso di benessere e di sollievo mai percepito rispetto all'utilizzo delle manopole per l'igiene.

PP081 ULTRASUONI A BASSA FREQUENZA: NUOVO SCENARIO NELLA WBP: STUDIO OSSERVAZIONALE MULTICENTRICO

Anna Morgese[1]

[1]ASLBA, Unita´Operative Chirurgia Generale, Molfetta, Molfetta, Italy

Scopo: valutare l'efficacia e la rapidità degli ultrasuoni nel disgregare il biofilm dal letto della lesione e nel riattivare il processo infiammatorio.Migliorare la compliance del paziente riducendo il dolore procedurale, la durata e il numero dei trattamenti.

Metodi: Studio pilota osservazionale multicentrico condotto in 8 centri da settembre 2021 a marzo 2022. 86 pazienti trattati portatori di lesioni croniche di diversa eziologia; 39 uomini e 47 donne; età compresa tra 10 e 95 anni. Sono state utilizzate opportune schede per la raccolta dei dati ad ogni accesso. I criteri di inclusione ed esclusione sono stati esplicitati nel protocollo. Il dispositivo elettro-medicale utilizzato è composto da una consolle, 1 pompa peristaltica, 1 manipolo piezoelettrico che eroga ultrasuoni con un sistema 3D e punte di diversa forma ed uso.

Risultati: Nelle 86 lesioni trattate l'utilizzo del sistema in oggetto ha portato ad una riduzione del 74% di fibrina, del 84% di tessuto necrotico ed un incremento del 341% del tessuto di granulazione. Il dolore procedurale, valutato con scala di Vas, è stato di 4,05. La nebulizzazione è stata contenuta in 59 degli 86 pazienti trattati.

Conclusioni: L'utilizzo di tale metodica ha evidenziato molteplici vantaggi, quali: versatilità di utilizzo da parte del personale medico e infermieristico in diversi setting assistenziali, riduzione del dolore procedurale, del numero e della durata dei trattamenti , dei costi di ospedalizzazione e dei materiali di consumo, del numero di accessi in sala operatoria. In assenza di un corpus consistente di specifiche evidenze scientifiche, i risultati derivati da tale studio motivano ed incoraggiano ulteriori progetti di approfondimento su tale tecnologia applicata al debridement.

PP082 DEBRIDMENT CON DISPOSITIVO MEDICO AD ULTRASUONI E SETOLE A DIVERSA RESISTENZA E FORZA DI AZIONE

Arturo Caniglia[1]

[1]*ASST Istituto Ortopedico Traumatologico Getano PINI-CTO, Ortopedia e Chirurgie Generali, Milano, Italy*

Scopo: Dimostrare l'efficacia di un dispositivo sterile monouso con trasduttore a ultrasuoni e spazzolino a setole di differente rigidità nello sbrigliamento di ulcere croniche. Gli ultrasuoni, veicolati da gel o soluzione fisiologica sterile, permettono di disgregare il biofilm batterico tramite la formazione di microbolle. Le setole permettono una macro-abrasione e, tramite vibrazione permettono anche una micro-abrasione.

Metodi: Sbrigliamento con trasduttore a ultrasuoni e spazzolino a setole di differente rigidità effettuato dopo impacco per 10' con poliesanide e probilbetaina; setole mantenute bagnate con soluzione fisiologica durante il trattamento. Medicazione primaria con idrofibra dopo lo sbrigliamento, cambio medicazione due volte a settimana, eseguiti sempre nello stesso ambulatorio dagli stessi professionisti opportunamente addestrati.

Paziente maschio ottantacinquenne, non fumatore, ulcera cutanea gamba sinistra (Fig,1) insufficienza venosa agli arti inferiori, infezione da serratia marcenscens.

Risultati: Lo sbrigliamento è avvenuto con successo, il trattamento durato 15 minuti (Fig.2) ha permesso la rimozione del 70% di biofilm presente sul letto di ferita (Fig. 3) già al primo trattamento riattivando anche i bordi della lesione.

Fig. 1 Prima del trattamento

Fig. 2 Durante il trattamento

Fig. 3 dopo trattamento 15'

Conclusioni: L'utilizzo del dispositivo a ultrasuoni con setole a doppia resistenza si dimostra un valido supporto di prima scelta per trattare lesioni difficili in ambulatori gestiti da personale infermieristico specializzato. Lo sbrigliamento profondo, atraumatico, permesso la riattivazione dei bordi della lesione ed ha promosso l'attiva di riparazione eliminando e disgregando il biofilm presente sul letto della lesione. Il trattamento è risultato indolore; è comunque possibile applicare anestetici locali in crema sul letto della lesione da trattare 15' o 20' prima di iniziare il trattamento.

PP083 OXYGEN WOUND THERAPY DEVICE : IL FLUSSO CONTINUO DI OSSIGENO PURO UMIDIFICATO E FERITE COMPLICATE DA OSTEOMIELITE - 'OLTRE LE LINEE GUIDA'- STUDIO OSSERVAZIONALE

Sonia Silvestrini[1]

[1]*Az Ospedaliera San Giovanni Addolorata di Roma, Medicina, Roma, Italy*

Scopo: Perché una ferita guarisca, ha bisogno di ossigeno, sostanze nutritive, energia e di un sistema vascolare perfettamente funzionante che porti le risorse necessarie alla ferita e rimuova le scorie dalla ferita ed è essenziale ripristinare la macro e microcircolazione nel tessuto circostante.

È di fondamentale importanza disporre di un dispositivo che fornisca un flusso continuo di ossigeno puro/umidificato al letto della ferita di 12-14 ml/h, con perfusione continua nelle 24 ore.

Le attuali linee guida in materia non prevedono l'utilizzo di flusso continuo di ossigeno puro umidificato sulle ferite complicate da osteomielite.

Metodi: 1. Donna di 26 anni con ferita sotto il calcagno sinistro presente da circa 10 anni, secondaria ad incidente stradale, complicata da osteomielite

2. Uomo di 36 anni con ferita all'arto inferior sinistro presente da circa 3 anni, per esser stato disarcionato e investito da cavallo in corsa, complicata da osteomielite

3. Uomo di 42 anni, con ferita sotto il calcagno destro presente da circa 2 anni, secondaria ad incidente stradale, complicata da osteomielite e danno neurologico

Tutti i pazienti in carico avevano una diagnosi di amputazione e le loro ferite sono state trattate con il dispositivo Oxygen Wound Therapy che fornisce un flusso continuo di ossigeno puro al 98% e umidificato sul letto della ferita di 12-14 ml/h, con perfusione continua per 24 ore.

Risultati: L'ipossia prolungata può mantenere condizioni pro-infiammatorie e prevenire la guarigione della ferita. L'aumentato del consumo di ossigeno da parte dei neutrofili attivati, può ostacolare la guarigione della ferita, pertanto l'apporto di ossigeno direttamente sul letto della ferita ne favorisce la guarigione, soprattutto nelle ferite complicate da osteomielite nel nostro specifico.

Conclusioni: Nelle linee guida, l'uso dell'ossigeno topico su ferite complicate da osteomielite, il beneficio non è specificato, sembra quasi indicato come una 'controindicazione'. Tutte le ferite dei pazienti trattati sono guarite in tempi diversi, evitando l'amputazione e gli esami strumentali e di laboratorio hanno evidenziato un miglioramento in tutte le osteomieliti. Riteniamo che quanto dimostrato debba essere oggetto di studio continuo.

PP084 TERAPIA CHIRURGICA DEL REFLUSSO VENOSO CON LASER ENDOVENOSO PER I PAZIENTI CON LINFEDEMA: FATTIBILITÀ E RISULTATI

Carlo Rivellini[1], Elena Roattino[1]

[1]*Ospedale Regina Montis Regalis, Chirurgico, Mondovì, Italy*

Scopo: Le tecniche ablative non solo hanno radicalmente cambiato lo scenario della terapia delle varici ma hanno reso possibile anche il trattamento di pazienti in cui solitamente è controindicata una chirurgia tradizionale come i pazienti gravemente obesi e con linfedema importante. Abbiamo analizzato retrospettivamente i pazienti con linfedema di varia etiopatogenesi e grado trattati con laser endovenoso con fibra a tecnologia dual ring (ELVeS) al fine di valutarne la sicurezza in questa popolazione definita ad alto rischio normalmente rifiutati alla terapia chirurgica ma anche l'efficacia in termini di terapia dell'edema linfatico.

Metodi: Sono stati analizzati 27 pazienti con linfedema, tutti gravemente obesi, di cui 7 con linfedema primitivo (linfoscintigrafia positiva) e 20 secondario, 13 di primo grado, 10 di secondo grado e 4 di terzo grado con quadri di elefantiasi. Tutti i pazienti erano gravemente obesi con BMI oltre i 35 e in 15 casi erano presenti segni di linfangite. Il protocollo di trattamento prevede l'uso di un laser a 1470 nm con fibra dual ring (ELVeS), in anestesia locale tumescente e in un setting di tipo ambulatoriale. Tutti i pazienti hanno ricevuto una terapia elastocompressiva post-operatoria con bendaggio multistrato. Tutti i pazienti sono stati inseriti all'interno di programmi finalizzati al calo ponderale e al cambiamento delle abitudini di vita.

Risultati: La procedura ha avuto un successo tecnico del 100% con una ottimale obliterazione di tutte le safene trattate con un tasso di complicanze pari a zero. A distanza di 3 mesi dall'intervento 19 pazienti hanno avuto un significativo miglioramento dell'edema (15 pazienti hanno anche ottenuto un significativo calo ponderale e una rimodulazione delle abitudini di vita) valutato mediante esame obiettivo, misurazione della circonferenza di gamba e valutazione ecografica delle lacune linfatiche. I pazienti che non hanno avuto un significativo giovamento dal trattamento sono stati quelli con linfedema di terzo grado e in minor misura quelli che non hanno ottenuto un calo ponderale significativo.

Conclusioni: Il protocollo ELVeS si è dimostrato efficace e sicuro nel trattamento del linfedema cronico, soprattutto quello secondario e di primo e secondo grado. Il controllo del peso corporeo si è dimostrato un elemento molto importante per il successo della procedura in termini di riduzione dell'edema.

PP085 IMPROVED WOUND STAGING AND GRADING USING A FLUORESCENCE IMAGING DEVICE

Corrado Durante[1]

[1]*Piazza Celimontana, 50, Ispettorato Generale della Sanità, Roma, Italy*

Aim: Nelle hard to heal wounds risulta essenziale eseguire un corretto assessment della ferita soprattutto in caso di second clinical evaluation (ferita già trattata presso altro centro di cura). Ottenere un adeguato assessment significa stabilire con precisione e accuratezza sia lo stadio di gravità della lesione che il grado di compromissione tessutale associato.

Se nella stadiazione di una hard to heal wound ci si può avvalere di numerosi documenti di consenso e/o di specifiche guidelines, nell'attribuzione del grading vanno considerati alcuni fattori aggiuntivi che non sempre è semplice valutare; tra essi la valutazione della carica batterica o del biofilm risulta spesso un elemento determinante per programmare un piano concreto di cure locali e sistemiche.

Method: In the outpatient wound care clinic of the Complex Operative Unit of Orthopedics and Traumatology of the Army Military Hospital, da alcuni mesi, misuriamo sulle hard to heal wounds – di routine - la carica microbica/biofilm con un *Bacterial Fluorescence Imaging Device (BFID)*al fine di ottenere oltre un opportuno staging anche un valido grading della ferita.

Results: L'utilizzo quotidiano di un BFID, nella nostra esperienza, ci ha permesso di riprogrammare completamente la strategia operativa dall'inquadramento diagnostico al trattamento locale; infatti l'immediata e ripetibile valutazione della presenza batterica – senza attendere la risposta del tampone colturale – ha guidato non soltanto l'utilizzo del tipo di soluzione antisettica e attestato l'efficacia del debridement eseguito ma soprattutto ha permesso di scegliere le medicazioni più appropriate e di evitare terpie antibiotiche superflue.

Conclusioni: Nel overall wound assessment the staging e grading giocano un ruolo fondamentale perchè detteranno il piano terapeutico e le effetive opportunità di guarigione. Nelle hard to heal wounds poter disporre di un BFID per stabilre con maggior precisione il wound grading legato alla presenza di microrganismi e quindi the severity of the injury, consente agli operatori di agire in modo mirato, sia in fase diagnostica che terapeutica, offrendo maggiori possibilità di guarigione anche nei casi più complessi e complicati.

PP086 L'USO DELL'OSSIGENOTERAPIA TOPICA NELLA GESTIONE DELLE LESIONI DEL PIEDE DIABETICO

Andrea Passoni[1], Sara Lupi[2]

[1]*Presidio Territoriale di Merate | ASST di Lecco, Neuroscienze , Merate, Italy;* [2]*San Raffaele, Vulnologia, Milano, Italy*

Aim: In wound care, the importance of oxygen in the tissue re-epithelialization is known. In fact, oxygen plays an essential role in every stage of the wound healing process; any impairment of the supply of this element can therefore delay its repair. Is topical oxygen therapy a useful tool to help the process of remission of diabetic foot ulcers?

Method: This review was carried out from September 2021 to January 2022; in Pubmed, Cinahl and Cochrane databases. It had a margin of 5 years.

Results / Discussion: The application of topical oxygen therapy resulted in complete remission of grade 1 ulcers, 100% and 50% lesion size reduction in ulcers grade 2, 3 and above (Texas Scale). Compared with patients treated with TWO2 (91), an almost nine times greater risk of hospitalization and five times greater risk of amputation was demonstrated for patients who were not treated with TWO2 (111 patients). The mean results of all 6 ulcers demonstrated a transition: from a flora dominated by anaerobes at baseline to a flora rich in aerobic species after 8 weeks of continuous topical oxygen.

Conclusion: Topical oxygen therapy could be considered an effective type of treatment for the management of diabetic foot ulcers, in terms of: reduction of the extension of the lesion, acceleration in remission times and probable reduction of the risk of amputation. To obtain results with statistically significant data it is necessary to carry out studies with larger samples.

PP087 ROLE OF MICROSURGERY IN THE TREATMENT OF NON-HEALING WOUNDS

Laura Grezar[1], Vittorio Ramella[1], Stefano Bottosso[1], Federico Novati[1], Alessia De Grazia[1], Agostino Rodda[1], Grace Marchi[1], Giovanni Papa[1]

[1]*University of Trieste, Plastic Surgery Unit, Department of Medical Surgical and Health Sciences, Trieste, Italy*

Aim: Non-healing wounds are characterized by a high socio-medical impact, with a prevalence of up to 5% after the age of 65, a high rate of non-healing (20% at two years) and a very high rate of recurrences (67%). The purpose of this study is to demonstrate how microsurgery can be a valid therapeutic option in carefully selected patients, guaranteeing complete time-effective healing and functional recovery.

Method: Patients were selected on the basis of election criteria, such as the absence of granulation/healing signs after adequate debridement and conservative treatment, no relevant comorbidities, good compliance, restoration of a pre-existing function. All patients underwent accurate instrumental diagnostic classification through Echo-color Doppler, TcPO2, CT Angiogram, deep sampling with consequent targeted antibiotic therapy in presence of signs of local infection, angiography in view of the need for revascularization.

Results / Discussion: Patients with non-healing wounds from various aetiologies such as diabetic foot, chronic osteomyelitis, complicated traumatic wounds, surgical dehiscences with exposure of fixation devices were included in the study. The parameters of choice for the most suitable flap were good vascularisation to guarantees adequate blood flow, thickness that allows the use of footwear, load and traction resistance. In all cases treated with microsurgical reconstruction, complete healing was obtained, with restoration of functionality and no recurrence. In no case was there any loss of the free flap.

Conclusion: In the treatment of non-healing wounds microsurgery represents the final phase of a broader path, which is in fact based on a multidisciplinary step by step approach that starts from an accurate general classification of the patient, wound preparation, careful surgical planning, patient education and follow up.

PP088 LA DUROMETRIA NELLO SCREENING DEL PIEDE DIABETICO COME STRUMENTO DI PREVENZIONE PER LE ULCERE PLANTARI

Jessica Sangiorgi[1], Francesco Uccelli[2], Marco Romanelli[1]

[1]*Università di Pisa, Pisa, Italy*; [2]*Azienda Ospedaliero Universitaria Pisana Cisanello, Pisa, Italy*

Scopo: Questo studio sperimentale ha lo scopo di valutare se esiste una correlazione tra eventuale ulcerazione nel piede diabetico e la durezza cutanea, evidenziarne i valori limite, misurandola con il Durometro durante la visita podologica ed intrecciandola con la valutazione neuropatica e vascolare.

Metodi: E'stata realizzata una complessa scheda podologica anamnestica, utilizzata durante la visita ambulatoriale di screening del piede diabetico nella quale venivano fra l'altro evidenziate tramite gli appositi test, la presenza di neuropatia, vasculopatia periferica e durezza cutanea in scarico.

Risultati: Se non è stato possibile evidenziare una diretta correlazione con l'età anagrafica, né realizzare una scala univoca ripetibile tra la presenza di lesioni e durezza cutanea, ne è altresì emersa la chiara correlazione diretta con la vasculopatia (valori soglia avampiede 41.8 shore e 50 shore al retropiede), con le ulcere al retropiede (valore soglia di fissurazione di 51,9 shore), mentre c'è una proporzionalità inversa tra sensibilità termica e durezza cutanea plantare (con circa uno shore di 39.9 all'avampiede e una media al retropiede di 50,4 shore). Si può ragionevolmente affermare che l'atteggiamento posturale del paziente, il carico a terra ma soprattutto il tipo di complicanza al piede diabetico, tramite analisi sulla Pedana Baropodometrica (non oggetto dello studio), concorrono al variare della durezza cutanea.

Conclusioni: L'obiettivo finale è aver dimostrato l'utilità del Durometro durante una visita di screening del piede diabetico poiché varia la durezza della pianta del piede al variare della complicanza diabetica vascolare e conseguente classe di rischio.

PP089 LA TERAPIA FOTODINAMICA : L'AGENTE FOTOSENSIBILIZZANTE, ATTIVATO DALLA LUCE CHE REAGISCE CON L'OSSIGENO PRESENTE NEI TESSUTI, CONSENTENDO L'IMMEDIATA RIDUZIONE DELLA CARICA BATTERICA NELLE ULCERE DEL'PIEDE DIABETICO' FACILITANDONE LA GUARIGIONE – STUDIO OSSERVAZIONALE

Sonia Silvestrini[1], Marta Nassi[2]

[1]Az Ospedaliera San Giovanni Addolorata di Roma, Medicina, Roma, Italy; [2]Az Ospedaliera San Giovanni Addolorata di Roma, Cardiologia, Roma, Italy

Scopo: Il piede diabetico rappresenta una delle condizioni cliniche più diffuse nella popolazione diabetica: su 425 milioni di malati di diabete nel mondo (3,5 milioni in Italia), destinati a diventare 642 milioni nel 2040, ne soffre una percentuale compresa tra il 15 e il 34%. Questa patologia genera lesioni cutanee spesso complesse e croniche, infezioni, che possono aggravarsi fino a determinare l'amputazione dell'arto colpito e/o compromesso, situazione che si verifica in 1 caso su 5 nel nostro Paese. La terapia fotodinamica di nuova generazione, è fondamentale nel trattamento di questa tipologia di lesioni cutanee, si basa sulla luce e sull'applicazione di una sostanza fotosensibilizzante sotto forma di crema.

Metodi: Si applica sulla lesione la crema, la quale innesca innesca una reazione ossidativa solo nelle cellule dell'epidermide patologiche causandone l'eliminazione e favorendo la sostituzione con cellule nuove. La molecola utilizzata interagisce esclusivamente con le cellule più instabili," favorendo una reazione ossidativa, che grazie alla successiva applicazione della luce, (una luce rossa a Led) le distrugge e l'esposizione è indicata per 10 minuti. In alcuni casi, è necessario un pre-trattamento delle lesioni cheratosiche eliminando gli ispessimenti più voluminosi che ostacolerebbero l'azione della crema. Sono state eseguite due sedute settimanali per 2 o 3 settimane in rapporto alla tipologia di ulcera diabetica trattata.

Risultati: Alcuni pazienti trattati, durante la seduta di terapia fotodinamica, hanno avvertito lieve sensazione di bruciore/dolore, dovuta proprio all'azione fototossica per eliminazione selettiva delle cellule danneggiate. In tali casi è stata sospesa la terapia per 5 minuti, tempo utile osservato per la regressione della sintomatologia e poi terminata come da parametri. L'osservazione diretta dei pazienti trattati ha dimostrato, già tra dopo la prima seduta, l'efficacia antibatterica ed il 'risveglio del tessuto dormiente'.

Conclusioni: Nella nostra esperienza abbiamo osservato, non solo una riduzione significativa della carica batterica, ma anche una riduzione dell'estensione della superficie ferita e riduzione della profondità (in alcuni pazienti di notevole entità) con scomparsa delle sottominature rilevate. Nei pazienti trattati si è evinta una rapida e più completa guarigione delle ulcere infette, anche quelle più resistenti, risultati che hanno mostrato notevole impatto sulla qualità di vita e la compliance dei pazienti.

PP090 EFFICACIA DEL TRAPIANTO DI PROGENITRICI EMOPOIETICHE CD34+ AUTOLOGHE NEL TRATTAMENTO DEL PIEDE DIABETICO ISCHEMICO IN PAZIENTI "NO OPTION": STUDIO MONOCENTRICO

Carlo Rivellini[1], Elena Roattino[1]

[1]Ospedale Regina Montis Regalis, Chirurgico, Mondovì, Italy

Scopo: Numerosi lavori evidenziano l'efficacia delle progenitrici emopoietiche (CD34 +) nel trattamento dei pazienti con ischemia critica degli arti inferiori non rivascolarizzabile (no option patients) ma su casistiche numericamente limitate. Alla dose minima efficace di 1 x 10^6 /kg di cellule CD34 + somministrata per via intramuscolare i dati della letteratura mostrano una percentuale di salvataggio d'arto del 50%. Abbiamo voluto valutare l'efficacia delle CD34+ derivate da aferesi di sangue periferico dopo stimolazione con fattore di crescita granulocitario e iniettate nel muscolo ischemico su una casistica più ampia e verificare se il risultato può essere ulteriormente migliorato aumentando la dose.

Metodi: Da aprile 2017 ad oggi abbiamo trattato 62 pazienti consecutivi diabetici con ischemia critica e con lesioni trofiche a livello del piede o della gamba. L'età media è stata 67 anni (range 33-90) e due sono stati trattati su entrambi gli arti. Tutti i pazienti hanno ricevuto il fattore di crescita (rhG-CSF). I pazienti sono stati sottoposti a follow-up mensile con controllo angiografico di confronto a 6 mesi.

Risultati: 50 pazienti hanno avuto un netto miglioramento clinico con scomparsa del dolore e guarigione delle lesioni e miglioramento della claudicatio (anche del 500%); solo 12 pazienti hanno subito l'amputazione dell'arto con una percentuale di salvataggio (AFS) del 81.6% a 24 mesi (84.2% a 6 mesi). I pazienti in IV stadio con gangrena estesa (Wagner>3) e/o malattia rapidamente evolutiva hanno presentato una prognosi peggiore mentre i pazienti in stadio III e più giovani hanno mobilizzato meglio (428 x 10 6 vs 253 x 10 6 CD34+) e hanno presentato una prognosi migliore. Tutti i pazienti hanno mostrato una buona tollerabilità al fattore di crescita senza importanti effetti collaterali). L'analisi statistica non ha dimostrato una correlazione diretta tra dose e risultato per dosi superiori a 2 x 10^6 /kg di cellule CD34+.

Conclusioni: Lo studio ha evidenziato una notevole efficacia delle CD34+ ottenute da aferesi nel trattamento dei pazienti diabetici con ischemia critica in stadio IV "no option" con una percentuale di salvataggio d'arto che correla al numero di cellule iniettate e che raggiunge l'81,6% per una dose superiore a 2 x 10^6 /kg. I pazienti con malattia in stadio molto avanzato o molto aggressiva (rapidamente evolutiva) hanno una prognosi decisamente peggiore mentre i pazienti in stadio III o in stadio IV ma con malattia stabile rispondono bene.

PP091 TRATTAMENTO A DOMICILIO DI PIEDE DIABETICO: APPROCCIO MULTIDISCIPLINARE E UTILIZZO DI MEDICAZIONI AVANZATE E PRESSIONE NEGATIVA

Francesca Perazzo[1], Linda Nicolini[1], Pierina Olmeda[1], Maria Rosa Cogozzo[1], Chiara Parodi[1], Riccardo De Pasquale[1]

[1]ASL4 Regione Liguria, Italy

Scopo: A luglio 2022 abbiamo preso in carico un paziente, uomo di aa 74 (Sig. B.V.), con piede diabetico all'AI SX, lesione laterale, con fistola plantare. Il paziente, portatore di lesione da circa 2 anni, è stato preso in carico a giugno 2022 dal centro del Piede diabetico di Pisa ed inviato all'attenzione dell'Assistenza Domiciliare Integrata dal medico curante. Il paziente è stato seguito in modo coordinato con il centro diabetologico di Pisa.

Metodi: Successivamente alla rimozione di una callosità si è sviluppata una lesione con flemmone che è stato drenato e bonificato nel centro del piede diabetico di Pisa. Era presente anche una fistola plantare. Al paziente è stato prescritto il posizionamento di un dispositivo a pressione topica negativa. Inizialmente, in data 7 luglio 2022, abbiamo posizionato, per 21 giorni, una pressione negativa monouso portatile (-80mmHg) della durata di 30 gg , con interfaccia in idrofibra, per favorire la risalita del fondo e il debridement della lesione. Il 28 luglio, nonostante la notevole contrazione della lesione e risalita del fondo, l'equipe medica di Pisa ha dato indicazione per il posizionamento di una pressione topico negativa standard (-125 mmHg). In data 31 luglio è avvenuto il primo cambio a domicilio e si è osservato un buon risultato sulla lesione. Il 10 di Agosto, dopo 14 giorni, è stata rimossa la pressione negativa standard e si è proseguito, come condiviso e concordato con il centro diabetologico, con medicazione in Idrofibra e Argento ionico, in grado di agire anche su biofilm.

Risultati: Inizialmente la lesione era di dimensioni 4x2,5 cm e profondità 3 cm, con tunnelizzazione plantare. Il 7 settembre la lesione si mostra di dimensioni decisamente ridotte 1,5x0,7 cm e risoluzione completa della tunnellizzazione con fondo deterso. Il paziente ha potuto riprendere le sue normali attività quotidiane.

Conclusioni: L'approccio multidisciplinare con l'ambulatorio lesioni ed il centro del Piede Diabetico ci ha permesso di ottenere ottimi risultati in un tempo decisamente breve, migliorando il lavoro degli operatori, il comfort del paziente e dei famigliari.

PP092 APPROCCIO ASSISTENZIALE NEL PIEDE DIABETICO ISCHEMICO: PERCEZIONE DELLO SPECIALISTA DI FRONTE AL COMPLESSO RAPPORTO SULL'ESPERIENZA DELLA LESIONE

Juliana Lucinda dos Santos[1], Christielle Montenegro[2]

[1]Prime Care Cuidados Integrados à Feridas, DIRETORA TECNICA , Santo André, Brazil; *[2]EMAD, Especialista clinica, Rio Branco, Brazil*

Scopo: Esperienza professionale e specialistica in lesioni complesse con piede diabetico con indicazione di amputazione transfemorale.

Metodi: Lo studio tratterà un approccio descrittivo, esplorativo ed esplicativo sotto forma di relazione sull'esperienza. Eseguito durante l'assistenza infermieristica in un ambulatorio privato nella città di Santo André - SP (Brasile). Da luglio/2022 a gennaio/2023. Le visite ambulatoriali e domiciliari sono state eseguite in base alle esigenze del paziente. Usato Indice caviglia automatico per la valutazione iniziale. Pianificazione strategica con TIMERS, sbrigliamento enzimatico con papaina, poliesametilene biguanide (PHMB), Healing Matrix TLC con Argento e Fibre Poliassorbenti e laserterapia a bassa potenza con il protocollo: lunghezza d'onda 660 nm, 1-3 joule, potenziamento 100 mw. E lunghezza d'onda ILIB 810 nm e per 30 minuti. Occlusione dell'arto di copertura secondario.

Risultati: Nel paziente anziano la ferita cronica ha bisogno di vari meccanismi per la guarigione. Supporto nutrizionale, clinico e familiare. In questo caso il suddetto paziente ha rifiutato l'intervento chirurgico di amputazione. Seguendo le medicazioni e le pratiche alternative.

22/07/2022

22/08/2022

09/01/2023

Conclusioni: I casi clinici presentati rappresentano situazioni e fasi reali del processo di guarigione. Il recupero tissutale è stato stimolato grazie alla preparazione del letto della ferita e alla fotoimmunomodulazione esercitata dalla laserterapia, all'uso delle conoscenze, delle competenze professionali e al ragionamento critico per il processo decisionale relativo agli interventi di supporto all'adeguatezza.

PP093 UTILIZZO DI MEDICAZIONE A BASE DI MATRICE OLEICA A RILASCIO DI ROS IN UNA LESIONE CAVITARIA DIABETICA

Michele Blasina[1], Simone De Meo[1], Giovanni Papa[2], Luca Spazzapan[2], Evelin Makuc[2], Martina Pangos[1]

[1]ASUGI, Cure Ambulatoriali E Domiciliari, Trieste, Italy; [2]ASUGI, Struttura Complessa (UCO) Chirurgia Plastica, Trieste, Italy

Scopo: La guarigione delle lesioni cavitarie risulta particolarmente difficoltosa nei casi clinici caratterizzati da diabete e patologie vascolari concomitanti. Il presente lavoro illustra l'efficacia delle medicazioni a base di matrice oleica arricchita di ossigeno nel supportare la guarigione di questa categoria di lesioni.

Metodi: Utilizzo di medicazione costituita da gel oleoso in siringa a base di matrice oleica arricchita di ossigeno a rilascio costante di specie reattive dell'ossigeno in una lesione cavitaria di piede diabetico in regione antero-laterale dorsale destra, a seguito di un trauma da taglio domestico dovuto ad un frammento di vetro. Il razionale per l'utilizzo si è basato sul meccanismo di azione della medicazione che è in grado garantire sul letto della lesione un microambiente locale (valore di pH) favorevole alla riepitelizzazione e nel contempo sfavorevole all'eventuale proliferazione di patogeni. Il protocollo di applicazione scelto è bisettimanale.

Risultati: A distanza di 9 giorni si è evidenziata una riduzione di circa il 70 % della lesione in termini di larghezza e profondità. A distanza di 52 giorni la lesione risultava completamente guarita.

Conclusioni: Il caso esaminato illustra come le medicazioni a base di matrice oleica a rilascio di Specie Reattive dell'Ossigeno (ROS) possano rappresentare un'efficace alternativa ai protocolli di medicazione standard nella gestione di lesioni particolarmente complesse agendo sul microambiente locale della lesione e aiutando la riepitelizzazione anche in quadri clinici complicati da patologie concomitanti che favoriscono la cronicizzazione delle lesioni.

PP094 UTILIZZO DELLA CLASSIFICAZIONE FUNZIONALE DELLE MEDICAZIONI: VALUTAZIONE DELL'APPLICABILITÀ IN UNA REALTÀ OSPEDALIERA

Francesca Martinelli[1]

[1]Usl Umbria 1, Centro di Salute Alto Tevere, Città di Castello, Italy

Scopo: Lo scopo dello studio è di verificare se l'applicabilità della classificazione funzionale può essere utile e può apportare miglioramenti in una realtà ospedaliera.

Metodi: E' stata condotta una revisione della letteratura. Sono stati analizzati alcuni documenti della realtà di riferimento (Usl Umbria 1, Presidio Ospedaliero Città di Castello) come il bando di gara sulle medicazioni, le linee guida sull'utilizzo delle medicazioni nel trattamento delle lesioni da pressione e l'inventario dei prodotti disponibili nell'Unità Operativa di Medicina. Questi documenti sono stati messi in relazione con la classificazione funzionale.

Sono state condotte delle interviste a clinici esperti.

Risultati: Questa ricerca ha mostrato che lo stato attuale non è ideale, ci sono gap nei prodotti e non si ha una copertura per tutte le caratteristiche delle ferite; i percorsi che ruotano attorno alla medicazione non sono omogenei. Lo studio ha mostrato che la classificazione funzionale delle medicazioni è poco conosciuta nella realtà studiata.

Conclusioni: C'è una presa di coscienza che la realtà è cambiata molto ma non c'è una soluzione concreta e univoca per far fronte a questa realtà in cui i prodotti disponibili nel mercato si sono moltiplicati, perciò è stato molto interessante discutere della classificazione funzionale come proposta per l'utilizzo nella realtà.

I risultati ottenuti da tale studio hanno evidenziato alcuni aspetti dove si potrebbe agire: avere un approccio metodico per la valutazione e la scelta dei prodotti sia nella fase di acquisto che di utilizzo, agire sulla formazione degli operatori sanitari, avere un approccio multidisciplinare nelle procedure di gara e nella gestione del paziente con lesioni cutanee, per garantire l'appropriatezza di utilizzo delle medicazioni avanzate.

PP095 USE OF HEMOGLOBIN IN THE TREATMENT OF RELATIVE HYPOXIA

Monica Pittarello[1], Elia Ricci[1], Andrea Pietro Ricci[1]

[1]*St. Luca's Clinic, Difficult Wound Unit, Pecetto Torinese, Italy*

Aim: Evaluation of a hemoglobin spray device*, a case series.

Methods: Lower limb lesions of different etiologies were recruited. The lesions were treated every other day by application of Hb spray with inert dressing and the observation period was 6 weeks. The cause of the injury was treated according to gold standard practices. Thirty patients with vascular lesions of the lower limb were enrolled. Controls were performed every 2 weeks for a 6-week observation period.

Results: 4 patients (13.3%) entered Drop Out, 3 for unrelated events and 1 for infection. Data were then considered on the 26 patients who completed the study. In terms of area (improvement reduction > 40%), WBP and VAS are shown in the table. Colonization was found in 2 cases at the end of the study (7.7%).

Conclusions: In a global evaluation, 61.5% of positive results were obtained for the area, while no changes were obtained with respect to the pre-set in 26% of cases. With respect to pain control, improvement was obtained in 76.9% of treated patients. Data on wound bed preparation report an improvement in 61.6% of cases and a lack of change in 19.2% with a worsening in 19.2%. The overall performance is decent. The device analyzed increases the O2 tension at a superficial level, in inflammatory type lesions the O2 consumption is extremely high and therefore not able to determine a significant improvement, instead in vascular lesions the result, in the face of a more contained local requirement allows a very high performance.

* Granulox

PP096 EFFICACIA DELL'UTILIZZO DI MEDICAZIONE IN POLIACRILATO E MATRICE LIPIDO COLLOIDALE IN AG

Gaetano de Capua[1], Angela Lisa di Zuzio[1], Maria Marcella Flammia[1]

[1]*Benevento, Benevento, Italy*

Scopo: La gestione delle infezioni è fondamentale per evitare l'insorgere di complicanze: questo è il motivo per cui è cruciale scegliere un trattamento in grado di gestire efficacemente i segni di infezione locale e di avviare la lesione a guarigione.

Metodi: In questo lavoro viene presentata la nostra esperienza nel trattamento di varie lesioni traumatiche con una medicazione in poliacrilato e una matrice lipido colloidale TLC in Ag utilizzata per la riduzione dei segni, e accelerare il processo di guarigione in lesioni oramai croniche.

Tutti i pazienti sono stati ricoverati presso la nostra U.O. seguiti e trattati alla dimissione con medicazioni ambulatoriali, dopo aver ottenuto il consenso si è provveduto a seguire l'andamento delle lesioni fotografando le stesse.

- Lavaggio dell'area della lesione con abbondante soluzione fisiologica
- Se necessario si è provveduto allo sbrigliamento meccanico del biofilm o della fibrina attraverso lo strofinamento della superfice della ferita
- Protezione dei margini perilesionali della ferita con sulfadiazina d'argento
- Applicazione della medicazione e copertura della stessa con garze sterili, se necessario
- Sostituzione della medicazione ogni 3 giorni nei primi 15 giorni e ogni 5 giorni in seguito

Risultati: L'utilizzo di una medicazione in poliacrilato e una matrice lipido colloidale TLC in Ag, in questa nostra esperienza, ci ha permesso di valutare una efficace riduzione dei segni locali di infezione, di una rimozione ottimale del biofilm, in un caso di gestire in modo molto efficace anche il cattivo odore della lesione, di accelerare il processo di guarigione che si è ottenuto nell'arco di due mesi di utilizzo delle medicazioni, non si è avuto nessun problema di accettazione della medicazione da parte dei pazienti, anche grazie alla rimozione atraumatica della stessa ad ogni cambio di medicazione.

Conclusioni: La medicazione ha un'attività antimicrobica che svolge azione di debridement, antibatterica e anti-biofilm efficace permettendo una detersione completa della lesione. Ha una compliance eccezionale da parte del paziente in quanto è atraumatica alla rimozione. Le fibre poliassorbenti assicurano l'assorbimento dell'essudato e l'intrappolamento di residui di slough. L'uso sinergico di medicazioni avanzate ha dimostrato, in questa nostra esperienza, la riduzione dei tempi di guarigione di lesioni traumatiche oramai croniche con segni o a rischio di infezione locale.

PP097 ONICOCRIPTOSI E MEDICAZIONE A BASE DI MIELE MEDICALE GOX +: SERIE DI CASI

Ilaria Teobaldi[1], Marco Roberto Bortolotti[2]

[1]Sanitaria Ortopedia Borgo Roma, Verona, Italy; [2]Ottobock Soluzioni Ortopediche, San Massimo, Italy

Scopo: Valutare efficacia e sicurezza nell'utilizzo di una medicazione a base di miele medicale GOX+ (glucosio-ossidasi) e difensina-1 nel trattamento dell'onicocriptosi di I° e II° stadio Mozena.

Metodi: Tre pazienti (2 M, 1 F) età 16, 16, 18 aa. Due di loro alla seconda e terza recidiva di onicocriposi II stadio secondo Mozena, primo dito bilaterale, uno alla prima onicocriptosi I stadio. È stata utilizzata la procedura standard di rimozione della spicola e toccatura del granuloma con nitrato d'argento, seguita da antisepsi con betadine liquido e risciacquo con sol. fisiologica.

La medicazione è stata effettuata con zaffo di garza sterile impregnato di gel al miele medicale gox+, ripetuta quotidianamente a domicilio dai paziente, dopo addestramento specifico.

Risultati: I tre casi sono giunti a completa riepitelizzazione del solco ungueale, alla totale assenza di dolore e infiammazione rispettivamente in 6, 6 e 2 settimane. La rapida guarigione ha permesso l'applicazione in sicurezza di uno zaffo in teflon per proteggere il solco nelle prime settimane di ricrescita ungueale e abbassare il rischio di recidiva.

Conclusioni: Le caratteristiche meccaniche (viscosità) e chimiche (Ph 3.5, sintesi di acido gluconico e perossido di idrogeno tramite GOX a contatto con l'essudato) della medicazione hanno permesso di evitare contaminazioni del solco ungueale, permettendo un rapido debridement del tessuto infiammato e bruciato dal nitrato d'argento, e promuovendo la riparazione tissutale del solco ungueale.

PP098 OSSIGENO E TERAPIA CON PRESSIONE NEGATIVA: UN APPROCCIO COMPLEMENTARE ALLO STANDARD DI CURA

Silvia Bertinelli[1], Maurizio Carnali[1], Battistino Paggi[2]

[1]Ospedale Engles Profili, Chirurgia, Fabriano, Italy; [2]Studio Infermieristico Ass. Biellese, Trieste 23 A, Biella, Italy

Scopo: Dimostrare la valenza complementare, di un dispositivo in grado di promuovere l'erogazione di un alto flusso di ossigeno alternato ad una terapia con pressione negativa, al fine di riattivare i processi riparativi e di riduzione delle dimensioni volumetriche della ferita.

Metodi: Sono stati arruolati 10 pazienti (4 uomini e 6 donne) afferenti al centro con ferite di diversa eziologia in una fase di guarigione bloccata.

Risultati: L'esperienza, seguita ad un trial clinico, ha permesso di verificare la bontà del processo di cura. Nella valutazione della casistica proposta in questo lavoro possiamo affermare che la riduzione rispetto alle dimensioni iniziali della ferita ottenute sono:

- in rapporto all'area del 20%

- rispetto al volume del 69%.

Conclusioni: Pur in considerazione del fatto che la tecnica utilizzata sia complementare allo standard di cura e richieda un tempo medicazione maggiore risulta ben tollerato dal paziente permette un miglioramento dello score di ferita (Wound Bed Score) > 2 punti nel periodo di valutazione (4 settimane) e miglioramenti in termini di percezione del proprio stato di benessere e di capacità di svolgere le attività di vita quotidiana (EuroQoL).

PP099 BEST PRACTICE VULNOLOGICA INTRODUZIONE DI UNA STRATEGIA ANTIBIOFILM IN QUATTRO FASI PER LESIONI NON HEALING

Marco Marchelli[1], Deborah Cesura Granara[1], Anna Baxa[1], Giorgia Piana[1], Cristina Pruzzo[1], Cinzia Viaggi[1], Giorgio Badino[1], Carmelo Gagliano[2]

[1]ASL3 Regione Liguria Vulnologia; [2]ASL3 Regione Liguria Dirigente S.C. Professioni Sanitarie, Italy

Scopo: Le lesioni not healing, sono aumentate nel periodo post-covid, rappresentando un importante problema socio-assistenziale. Abbiamo dovuto implementare le strategie in essere per gestire le lesioni refrattarie. Abbiamo inserito una strategia in quattro fasi, Wound Hygiene (WH) per rendere più efficaci gli interventi sugli esiti assistenziali mantenendo la valutazione olistca del paziente e considerando le difficoltà organizzative.

Metodi: Il WH ci ha permesso di contrastare il biofilm e consentire la ripresa dei processi riparativi. Dopo una iniziale formazione degli operatori, abbiamo deciso di applicare tale strategia su tutti i pazienti che presentavano, dal punto di vista anamnestico, fattori di fragilità al fine di:

- riattivare il processo riparativo
- prevenire la cronizzazione delle lesioni
- migliorare la detersione
- -r idurre i tempi del percorso clinico-diagnostico ospedale/territorio
- migliorare l' appropriatezza nella gestione del tessuto non vitale

Abbiamo arruolato 100 lesioni, di differente eziologia e localizzazione e che non presentavano segni di miglioramento da almeno 3 settimane nonostante la gestione conforme alle ultime linee guida/Wound bed Preparation.

Abbiamo migliorato il nostro approccio pratico dando maggiore rilievo alle quattro fasi proposte nel WH: dalla detersione alla medicazione in lesioni potenzialmente biofilmate.

Abbiamo consolidato la consapevolezza degli operatori nella gestione delle lesione recalcitranti e con ipotesi di biofilm.

Abbiamo trattato le lesioni allo stesso modo andando a registrare la ripresa dei processi riparativi prendendo in esame la contrazione delle lesioni, l'evoluzione in base al TIME.

Risultati: E' noto da letteratura che, una lesione cronica è potenzialmente biofilmata nel 78% dei casi. Abbiamo quindi deciso di sperimentare questo nuovo approccio antibiofilm per cercare di stimolare gli operatori nella gestione delle lesioni croniche not-healih, ponendo l'attenzione su detersione della lesione e della cute perilesionale, del tessuto non vitale, del Biofilm e colonizzazione critica. Questo ci ha permesso di integrare e standardizzare l'approccio al paziente fragile con lesione cutanea in integrazione ospedale-territorio.

Abbiamo raggiunto:

- nel 30% delle lesioni seguite, una diminuzione del numero di accessi, da 3 a 1 la settimana.
- Una aumentata velocità di contrazione rispetto alle procedure precedentemente utilizzate e non standardizzate
- una maggiore soddisfazione di pazienti e operatori.

Conclusioni: Riteniamo che questo approccio possa essere una strategia utile per migliorare l' approccio pratico alla lesione potenzialmente biofilmata e possa essere d' aiuto nel rafforzare il ragionamento clinico di ogni operatore. Il Wound Hygiene ci ha permesso di avvicinare la teoria alla pratica per un più rapido raggiungimento dell'obiettivo di trattamento.

PP100 VALUTAZIONE DI UNA MEDICAZIONE AVANZATA IN IDROFIBRA CON CARBARBOSSIMETILCELLULOSA SODICA PURA AD AZIONE ANTI-BIOFILM IN 4 SETTIMANE DI TRATTAMENTO SU LESIONE CON SOSPETTO BIOFILM

Arturo Caniglia[1] [1]

[1]*Presidio Ospedaliero Gaetano Pini | ASST Pini-CTO, Ortopedia, Milano, Italy*

Scopo: L'obiettivo era di verificare l'efficacia dei principi procedurali del Consensus Wound Hygiene su una lesione statica con forte sospetto di biofilm.

Metodi: Paziente maschio, 53 anni, obeso, non fumatore, diabetico. Si presentava in ambulatorio con lesioni flebostatiche degli arti inferiori, dopo precedente trattamenti infruttuosi di 12 mesi mostrava un'estensione di 15x10cm a dx 6x4cm a sn, fondo con prevalenza di slough, bordi inattivi, cute perilesionale infiammata e macerata sull'arto dx e positività multicolturale.

Le lesioni, precedentemente trattate in altra struttura, presentavano segni di biofilm (Fig. 1.1 e Fig.2.1), si decideva di procedere a metodica detersione con soluzione tensioattiva con PHMB, debridement meccanico con curette, riattivazione dei bordi con garza e medicazione in idrofibra ad azione specifica antibiofilm (BEC+EDTA+Ag) coperta da garza sterile, bendaggio compressivo e cambio bisettimanale.

Gamba destra

Fig.1.1

Fig.1.2

Fig.1.3

Gamba sinistra

Fig.2.1

Fig.2.2

Fig.2.3

Risultati: Alla rivalutazione bisettimanale, le lesioni mostravano segni di contrazione, con processo di costante detersione del fondo, ripresa dei bordi e diminuzione delle dimensioni. Al controllo finale a 4 settimane, le dimensioni si erano ridotte a 6x4cm a dx(Fig.1.3) e 3x2cm a sn (Fig. 2.3), con evidente remissione dello stato infiammatorio e riduzione dell'essudato.

Conclusioni: L'utilizzo della medicazione in oggetto, integrata in una procedura metodica evidence-based, si è dimostra una scelta efficace nel riacutizzare le lesioni con biofilm, contribuendo attivamente alla sua eliminazione e, contemporaneamente, gestendone le diverse fasi essudative (anche sotto bendaggio), con conseguente remissione degli indici infiammatori. Questo ha permesso non solo l'induzione dei processi rigenerativi in una lesione ferma, ma anche il calo della frequenza di medicazione, a vantaggio della compliance e dei costi di trattamento.

PP101 GESTIONE DI DEISCENZA CHIRURGICA IN PAZIENTE PEDIATRICO CON ERNIA DIAFRAMMATICA SINISTRA CONGENITA GIÀ TRATTATA CHIRURGICAMENTE : RISPETTO DEL TIMING DI MEDICAZIONE

Monica Franzi[1], Simona Cavallieri[1], Annalisa Costa[1]

[1]IRCCS G.Gaslini Genova, Italy

Scopo: La deiescenza di ferita chirurgica in pediatria rappresenta un'importante complicanza, specie su organi interni, sia essa totale o parziale.

Metodi: Paziente nata con TC urgente per ernia diaframmatica sn congenita, distacco placentare. Verrà sottoposta a molteplici interventi chirurgici, primo in II giornata di vita per "riduzione dei visceri e organi erniati ". Seguiranno altri interventi chirurgici per perforazione intestinale , Fundoplicatio sec Nissen, per fistola gastrica secernente liquido biliare verrà effettuata chiusura della parete gastrica a tutto spessore. A 6 giorni dall'ultimo intervento si evidenziano due deiescenze di ferita chirurgica di circa 1,5 cm ciascuna, che vengono trattate con rimozione dei punti di sutura , medicazione in idrofibra Ag, e pellicola traspirante in silicone con guarigione dopo 6 giorni.

Durante la sostituzione del S.N.G. si nota la sua fuoriuscita dalla ferita chirurgica in corrispondenza della parete alta dello stomaco; viene sospesa alimentazione N.E.

Le condizioni critiche della paziente determinano alto rischio anestesiologico. Si tenta pertanto la chiusura della deiescenza con medicazione avanzata bioattiva al collagene ed acido ialuronico.

Risultati: Dopo 3 giorni di utilizzo di medicazione avanzata bioattiva , il radiologo referta la chiusura completa della parete alta dello stomaco, quindi riavviata alimentazione con SNG. La chiusura verrà confermata anche in tempi successivi.

Conclusioni: Grazie al rispetto del timing di medicazione si è evitato un ulteriore intervento chirurgico alla paziente non sottoponendola né a rischio anestesiologico/ infettivo, rialimentandola in tempi brevi e quindi garentendole una buona QoL.

PP102 UTILIZZO DI PRESSIONE NEGATIVA MONOUSO IN ASSISTENZA DOMICILIARE INTEGRATA SU UNA LESIONE POST TRAUMATICA ALL'ARTO INFERIORE SINISTRO

Maurizio Ballestra[1], Federica Croese[2]

[1]Coordinatore Infermieristico Assistenza Domiciliare Integrata ASL1 Regione Liguria-Distretto XXmiglia, Italy; [2]ASL1 Imperiese, Italy

Scopo: A novembre 2021 abbiamo preso in carico una paziente di 95 anni, con un quadro complessivo di fragilità ma comunque di parziale autosufficienza. La lesione che da diversi mesi affliggeva la paziente aveva limitato decisamente le sue attività quotidiane soprattutto per l'importante dolore percepito. Il nostro obiettivo era quello di migliorare la lesione, ma soprattutto di fornire alla paziente una migliore qualità di vita.

Metodi e Risultati: Paziente donna di anni 95, affetta da insufficienza venosa e ipertensione, presentava una lesione all'arto inferiore sinistro di circa 20 cm2 con fondo deterso, bordo a stampo nel 40% della lesione e tendine esposto. La lesione, molto dolente, era bloccata da circa 6 mesi. Ad inizio novembre 2021 abbiamo preso in carico la paziente, inquadrata dal punto di vista sistemico e iniziato la gestione della lesione secondo Wound Bed Preparation: L'11 novembre 2021 abbiamo posizionato una pressione negativa monouso portatile (-80 mmHg) con medicazione in carbossimetilcellulosa sodica. Il 15 dicembre abbiamo terminato l'utilizzo della TPN monuso e abbiamo posizionato per un paio di medicazioni garza NON AD, poi schiuma di poliuretano con idrofibra. L'1 febbraio la lesione si era ridotta del 90% per arrivare a chiusura completa il 23/02/2022.

Conclusioni: La gestione delle lesioni a domicilio è sempre complessa per gli equilibri con i familiari ed il care giver ed **è** spesso complicata dal quadro igenico-sanitario ed ambientale. E' necessario quindi modificare le abitudini quotidiane ed alimentari. Per ottenere i migliori risultati possibili è fondamentale lavorare in equipe con il medico curante, gli specialisti, il care giver e tutti i sanitari e le persone convolte nel processo assistenziale.

PP103 ANALISI RETROSPETTIVA SU TRENTA CASI RISOLTI CON ALGINATO ED OZONIDI

Elia Ricci[1], Monica Pittarello[1], Roberto Cassino[2]

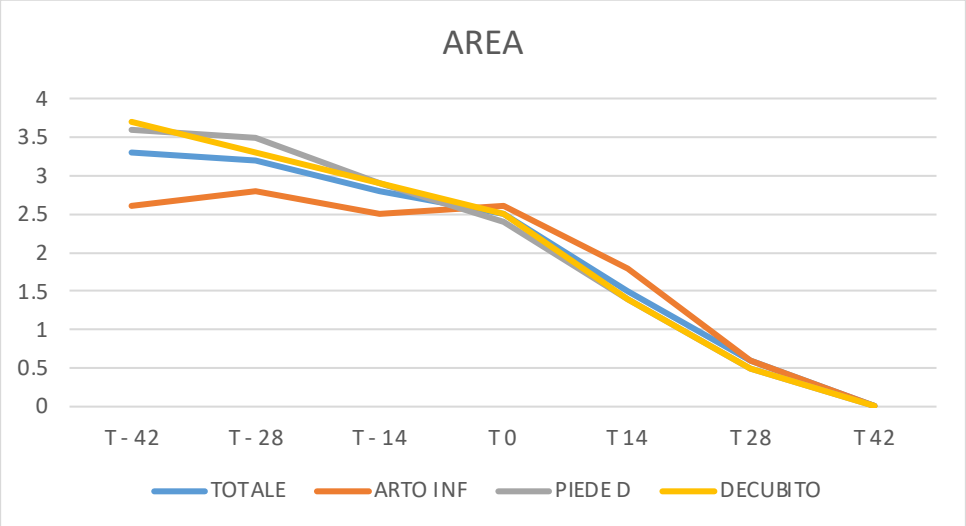
[1]Clinica San Luca, UOA Ferite Difficili, Pecetto Torinese, Italy; [2]RSA Sacra Famiglia Korian, RSA, Pieve del Cairo, Italy

Scopo: Valutazione di 30 lesioni cutanee croniche con ottenimento della risoluzione entro 6 settimane di trattamento.

Metodi: Analisi retrospettiva su tre gruppi di 10 pazienti con lesioni cutanee croniche suddivise in ulcere degli arti inferiori, diede diabetico e lesioni da pressione. L'analisi è stata condotta con cadenza di 14 giorni per un periodo di run inn di 6 settimane e quindi per un periodo di trattamento di 6 settimane. I dati analizzati sono stati area, WBP score e dolore mediante NRS Score. Tutti i dati sono stati raccolti mediante un sistema di analisi fotografica basato su un algoritmo di intelligenza artificiale[2]. La medicazione con alginato contenente ozonidi nel periodo di trattamento e secondo il TIME nel periodo di run inn.

Risultati: Area: nel run inn la riduzione è risultata essere del 24,2%, mentre nel trattamento la velocità di riparazione è risultata 3 volte maggiore. WBP: è passata da 7,4 a 11 nel periodo di run inn per raggiungere il 16 nel periodo di trattamento. Dolore: non si sono osservate differenze tra i due periodi. Per quanto riguarda il comportamento delle tre diverse etiologie analizzate non abbiamo osservato differenze tra i gruppi, come riportato nella figura 1 inerente all'area.

Conclusioni: Il presidio si è rivelato più performante rispetto al periodo di run inn. Interessante sarebbe poter dare delle indicazioni sul risultato ottenuto. Le indicazioni viste a posteriori con cui si era provveduto a scegliere il prodotto erano ipossia relativa da aumentato consumo e presenza di slough.



1. Rigenoma Alginato
2. Wound Viewer

PP104 CASE REPORT: L'EFFICACIA DI UNA MEDIAZIONE A CAPTAZIONE BATTERICA NELLA GESTIONE DI UNA FERITA TRAUMATICA COMPLICATA

Arturo Caniglia[1]

[1]*ASST Istituto Ortopedico Traumatologico Getano PINI-CTO, Ortopedia e Chirurgie Generali, Milano, Italy*

Scopo: Con questo report si dimostra l'efficacia della medicazione a captazione batterica utilizzata per il trattamento di una lesione traumatica al terzo medio della gamba destra, associata a perdita di sostanza, con strutture nobili esposte e complicata dall'infezione.

Metodi: Caso clinico trattato dal 31 gennaio 2022 al 24 marzo 2022 (52 giorni, per numero 18 cambi di medicazione) paziente donna di anni 78 assente da malattie metaboliche, non fumatrice, normopeso presa in carico presso l'ambulatorio infermieristico di vulnologia per insuccesso del trattamento presso altro ambulatorio sito in altra regione con sopraggiunta infezione durante il trattamento con medicazioni tradizionali. Trattamento con medicazione primaria a captazione batterica zaffo più garza dopo detersione in impacco per 10 minuti con poliesanide e probilbetaina. Trattamento e rivalutazione bisettimanale sempre nello stesso ambulatorio e dallo stesso gruppo di professionisti infermieri.

Risultati: Gestione dell'abbondante essudato già al primo cambio di medicazione, buono lo sbrigliamento e la riduzione dei segni di flogosi e delle dimensioni della lesione.

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

Fig. 9

Fig. 10

Conclusioni: L'utilizzo della medicazione a captazione batterica si dimostra una valida scelta per il trattamento di lesioni che necessitano di essere gestite sia per la presenza di essudato, sia per lo sbrigliamento e la relativa promozione della riparazione tissutale per mezzo delle caratteristiche uniche dei materiali che mantengono l'ambiente della lesione umido fino a completa guarigione.

PP105 UTILIZZO DI UNA MEDICAZIONE A MATRICE OLEICA, A RILASCIO COSTANTE DI SPECIE REATTIVE DELL'OSSIGENO, IN UN PAZIENTE CON UN'ULCERA DI GRANDI DIMENSIONI ALL'ARTO ARTO INFERIORE DESTRO: FASE PRE-RICOSTRUTTIVA

Giacomo Robello[1], Barbara Piazza[2], Emanuele Cozzani[2], Aurora Parodi[2]

[1]IRCCS Ospedale Policlinico San Martino, Clinica Dermatologica, Genova, Italy; [2]Università di Genova, Clinica Dermatologica, Genova, Italy

Scopo: Lo scopo del lavoro è valutare l'efficacia della medicazione a rilascio costante di specie reattive dell'ossigeno in un caso di Perdita di sostanza di arto inferiore.

Metodi: Utilizzo di una medicazione a matrice oleica, a rilascio costante di specie reattive dell'ossigeno, in un paziente con un'ulcera di grandi dimensioni all'arto arto inferiore destro.

Risultati: Nel caso riportato, non sono note le cause della necrosi sviluppatasi nel giro di un mese con una concomitante infezione da *Pseudomonas aeruginosa*.

Il paziente è stato trattato in urgenza in sala operatoria dove è stata eseguita una toilette chirurgica profonda in anestesia spinale per la fascite necrotizzante.

Nel decorso post operatorio il tessuto si presentava ancora "sofferente" ed in fase di delimitazione in fase pre-necrotica. È stato quindi utilizzata una medicazione interattiva su una matrice oleica a rilascio costante di specie reattive dell'ossigeno in grado di garantire un microambiente locale favorevole alla riepitelizzazione e all'attivazione del microcircolo e nel contempo sfavorevole alla proliferazione di agenti patogeni.

La medicazione è stata utilizzata da sola per i primi 8 gg e in combinazione con terapia a pressione negativa (NPWT) per ulteriori 15 gg.

Conclusioni: Durante i primi 8 gg il letto della ferita ha presentato una netta delimitazione" dei tessuti sofferenti" ed una detersione evidente ed un miglioramento dell' area peri-lesionale convalidato anche dal miglioramento degli indici di flogosi.

PP106 MANAGEMENT DELLE LESIONI CUTANEE COMPLICATE DA FISTOLE ED EVENTUALI SPAZI MORTI CON PASTA CONCENTRATA A IONI D'ARGENTO– STUDIO OSSERVAZIONALE

Sonia Silvestrini[1]

[1]Az Ospedaliera San Giovanni Addolorata di Roma, Medicina, Roma, Italy

Scopo: E' necessario agire in modo ottimale nella gestione delle sottominature, delle fistole che si evidenziano, per evitare gravi complicanze che possono portare anche alla morte del paziente. La pasta concentrata agli ioni d'argento si è dimostrata efficace ed efficiente nella riduzione della contaminazione delle ferite prese in esame, riducendo la carica delle colonie batteriche.

Metodi: Sono stati trattati 28 pazienti di un'età comprensiva tra i 26 e gli 84 anni, di cui 16 uomini e 12 donne, con lesioni cutanee deiscenti, sottominate, fistolizzate, tutte con presenza di biofilm, maleodoranti ed altamente essudanti. Tutte le lesioni sono state deterse con la Soluzione di Propilbetaina e Poliesanide (PHMB) e con applicazione di pasta concentrata agli ioni d'argento direttamente all'interno delle fistole con l'ausilio di una cannula in dotazione al kit di tale medicamento.

Risultati: I parametri presi in considerazione sono stati i ritardi nella cicatrizzazione, il dolore e quello della wound healing. Tutte le ferite prese in carico e trattate con tale metodologia sono giunte a guarigione,con tempi diversi in rapporto all'eziologia, al quadro clinico generale, all'età, alle dimensioni della lesione; durante il trattamento si è evinta la riduzione delle sottominature sino alla loro scomparsa, con seguente completa guarigione delle ferite.

Conclusioni: La pasta a concentrazione di ioni di argento, che si presenta amorfa e omogenea, dotata di un applicatore a tubetto per rendere più agevole la sua applicazione, si conforma perfettamente al letto della lesione, colmando gli spazi morti impedendo ai batteri di annidarsi e proliferare, fornendo un effetto antimicrobico valido con seguente riduzione del dolore e dell'infiammazione locale, con riduzione ed annientamento delle fistole e sottominature, con importante controllo e contenimento dell'essudato, agevolando il processo di guarigione.

PP107 IDROFIBRA IN COMBINAZIONE CON IDROCOLLOIDI SUI SITI DI PRELIEVO DI CUTE PER INNESTO AUTOLOGO

Pierluigi Gallo[1], Federica Maiello[1]

[1]Mavi Center del Dott. Gallo Pierluigi Vulnologo, San Sebastiano Al Vesuvio, Italy

Scopo: L'uso in combinazione di medicazioni avanzate a base di idrofibra in CMC e secondariamente di placca idrocolloidale trasparente favorirebbe la gestione della ferita ove prelevata cute pro-innesto.

Metodi: Abbiamo operato dieci prelievi di cute in altrettanti pazienti affetti da lesioni trofiche di arti inferiori, dalla regione coscia pro-innesto autologo. In sede, dopo il prelievo, ed accurato controllo emostasi, abbiamo applicato medicazione in idrofibra con "Hexalog Technology" e secondariamente mediczione idrocolloidale "transparent", con monitoraggio della zona due volte a settimana fino a risoluzione.

Risultati: I siti donatori sono arrivati sempre a risoluzione entro trenta giorni massimo, in base alle dimensioni della zona interessata, comorbidità del paziente e fattori esterni. Per i siti donatori più piccoli l'applicazione della medicazione combinata è stata "one time" (4). Nei restanti casi, è stata ripraticata la medicazione combinata, solo ove necessario secondo leakage, grazie alla medicazione secondaria trasparente e comunque moderatamente assorbente. Non sono da segnalare complicanze locali e/o sistemiche.

Conclusioni: L'uso di una medicazione idrocolloidale secondaria trasparente permette il corretto monitoraggio dell'impregnazione della medicazione in idrofibra primaria, rispetto alle medicazioni in schiuma in primis o di altro tipo, ed avendo componente assorbente, seppur moderata, aiuta alla gestione della microumidità di contatto. Inoltre, l'assenza totale di complicanze ed il costo contenuto ne favoriscono l'uso.

PP108 VALUTAZIONE CLINICA DELL'IMPIEGO DI UNA MEDICAZIONE A BASE DI MATRICE OLEICA A RILASCIO DI SPECIE REATTIVE DELL'OSSIGENO (ROS)

Domitilla Foghetti[1], Sara Muzzini[2], Sabina Sampaolo[3], Pamela Petroni[3]

[1]Ospedale San Salvatore, Chirurgia Generale, Pesaro, Italy; *[2]Ospedale San Salvatore, Poliambulatorio Chirurgico*; *[3]Ospedale Santa Croce, Poliambulatorio Chirurgico*

Scopo: Valutazione clinica dell'utilizzo di una medicazione avanzata impregnata da una matrice oleica a rilascio di Specie Reattive dell'Ossigeno (ROS), su lesioni cutanee di diversa eziologia.

Metodi: Sono stati trattati due gruppi di 5 pazienti: uno con lesioni post-chirurgiche (6 deiscenze di ferita) e uno con lesioni di origine venosa (9 lesioni degli arti inferiori), accomunati da una stazionarietà del processo di cicatrizzazione da almeno 3 mesi nel 93% dei casi (14/15 lesioni), da 1 mese nel 7%, in assenza di segni locali di infezione. È stata applicata sulle lesioni una medicazione avanzata costituita da 16 strati di garza impregnata da una matrice oleica a rilascio di ROS, con cadenza settimanale, associata a bendaggio nelle lesioni di origine vascolare.

Risultati: L'osservazione dopo 4 settimane ha rilevato una significativa riattivazione della proliferazione tissutale: nelle deiscenze post-chirurgiche con una riduzione di almeno il 40% dell'area, in 5 lesioni su 6 (83%); nelle lesioni di origine venosa con una riduzione dell'area compresa tra il 15 e il 30% in tutti i pazienti. Nei pazienti responsivi al trattamento (90%) è stata proseguita l'applicazione della medicazione.

Conclusioni: In entrambi i gruppi di pazienti l'utilizzo della medicazione in oggetto ha determinato una significativa progressione del processo riparativo nelle lesioni non responsive al trattamento con medicazioni avanzate di diverso tipo, evidente fin dalla prima applicazione. La sostituzione settimanale ha facilitato la gestione ambulatoriale dei pazienti.

PP109 APPROCCIO PER PIANI PARALLELI CON INTEGRAZIONE DI METODICHE A DIVERSA AZIONE COME CHIAVE PER IL SUCCESSO NEL TRATTAMENTO DI LESIONI PARTICOLARMENTE COMPLESSE: CASE REPORT

Carlo Rivellini[1], Ester Ordonez Culebras[1]

[1]*Ospedale Regina Montis Regalis, Chirurgico, Mondovì, Italy*

Scopo: Di fronte alle lesioni "not healing" è sempre molto difficile trovare la strategia in grado di portare alla guarigione. Spesso la soluzione del problema non è nel cambio della medicazione ma piuttosto nell'utilizzo di una metodica completamente nuova o, nei casi più complessi, nell'integrazione di più metodiche basate su razionale, presupposti e meccanismi d'azione diversi. Nel caso clinico analizzato sono state messe in campo diverse metodiche che sfruttano principi e meccanismi molto diversi tra di loro ma utilizzate in modo integrato e abbinate ad un approccio "olistico" al paziente che ha visto un intervento globale su piani paralleli (non solo il piano della terapia topica ma anche quello dell'aspetto nutrizionale, dello stile di vita, dell'intervento etiopatogenetico, ecc).

Metodi: Un pilota di Baja, Desert Races e Rally Raid diventato paraplegico a causa di un grosso trauma occorso nel 2009 ma che nonostante la sua disabilità è riuscito con diversi espedienti tecnici a continuare la pratica agonistica nell'Agosto del 2022 al termine di una Desert Race ha riportato la comparsa di un decubito ischiatico piuttosto ampio con esposizione ossea; circa un mese più tardi a causa di un'infezione da Sars-Cov-2 con aspetto polmonare a vetro smerigliato ha avuto anche un importante decadimento nutrizionale con la perdita di circa 20 kg. Nel corso dei successivi 6 mesi è stato sottoposto a un piano nutrizionale con integrazione proteica, scarico della lesione con cuscini "home-made" che gli consentissero la stazione seduta per lavorare alla manutenzione delle moto e alla preparazione atletica in previsione della gara successiva, terapia rigenerativa con gel di piastrine (GP) e inoculo di mononucleate periferiche (PBCMN), terapia topica con medicazioni avanzate e pressione negativa (NPWT) ed elettrostimolazione muscolare per il trofismo e la vascolarizzazione muscolare.

Risultati: Nonostante l'ampiezza e la profondità della lesione con esposizione ossea, il grave stato nutrizionale, l'infezione batterica e lo scarico della lesione scarsamente rispettato a causa delle necessità lavorative e di preparazione tecnica e atletica in 24 settimane, grazie ad un approccio globale al paziente e alla lesione con l'integrazione di molteplici metodiche, si è giunti alla guarigione.

Conclusioni: Questa esperienza dimostra l'importanza di un approccio olistico al paziente complesso che preveda un intervento su piani paralleli dove il piano della terapia topica della lesione non si limiti ad una singola metodica ma sfrutti tutto lo spettro delle tecniche disponibili.

PP110 VALUTAZIONE DELL' EFFICACIA E SICUREZZA DI UNA MEDICAZIONE IN SCHIUMA DI POLIURETANO SOTTILE CON BORDO E STRATO DI CONTATTO IN SILICONE, POSTA AL DI SOTTO DI CALZA ELASTICA, NELLE ULCERE VENOSE

Umberto Cazzaro[1]

[1]*Ospedale San Raffaele, Unità semplice di Vulnologia, Milano, Italy*

Aim: L'intento di questo studio è valutare l'efficacia (riduzione dell'area di lesioni) e la sicurezza (assenza di dermatiti allergiche e/o irritative da contatto, assenza di impronte e/o danni della cute perilesionale in corrispondenza del margine della medicazione) di una medicazione in schiuma di poliuretano sottile, con bordo adesivo e strato di contatto in silicone, utilizzata sotto calza elastica, nei pazienti con ulcere venose.

Method: Arruolati 10 pazienti portatori di ulcere venose non infette, in fase di epitelizzazione, con un' area < 25 cm^2 e con essudato scarso, è stata utilizzata una medicazione in schiuma di poliuretano sottile, con bordo adesivo e strato di contatto in silicone e come sistema compressivo una calza elastica. I pazienti sono stati sottoposti a valutazione e cambio medicazione due volte a settimana per 3 settimane.

Results / Discussion: Al termine della terza settimana, 7 pazienti sono guariti, 2 non sono guariti ma hanno comunque avuto una progressiva riduzione delle dimensioni dell'ulcera, mentre un solo paziente ha dovuto sospendere il trattamento per comparsa di dermatite perilesionale dopo la seconda applicazione della medicazione. In nessun caso si è osservata la comparsa di impronta e/o danno della cute perilesionale in corrispondenza del margine della medicazione.

Conclusion: La medicazione in oggetto utilizzata sotto calza elastica ha dimostrato un buon grado di efficacia e sicurezza. Il limite dello studio è rappresentato dalla scarsità del campione. Questa indagine meriterebbe di essere ampliata considerando un campione statisticamente significativo.

PP111 UTILIZZO DI UNA MEDICAZIONE IN PASTA CON MATRICE DI ALGINATO E IONI AG

Arturo Caniglia[1], Fabiola Chionna[2]

[1]Presidio Ospedaliero Gaetano Pini | ASST Pini-CTO, Ortopedia e Chirurgie Generali, Milano, Italy; [2]Presidio Ospedaliero Gaetano Pini | ASST Pini-CTO, Reumatologia e Scienze Mediche, Milano, Italy

Scopo: Con questo report si dimostra l'efficacia della medicazione in alginato e ioni Ag in pasta utilizzata per il trattamento di una lesione cutanea al braccio su paziente affetta da lupus cutaneo di tipo panniculitico.

Metodi: Caso clinico trattato dal 4 maggio 2022 al 19 settembre 2022 (89 giorni, per numero 25 cambi di medicazione) paziente donna di anni 58 affetta da lupus eritematoso subacuto, non fumatrice, sovrappeso presa in carico presso l'ambulatorio infermieristico reumatologico, già in trattamento con automedicazione con medicazioni tradizionali. Medicazione primaria con pasta di alginato e ioni Ag, copertura con garza non aderente e cerotto medicato dopo detersione in impacco per 10 minuti con poliesanide e probilbetaina. Trattamento e rivalutazione bisettimanale sempre nello stesso ambulatorio e dallo stesso gruppo di professionisti infermieri. Infezione da enterobcter hormachei diagnosticata con tampone da ferita, trattata con terapia antibiotica mirata.

Risultati: Ottima gestione dell'essudato in presenza di cellulite localizzata, già al primo cambio di medicazione, buono lo sbrigliamento, la riduzione dei segni di flogosi e delle dimensioni della lesione.

Conclusioni: L'utilizzo della medicazi one in pasta di alginato e ioni Ag, si dimostra una valida scelta per il trattamento di lesioni cavitarie che necessitano di essere gestite, sia per lo sbrigliamento, sia per gestire la carica batterica presente oltre che per evitare la contaminazione dall'esterno; promuovendo la riparazione tissutale.

La medicazione in pasta conformabile aderisce al fondo della lesione ed è particolarmente adatta a lesioni di tipo cavitario, tunnellizzate e/o sottominate.

PP112 IMPLEMENTAZIONE DEL WOUND HYGIENE NELLA PRESA IN CARICO DELLA PERSONA A DOMICILIO: UNA STRATEGIA D'INTERVENTO SULLE LESIONI DI DIFFICILE GUARIGIONE

Manuela Bramardi[1], Antonella Misuracchi[2]

[1]Cuneo ASL CN1, Distretto Sud Ovest Cure Domiciliari, Cuneo, Italy; [2]Cuneo, ASL CN1 Distretto Sud Ovest Cure Domiciliari, Cuneo, Italy

Aim: Nel 2020, sulla rivista Journal of Wound Care, è stato pubblicato un nuovo documento di consenso chiamato Wound Hygiene con cui un Panel di Esperti mondiali ha definito una strategia d'intervento precoce sul biofilm, per agire sulle lesioni di difficile guarigione. Essendo queste tipologie di lesioni prevalenti nel setting Cure Domiciliari è stato deciso di implementare questa metodica, condividendone i contenuti con i colleghi tramite formazione specifica e utilizzando di schede valutative dei risultati di efficacia clinica.

Lo scopo principale è stato quello aggiornare gli infermieri operanti sul territorio in tema di "Wound Hygiene", d'implementare una metodica di Best Practice condivisa nella preparazione e nel trattamento delle "lesioni di difficile guarigione" e di valutarne l'efficacia clinica.

Obiettivi secondari sono stati quelli aumentare la consapevolezza degli operatori sul tema per sviluppare le competenze cliniche aggiornate, far emergere le problematiche che possono sorgere a domicilio relativamente all'attuazione di questa metodica.

Method: Sono stati organizzati due corsi formativi in modalità Webinar che hanno visto il coinvolgimento di 2 gruppi di 27 colleghi del distretto Sud-Ovest dell'ASL CN 1. Durante i corsi è stata presentata la Consensus, sono stati condivisi diversi casi clinici ed esempi fotografici a supporto.

Successivamente sono stati suggeriti i parametri di riferimento per l'individuazione di pazienti idonei a questo tipo di trattamento, è stato richiesto di applicare la metodica di DETERSIONE/SBRIGLIAMENTO/RIATTIVAZIONE BORDI-MARGINI DELLA LESIONE/ MEDICAZIONE.

E' stata illustrata e divulgata una scheda di valutazione per il monitoraggio dell'implementazione del "Wound Hygine", all'interno della quale è stata inserita una parte relativa alla descrizione della lesione, una alla descrizione della metodica ed una alla valutazione miglioramento clinico.

Results / Discussion: Sono state raccolte 26 schede di valutazione che hanno mostrato dopo 4 settimane di trattamento un netto miglioramento delle ulcere di difficile guarigione: il 66,6 % delle lesioni non mostrava più segni di Biofilm. Complessivamente tutte quelle che risultavano statiche o in peggioramento sono risultate migliorate (92%) e il 37% guarite.

Gli infermieri hanno valutato all'unanimità la soddisfazione nell'attuare il protocollo operativo.

Sono emersi problemi relativi alla mancanza di strumenti idonei per lo sbrigliamento, la mancanza di tempo per poter attuare la metodica, il controllo del dolore da parte di alcuni pazienti

Conclusion: Questo progetto ha permesso focalizzare l'importanza della Wound Bed Preparation attuando la metologia Wound Hygiene sulle lesioni di difficile guarigione ed ha aumentato la consapevolezza degli operatori. Il protocollo proposto è stato efficace anche da un punto di vista clinico ed è stato quindi implementato nella nostra unità operativa Cure Domiciliari Distretto Sud-Ovest ASLCN1.

PP113 QUANTO È COMUNE "L'ERRORE" NEL MONDO DEL WOUND CARE?

Donatella Rossolini[1], Marika Fabbretti[1], Gabriele Picchio'[2], Pamela Orazi[3]

[1]Ast Ancona Marche, Distretto Sanitario, Jesi, Italy; *[2]Ast Ancona Marche, U.O.Medicina Interna Ospedale Carlo Urbani, Jesi, Italy*; *[3]Ast Ancona Marche, Cure Domiciliari, Jesi, Italy*

Scopo: La gestione delle lesioni risulta essere ancora un argomento disconosciuto per moltissimi operatori sanitari. Molto spesso l'utilizzo delle medicazioni viene fatto senza porsi un obiettivo di gestione, non tenendo conto in modo differenziale delle caratteristiche delle lesioni, senza una corretta applicazione delle medicazioni e dei bendaggi o più semplicemente scegliendo di posizionare ciò che è più comodo o a disposizione. Tutto ciò comporta una gestione sbagliata delle lesioni, un allungamento dei tempi di guarigione e disagi per i pazienti; molto spesso le medicazioni stesse determinano un peggioramento delle situazioni.

Rendere visibile ciò che comunemente arriva negli Ambulatori Specialistici Wound Care e di cui molto spesso non si parla, in modo da dare ancora più evidenza alla necessità della formazione continua di tutti gli operatori sanitari

Metodi: La raccolta dei dati è stata condotta utilizzando un modulo appositamente predisposto. Le immagini raccolte dei pazienti afferenti all'Ambulatorio Specialistico Infermieristico Ferite Difficili da diversi contesti clinici avevano in comune il fatto di essere arrivati presso l' ambulatorio con bendaggi o medicazioni posizionati in modo errato. In alcuni casi il bendaggio stesso è stato causa del peggioramento della lesione, determinando a volte situazioni che hanno richiesto l'invio urgente del paziente presso altri setting assistenziali per la criticità della situazione,

Risultati: Dall'analisi qualitativa delle schede raccolte è emerso che il turn over del personale in maniera non organizzata, la mancanza di conoscenza dei materiali a disposizione, la non corretta raccolta dell'anamnesi clinico-assistenziale del paziente e della lesione e la carenza di informazioni riguardo i percorsi sono stati gli elementi che hanno maggiormente condizionato in maniera negativa la corretta gestione delle lesioni ed hanno influenzato in maniera determinante soprattutto le tempistiche di guarigione

Conclusioni: Attualmente diventa sempre più urgente la sensibilizzazione per le direzioni sanitarie affinché la cultura del wound care segua percorsi codificati di formazione continua, per una gestione più efficace ed efficiente delle risorse a disposizione ed una corretta presa in carico del paziente vulnopatico, sempre più articolato nella sua complessità.

PP114 E- HEALTH COME AMPLIFICATORE DI POTENZIALITÀ NEI PROCESSI DI QUALITÀ E ACCREDITAMENTO DEI DIFFERENTI SETTING DI CURA NELLA COMPLESSITÀ DEL WORK FLOW MANAGEMENT IN WOUND CARE

Gianni Donigaglia[1], Gianfranco Gensini[2], Gianni Origgi[3]

[1]Libero Professionista, Presidente Nazionale, Marciana Marina, Italy; [2]IRCCS MultiMedica, direttore scientifico, Sesto San Giovanni, Italy; [3]Niguarda, Innovazione, Milano, Italy

Scopo: Efficientare il percorso di cura delle ulcere cutanee.

Metodi: Il trattamento dei pazienti in wound care, all'interno dei loro percorsi di complessità clinica, assorbe specifiche risorse per tempi mediamente lunghi.

Un corretto inquadramento clinico delle ulcere orienta il trattamento secondo criteri di appropriatezza e qualità con indicatori di esito e di processo definiti e misurabili.

Le nuove tecnologie applicate al wound care sono note, diffusamente usate e disponibili. Possono essere importanti elementi di supporto e orientamento nel percorso di cura e favorire la standardizzazione di procedure e buone pratiche. Il trattamento della carica batterica critica presente nell'ulcera è uno dei momenti fondamentali della cura e ne condiziona l'esito e i tempi; questo è orientato il più delle volte da tampone o biopsia se non in maniera aspecifica ("occhiometrica"). L'impiego di tecnologie in grado di consentire una definizione rapida e non invasiva quali/quantitativa e topografica della carica batterica nell'ulcera consente a chi medica di avere un immediato orientamento sulle aree dove effettuare una detersione/debridement mirati, indirizza una l'eventuale terapia antibiotica e la definizione del setting di cura più appropriato. **Risultati:** La condivisione in rete dell'intero work flow, realizzabile mediante piattaforme web medical, consente lo scambio delle informazioni fra tutti gli attori di tutti i setting, in sincrono o store and forward, sulle attività, sullo stato dell'ulcera (immagini) sul livello di carica batterica critica (Immagini), sulle condizioni generali cliniche del Paziente. **Conclusioni:** Tutto questo efficienta il processo di governo e gestione del percorso, e favorisce la rapidità e la condivisione delle decisioni, i processi di handover fra setting, annullando le distanze fra di loro, garantendo la stessa appropriatezza anche nelle sedi territoriali più remote.

PP115 FORMAZIONE ED ESITI NEL WOUND CARE: LO STATO DELL'ARTE IN UN OSPEDALE HUB

Sabrina Cervesato[1], Chiara Tonello[1]

[1]Azienda Ospedale Università Padova, DIDAS Medicina dei Sistemi, Padova, Italy

Scopo: Valutare l'efficacia della formazione effettuata dal Team Aziendale di Infermieri Esperti in Lesioni Cutanee e la percezione da parte dei professionisti del problema lesioni cutanee e del supporto offerto da un Team Specialistico Infermieristico dedicato. **Metodi:** In collaborazione e supportati dalla Direzione delle Professioni Sanitarie, è stato inviato un questionario elettronico anonimo composto da 10 domande con risposta su scala likert ai coordinatori delle Unità Operative Complesse inerente il livello percepito di formazione, di conoscenza del Team Aziendale di Infermieri esperti in Lesioni Cutanee e sulla consulenza e prescrizione Infermieristica.

Risultati: Hanno partecipato allo studio 34 coordinatori Infermieristici.

Questi convengono che le Lesioni Cutanee siano un problema per il professionista Infermiere e un indice di qualità dell'assistenza (76,5% e 79,4%); il 44 % è incerto rispetto alla propria formazione, continua, in presenza ed erogata da Infermieri Esperti. Il Team Aziendale di Infermieri Esperti in Lesioni Cutanee è conosciuto dall'88,2% dei partecipanti; la presenza di un collega Infermiere Esperto con possibilità di consulenza Infermieristica è conosciuta e utilizzata dall'85,3% degli intervistati, di questi il 94,1% ha avuto necessità di un supporto da parte dello stesso.

La possibilità di prescrizione Infermieristica da parte di un Infermiere Esperto trova completo accordo nell'82,4% dei partecipanti. **Conclusioni:** La formazione erogata da professionisti con competenza specifica, rappresenta un valore aggiunto; il team è ben conosciuto e l'Infermiere esperto è il professionista a cuoi rivolgersi per un supporto professionale. Consulenza e prescrizione Infermieristica in Wound Care rappresentano un obiettivo prioritario.

PP116 LE CURE MANCATE A DOMICILIO NEL GRANDE ANZIANO: ESPERIENZA DELLE CURE DOMICILIARI DI PESARO

Chiara Barucca[1], Francesca Renzi[1], Aicha Ait Bassou[1], Rosanna Capriotti[1], Floriana Brizi[1], Loredana de Col[1]

[1]*Azienda Sanitaria Unica Regionale - Distretto di Pesaro, Pesaro, Italy*

Scopo: Le cure domiciliari solitamente sono richieste in seguito all'insorgenza delle lesioni da pressione (LDP), tuttavia la linea guida EPUAP 2019 raccomanda la presa in carico proattiva del paziente.

Valutare l'incidenza e i fattori determinanti lo sviluppo delle LDP nei pazienti presi in carico dal domicilio.

Metodi: Da maggio a ottobre 2022 sono stati analizzati i fattori predisponenti lo sviluppo di LDP su un campione di 80 pazienti: età, diabete, malattie neurodegenerative, scompenso cardiaco, obesità/cachessia, stato nutrizionale/idratazione, cura della cute, mobilizzazione, incontinenza, ausili, presenza di caregiver etipologia LDP.

Risultati: Dai risultati dell'analisi emerge che la popolazione ha un'età media di 85.92 anni con LDP al sacro (49%), al tallone (20%), al trocantere (17%). Il 74% ha una patologia neurodegenerativa, il 33% scompenso cardiaco, 18% diabete. La valutazione infermieristica rileva che il 49% è affetto da disturbo dell'alimentazione (16% obesità, 33% cachessia), il 90% si alimenta per via orale, l'8% in nutrizione artificiale, il 26% necessita di terapia idratante e il 79% presenta incontinenza completa. Il 71% è assistito da un caregiver non familiare. Rispetto all'assistenza effettuata per il 75% la cura della cute risulta non adeguata, il 35 % non è mobilizzato e gli ausili antidecubito sono presenti per il 70%.

Conclusioni: I dati rilevano che le cure mancate a domicilio da parte del caregiver possono essere determinanti nello sviluppo delle LDP nonostante l'elevata presenza di ausili antidecubito.

E' necessario spostare l'attenzione dal trattamento della lesione alla prevenzione, implementando progetti educativi rivolti al caregiver familiare coinvolgendo tutti i professionisti delle cure primarie.

PP117 PAZIENTE CON LESIONI CUTANEE IN CURE DOMICILIARI: CONSULENZA DELL'INFERMIERE ESPERTO IN WOUND CARE. DEFINIRE E UNIFORMARE IL PROCESSO A LIVELLO TERRITORIALE

Rachele Stelzer[1], Paola Leonardelli[2]

[1]*Azienda Proviciale per i Servizi Sanitari di Trento, Cure Primarie, Trento, Italy*; [2]*Azienda Proviciale per i Servizi Sanitari di Trento, Servizio Professioni Sanitarie, Trento, Italy*

Scopo: Delineare contenuti, fasi e attività del processo di consulenza da parte dell'infermiere esperto in wound care per i pazienti seguiti dal Servizio Cure Domiciliari e Palliative.

Metodi: Sono state condotte delle interviste strutturate ad infermieri esperti in Wound Care presenti nel Servizio Cure Domiciliari e Palliative e le referenti clinico assistenziali per lo sviluppo delle soluzioni digitali (CNIO - Chief Nursing Information Officer) del Dipartimento Tecnologie. Le interviste sono state condotte in presenza e audio registrate previa autorizzazione degli intervistati. Al termine della sbobinatura le registrazioni sono state cancellate. L'elaborazione dei dati è stata condotta in modo di garantire l'anonimato.

Risultati: Gli infermieri esperti in Wound Care rilevano queste tematiche importanti: modalità richiesta ed esecuzione della consulenza, contenuto della richiesta di consulenza, pianificazione del lavoro, formazione/supervisione del personale, riconoscimento del ruolo dell'esperto, garantire tempo dedicato alla consulenza. Le CNIO riportano come sia importante un lavoro di team multiprofessionale per lo sviluppo di soluzioni digitali che permettano la tracciabilità del percorso di consulenza e la raccolta dati rispetto al processo informatizzato.

Conclusioni: Sono emersi temi fondamentali per lo sviluppo della consulenza ai pazienti in carico al Servizio Cure Domiciliari e Palliative quali la necessità di uniformare la modalità di richiesta e erogazione della consulenza, documentare l'assistenza, facilitare la continuità delle informazioni, misurare i risultati in termini di indicatori di processo e risultato. Inoltre emerge come il consulente in wound care può avere un ruolo nei percorsi di formazione e supervisione al personale.

PP118 PERCORSI DI CURA STRUTTURATI E COMPETENZE SPECIALISTICHE: ANALISI DELLA COMPLESSITA' IN UN CASO CLINICO

Sara Sandroni[1], Stefania Fabrizi[1]

[1]Azienda USL Toscana Sudest, Italy

Scopo: Il fenomeno delle lesioni cutanee croniche è particolarmente complesso soprattutto perché spesso la carenza e non conoscenza di percorsi assistenziali strutturati o nella necessità di effettuare trattamenti diagnostico-terapeutici altamente specialistici, per scelta o per opportunità, comporta al verificarsi di un walk-around che non ha come risultato la presa in carico olistica e comportta un conseguente ritardo nel processo riparativo.

Il processo si risolve nel momento in cui un team multidisciplinare, definito con competenze specialistiche, imposta un piano di cura basato su step definiti e trattamenti basati su evidenze scientifiche.

Metodi: Uomo 74 anni proveniente da Struttura Sanitaria privata fuori Regione post intervento chirurgico per asportazione cisti sebacea mano sinistra (T0).

La valutazione postintervento ha configurato una difficile risoluzione dell'esito cicatriziale in quanto anche se la ferita appare conclusa, si evidenzia comparsa di edema del dorso della mano.

Nello stesso periodo l'assistito riferisca la comparsa di nuove 4 cisti satelliti nella stessa area, per cui viene sottoposto a nuovo intervento chirurgico (T120) per rimozione delle cisti neoformate.

In questo caso si sviluppa deiscenza della ferita chirurgica con incremento della complessità che ha comportato una revisione della ferita con applicazione di innesto autologo (T240) con esito negativo.

E'stato allora programmato dalla Struttura Sanitaria un nuovo intervento di innesto dermico (T250) con sostituto anche questo con esito negativo.

L'assistito successivamente si è rivolto ad un altro centro specialistico in Regione di appartenenza è stato impostato un piano di medicazioni con dispositivi non EBP con peggioramento del quadro clinico.

A seguito di questi trattamenti l'assistito ha scelto di effettuare un piano di trattamento presso la Sua struttura di residenza dotata di percorso assistenziale multidisciplinare, è stato impostato un check new TIME0 ed uno start con trattamenti evidence-based.

Risultati: Attraverso il percorso multidisciplinare territoriale della Azienda di appartenenza l'assistito è stato preso in carico dal team domiciliare attraverso percorso con piano assistenziale strutturato e condiviso. La presa in carico assistenziale è in corso. Sono stati monitorati indicatori clinici di valutazione e progressione della fase riparativa della lesione attraverso scale di valutazione validate e documentazione fotografica.

Conclusioni: La gestione di assistiti con lesioni cutanee complesse necessita di piani multidisciplinari strutturati e delle giuste competenze nel setting di cura di prossimità rappresenta il key-point essenziale per la giusta presa in carico.

PP119 TRATTAMENTO A DOMICILIO DI EMATOMA POST-TRAUMATICO IN COORDINAMENTO CON L'AMBULATORIO DI CHIRURGIA PLASTICA

Cinzia Leboffe[1], Walter Paternich[2], Lara Prampolini[1], Claudia Di Bernardo[1]

[1]ASL 5 Liguria, Cure Domiciliari Distretto 18; [2]ASL 5 Liguria, Chirurgia Plastica, Italy

Scopo: A giugno 2021 l'Ambulatorio di chirurgia plastica ha preso in carico una lesione post traumatica in una donna di anni 75, affetta da Neuropatia diabetica, per un debridement chirurgico ed inviata successivamente all'Assistenza domiciliare integrata per la gestione delle medicazioni settimanali.

Metodi e Risultati: TIPO DI LESIONE: Ematoma post-traumatico DESCRIZIONE GENERALE: Lesione post traumatica con necrosi e fibrina EZIOLOGIA: Post-traumatica LOCALIZZAZIONE: Arto inferiore sx DIMENSIONE INIZIALE: 264 cm2 CUTE PERILESIONALE: Edematosa, arrossata QUANTITÀ ESSUDATO: Molto essudante TIPOLOGIA E QUANTITÀ %: 90% tessuto devitalizzato, necrosi e fibrina; 10% tessuto di granulazione MARGINI: Introflessi, irregolari.

Inizialmente è stato effettuato un Debridement chirurgico in sede ambulatoriale, posizionata una medicazione in alginato di Calcio e Sodio per gestire il sanguinamento. Successivamente è stata posizionata una Pressione Topico Negativa (TPN) standard, a -125 mmHg per allontanare dalla lesione l'abbondante essudato. Successivamente abbiamo posizionato una medicazione antimicrobica in AMD per alcune settimane visti i cambi frequenti e in seguito, a essudato ridotto, abbiamo posizionato una TPN monouso (della durata di 30 giorni e medicazione in idrofibra) e medicazione in carbossimetilcellulosa sodica e argento per 30gg. Abbiamo notato una significativa contrazione della lesione e risalita del fondo di lesione. Successivamente siamo passati a medicazioni settimanali con carbossimetilcellulosa sodica e argento sino al 14 ottobre 2021 in cui la lesione è arrivata a 15 cm2. La lesione si è poi chiusa definitivamente a fine ottobre 2021.

Conclusioni: Con l'intervento sinergico con l'ambulatorio di chirurgia plastica della nostra ASL siamo riusciti a risolvere una lesione di notevoli dimensioni e migliorare l'aspetto della cute perilesionale. L'impiego di medicazioni ananzate e Pressione topico negativa Standard e monouso ci ha consentito di ridurre gli accessi ambulatoriali e contrarre significativamente il tempo di presa in carico della paziente.

PP120 TRATTAMENTO DI UNA LESIONE POST TRAUMATICA NOT HEALING ALL'ARTO INFERIORE SX IN PAZIENTE DIABETICA OBESA

Luciana Boggiatto[1], Manuela Alice[2], Manuela Martolini[3]

[1]ASL 2 Regione Liguria, Italy; *[2]Coordinatore Infermieristico Assistenza Domiciliare Integrata (ADI)-Struttura Complessa (SC) Distretto Savonese ASL2 Regione Liguria*; *[3]Coordinatore Dipartimento Cure Primarie, SC Coordinamento Professioni Sanitarie Territoriali (CPST) ASL2 Regione Liguria, Italy*

Scopo: Valutare l'efficacia di un sistema antibiofilm in 4 fasi nella gestione di una lesione post traumatica not healing all'arto inferiore sinistro, regione tibiale anteriore, sotto l'articolazione del ginocchio, in paziente diabetica obesa.

Metodi: Inizialmente, su consulenza medica, è stato applicato Argento Sulfadiazina in crema e medicazioni tradizionali. Vista la mancanza di miglioramenti significativi, presenza di cute perilesionale arrossata e di materiale colliquato sotto l'escara, abbiamo iniziato a gestire la lesione con medicazioni avanzate secondo i principi del TIMERS e tecnica del Wound Hygiene.

Risultati: La lesione non mostrava segni di miglioramento da giugno 2022 ed è stata presa in carico con medicazioni avanzate il 28/12/2023. La lesione di circa 20 cm2 si presentava coperta da necrosi nera secca e adesa al fondo.

In una fase iniziale abbiamo effettuato il debridement autolitico con Idrogel e Idrocolloide e aumentato il numero degli accessi da uno a due volte la settimana. Dopo soli 15 giorni la lesione mostrava segni significativi di miglioramento e presentava un fondo deterso per il 70% e bordi in scivolo. Abbiamo unito al debridement autolitico quello meccanico eseguito ad ogni cambio medicazione secondo tecnica del wound hygiene.

Una volta deterso il fondo la lesione è stata trattata con schiuma pluristratificata contente idrofibra con Argento al fine di mantenere bassa la carica batterica considerate le comorbilità della paziente.Ad oggi il trattamento è ancora in corso, la lesione si è già ridotta da 20 cm2 a 12 cm2 ed ipotizziamo una chiusura della lesione nell'arco di 30/45 giorni.

Conclusioni: Per noi è stato molto significativo osservare come una lesione, non healing per ben 6 mesi, abbia ripreso in soli 15 giorni il processo di riparazione tissutale, grazie all'approccio avanzato alla lesione: tramite l'utilizzo medicazioni avanzate appropriate secondo TIMERS, associate alle tecniche di best practice nella gestione della lesione.

PP121 MICOSI UNGUEALE: NUOVO APPROCCIO TERAPEUTICO

Marco Roberto Bortolotti[1], Ilaria Teobaldi[2]

[1]Ottobock Soluzioni Ortopediche, San Massimo, Italy; *[2]Sanitaria Ortopedia Borgo Roma, Verona, Italy*

Scopo: Valutare efficacia e sicurezza dell'utilizzo di probiotici topici (Lactobacillus acidophilus, il Saccharomyces boulardii e Enterococcus faecium) in aggiunta al trattamento antimicotico standard.

Metodi: Pz uomo, 52 anni, insufficienza venosa arti inferiori, micosi ungueale cronica primo dito piede sx presente da circa due anni, gestito con trattamento standard per onicomicosi:

- fresatura mensile con asportazione della porzione micotica

- utilizzo domiciliare quotidiano antimicotico topico Ciclopirox 80mg/g

- detersione quotidiana dei piedi con detergente a base di Tioconazolo, Piroctone Olamina e Acido Salicilico

- detersione profonda settimanale tramite spazzolatura ungueale con Perossido di Idrogeno e Bicarbonato.

Dopo 3 mesi associazione ad applicazione settimanale di Lactobacillus acidophilus, Saccharomyces boulardii e Enterococcus faecium in polvere inumiditi con Soluzione Fisiologica, in occlusione per 12 ore.

Risultati: Dopo 5 mesi risoluzione completa della micosi e ripristino non solo della fisiologica lamina ungueale ma anche della corretta adesione al letto ungueale.

Conclusioni: L'utilizzo di probiotici topici risulta essere efficace nella riduzione della carica micotica, soprattutto i ceppi di Candida Albicans mediante un antagonismo specifico e diretto che riduce drasticamente delle colonie e ne contrasta il reimpianto delle stesse. L'utilizzo off-label dei probiotici necessita di maggiore compliance da parte del paziente e di ulteriori studi sia per migliorarne l'applicabilità che per valutarne i risultati a lungo termine.

Enterelle Plus, Bromatech S.r.l.

Applicazione probiotici

PP122 IL DEBRIDMENT AUTOLITICO ATTRAVERSO L'UTILIZZO DI UNA MATRICE OLEICA COSTITUITA DA OLIO EXTRAVERGINE DI OLIVA BIOLOGICO ARRICCHITA DI OSSIGENO IN GRADO DI RILASCIARE SPECIE REATTIVE DI OSSIGENO

Sonia Brizzi[1], Cinzia Datteri[1], Claudia Sergiampietri[1]

[1]*Azienda Usl Toscana Nord Ovest, Carrara, Italy*

Scopo: Le ulcere cutanee, spesso, tendono a cronicizzare anche per la presenza di fibrina/necrosi adesa, difficilmente rimovibile. Una gestione ottimale del tessuto devitalizzato, attraverso un debridment appropriato ed efficace, promuove il "passaggio" dell'ulcera dalla fase infiammatoria alla fase proliferativa, con riduzione del tempi di guarigione.

Metodi: Abbiamo approfondito il caso clinico di un paziente di 69 anni, giunto alla nostra osservazione, per il trattamento di ulcera cronica all'arto inferiore sinistro, di origine traumatica, gestita in autonomia per oltre 2 mesi. Alla valutazione iniziale l'ulcera era completamente ricoperta da tessuto necrotico umido e la cute perilesionale appariva arrossata. Era presente un dolore severo (scala VAS). A causa del dolore, almeno nella fase iniziale di trattamento, non è stato possibile effettuare curettage dell'ulcera. Dopo la valutazione del trattamento più appropriato e delle risorse disponibili, la scelta è ricaduta su una matrice oleica costituita da olio extravergine di oliva biologico arricchita di ossigeno in grado di rilasciare specie reattive di ossigeno (ROS). Era infatti necessario un debridment di tipo autolitico, ma che preservasse la cute perilesionale. La medicazione veniva rinnovata 2 volte a settimana e veniva confezionata terapia compressiva, per ridurre l'edema dell'arto inferiore (ecocolordoppler negativo per arteriopatia).

Risultati: Il tessuto devitalizzato ha iniziato a "sbrigliarsi" già dopo la prima applicazione e dopo la terza medicazione il fondo dell'ulcera era quasi completamente deterso. Alla scala VAS il dolore era lieve già alla seconda medicazione.

Conclusioni: L'utilizzo di medicazioni con matrice oleica costituita da olio extravergine di oliva biologico arricchita di ossigeno in grado di rilasciare specie reattive di ossigeno (ROS), ha rappresentato un valido ed efficace trattamento nel caso clinico succitato.

PP123 L DEBRIDMENT AUTOLITICO ATTRAVERSO L'UTILIZZO DI UNA MATRICE OLEICA COSTITUITA DA OLIO EXTRAVERGINE DI OLIVA BIOLOGICO ARRICCHITA DI OSSIGENO IN GRADO DI RILASCIARE SPECIE REATTIVE DI OSSIGENO

Sonia Brizzi[1], Cinzia Datteri[1], Claudia Sergiampietri[1]

[1]*Azienda Usl Toscana nord ovest, Carrara, Italy*

Scopo: Le ulcere cutanee, spesso, tendono a cronicizzare anche per la presenza di fibrina/necrosi adesa, difficilmente rimovibile. Una gestione ottimale del tessuto devitalizzato, attraverso un debridment appropriato ed efficace, promuove il "passaggio" dell'ulcera dalla fase infiammatoria alla fase proliferativa, con riduzione del tempi di guarigione.

Metodi: Abbiamo approfondito il caso clinico di un paziente di 69 anni, giunto alla nostra osservazione, per il trattamento di ulcera cronica all'arto inferiore sinistro, di origine traumatica, gestita in autonomia per oltre 2 mesi. Alla valutazione iniziale l'ulcera era completamente ricoperta da tessuto necrotico umido e la cute perilesionale appariva arrossata. Era presente un dolore severo (scala VAS). A causa del dolore, almeno nella fase iniziale di trattamento, non è stato possibile effettuare curettage dell'ulcera. Dopo la valutazione del trattamento più appropriato e delle risorse disponibili, la scelta è ricaduta su una matrice oleica costituita da olio extravergine di oliva biologico arricchita di ossigeno in grado di rilasciare specie reattive di ossigeno (ROS). Era infatti necessario un debridment di tipo autolitico, ma che preservasse la cute perilesionale. La medicazione veniva rinnovata 2 volte a settimana e veniva confezionata terapia compressiva, per ridurre l'edema dell'arto inferiore (ecocolordoppler negativo per arteriopatia).

Risultati: Il tessuto devitalizzato ha iniziato a "sbrigliarsi" già dopo la prima applicazione e dopo la terza medicazione il fondo dell'ulcera era quasi completamente deterso. Alla scala VAS il dolore era lieve già alla seconda medicazione.

Conclusioni: L'utilizzo di medicazioni con matrice oleica costituita da olio extravergine di oliva biologico arricchita di ossigeno in grado di rilasciare specie reattive di ossigeno (ROS), ha rappresentato un valido ed efficace trattamento nel caso clinico succitato.

PP124 EFFETTI DEL TRATTAMENTO CON PBMNC AUTOLOGHE IN PAZIENTI AFFETTI DA LESIONI NON HEALING

Cosimo Maglio[1], Monica Gonnelli[2]

[1]Ospedali Riuniti della Valdichiana, Chirurgia, Ospedali Riuniti Valdichiana Sudest, Italy; [2]Ospedali Riuniti della Valdichiana, Poliambulatori, Ospedali Riuniti Valdichiana Sudest, Italy

Scopo: Osservare l'efficacia del trattamento con Mononucleate da sangue periferico autologhe (PBMNC) nel trattamento di lesioni non healing non responder allo standard of care (SOC). **Metodi:** sono stati trattati 10 pazienti consecutivi con lesioni non healing dopo Standard of Care (SOC): 8 presentavano lesioni vascolari croniche agli arti inferiori non healing nonostante interventi di rivascolarizzazione efficace (4 diabetici) e 2 pazienti con lesioni croniche (1 lesioni da pressione glutea, 1 deiscenza chirurgica). I pazienti sono stati sottoposti a 2-3 impianti con PBMNC (1) a distanza di 20-30 giorni tra di loro. End point misurati a tempo zero, dopo ogni impianto e ad 1-3 mesi dalla fine del ciclo terapeutico sono : % pazienti guariti , time to healing (TH) dolore in scala VAS e Wound Bed Score (WBS)1. **Risultati:** 5 pazienti con ulcere vascolari non healing sono guariti, 5 pazienti migliorati. Il WBS medio era di 4 alla prima visita, di 13 alla fine del ciclo terapeutico. Il paziente con ulcera da pressione è migliorato, quello con deiscenza chirurgica è guarito, tempo medio di guarigione 60 giorni. Il dolore era diminuito in tutti i pazienti, VAS 8,2(T0) e 1,5 (T4). Nessun evento avverso osservto. **Conclusioni:** La terapia con PBMNC è sicura ed efficace, nel trattamento delle lesioni trofico-ulcerative non responder alla SOC , indice una immediata riduzione del dolore, riduce amputazioni maggiori/minori, con conseguente riduzione dei costi associati alla gestione del paziente e miglioramento della qualità di vita.

1. Hematrate Cook Regentec

PP125 PIEDE DIABETICO: TRATTAMENTO CON PRESSIONE TOPICA NEGATIVA AD INSTALLAZIONE- CASO CLINICO

Jolanda Restelli[1]

[1]Ospedale di Feltre - ULSS 1 Dolomiti, UOC di Geriatria, Feltre, Italy

Scopo: Le persone con diabete possono sviluppare ulcere del piede che spesso si infettano. La terapia a pressione negativa con instillazione è associata ad un effetto positivo nel trattamento di varie ferite

Metodi: Uomo 66 aa, obeso, diabetico, pregressa amputazione 5 raggio piede dx. Marzo 2022 ulcera calcaneale dx necrotica, eseguito debridement chirurgico e ciclo con pressione topica negativa- NPWT- con beneficio. Maggio infezione al calcagno dx, fistolizzazione con essudato denso. Dopo debridement chirurgico si applica NPWT (*) con sistema ad instillazione usando una soluzione di irrigazione ipotonica a pH neutro a base di ipoclorito di sodio e acido ipocloroso (1), che è rimasta nel letto della ferita per 10 min, seguita da 3 ore di NPWT continua a -125 mmHg. L'ulcera è stata medicata con schiuma di poliuretano a cellule aperte reticolata a contatto e una medicazione di instillazione standard a copertura(2). Rinnovo ogni 3 giorni per 15 giorni. Aggiunta terapia antibiotica parenterale

Risultati: Trattamento sospeso per obiettivo raggiunto: detersione con tessuto di rigenerazione. Il successivo protocollo ha usato una medicazione interattiva con cellulosa ossidata e rigenerata e collagene liofilizzato[3], associato ad una in carbone attivo con argento [4]Il paziente ha poi eseguito regolari accessi presso l'ambulatorio vulnologico ospedaliero, un regime dietetico personalizzato e un programma di riattivazione motoria con graduale ripresa del cammino.

Conclusioni: NPWT con instillazione rispetto al trattamento standard si è dimostrata più efficace. L'uso della tecnologia associato ad un programma di cura completo può ridurre il rischio di eventi avversi e favorire il percorso di guarigione.

08/06/22 inizio NPWT

23/06/22 fine NPWT

03/11/22

* sistema VAC Veraflo;1 Granudacyn; 2 Cleanse Choice; 3 Promogran; 4 Actisorb

PP126 LESIONE DA PRESSIONE TRATTATA CON TPN E CARBOSSIMETILCELLULOSA SODICA CON AG

Ramona Elena Magureanu[1], Paola Fusari[1]

[1]Ospedale di Stato, U.O. Chirurgia Generale - Ambulatorio Vulnologico, Repubblica di San Marino, San Marino

Scopo: Le ferite riluttanti alla cicatrizzazione si confermano una sfida essenziale nella pratica clinica. Causano dolore, morbilità, trattamento prolungato e richiedono un intervento di chirurgia ricostruttiva (Agarwal et al., 2019).

Metodi: Donna, 57 anni, allettata per paraplegia in esiti di intervento chirurgico per ependimoma della cauda equina, forte fumatrice, obesa (BMI 35), ipertesa, diabetica.

- novembre 2020 lesione da pressione della regione ischiatica di IV grado. Dopo debridement chirurgico viene gestita con medicazioni convenzionali. A causa dell'incontinenza fecale si assiste a un ritardo del processo di guarigione. Dopo discussione collegiale viene deciso di confezionare colostomia definitiva e procedere a lembo miocutaneo.
- giugno 2022 si procede con la colostomia mediante chirurgia laparoscopica. Il decorso è regolare.
- luglio 2022 confezionato lembo miocutaneo di bicipite femorale a chiusura del difetto sacrale. Dopo iniziale attecchimento del lembo si assiste a parziale necrosi a livello gluteo con ascessualizzazione.
- agosto 2022 eseguita toilette chirurgica e posizionamento di TPN mantenuta per 30 giorni fino a detersione e riduzione volumetrica tale da permettere una ulteriore revisione chirurgica. Si applica TPN in prevenzione.

Risultati: A fine ottobre sospende TPN; la lesione è granuleggiante, essudato basso, cute perilesionale leggermente macerata. Si procede con medicazioni in CMCSodica contenente Ag con sostituzione ogni 3 giorni. L'essudato viene assorbito verticalmente mantenendo un ambiente umido favorevole alla guarigione.

La lesione si riduce notevolmente.

Conclusioni: Nessun presidio e procedura possono da soli risolvere un problema complesso come una lesione da pressione, la gestione multidisciplinare è una risorsa inestimabile nel trattamento delle lesioni.

PP127 GESTIONE DELLE DEISCENZE CON DIASTASI DELLE FERITE STERNALI CARDIOCHIRURGICHE MEDIANTE TPN: ANALISI DI UNA CASISTICA

Maria Vincenza Stefanizzi[1 2], Annarita Leardi[2]

[1]Centro Cardiologico Monzino, Ambulatorio Lesioni Difficili, Milano, Italy; *[2]Centro Cardiologico Monzino, Reparto di Cardiochirurgia, Milano, Italy*

Aim: Dimostrare che la TPN è il *gold standard* nella gestione delle ferite cardiochirurgiche complesse, coadiuvato con il lavoro di un'équipe multidisciplinare.

Method: Pazienti degenti con lesioni cardiochirurgiche sternali altamente complesse sono stati valutati tramite scala SWAS V e trattati con TPN. La multidisciplinarietà del team assistenziale per la gestione della terapia negativa, grazie a infermieri esperti e con la collaborazione del cardiochirurgo, ha permesso il generale miglioramento del quadro clinico e conclusiva resintesi della ferita in sala operatoria.

Results and Discussion: Risultati evidenti della nostra esperienza d'équipe sono stati: un calo del numero di giorni di degenza del paziente presso il reparto di Cardiochirurgia, stabilizzazione del piatto sternale con riduzione della diastasi, diminuzione del dolore e un controllo sull'infezione. Grazie a questa nuova tipologia di medicazione, i pazienti che presentano lesioni sternali particolarmente complesse possono relazionarsi con altre persone senza timori, evitando l'isolamento. In alcuni casi, se le condizioni cliniche lo permettono, possono trascorrere un periodo presso il loro domicilio, organizzando il cambio della medicazione presso l'ambulatorio di Lesioni Difficili, previo appuntamento.

Conclusion: La visione olistica del paziente grazie all'interazione di varie figure professionali riduce i tempi di degenza del 30%, seguita da una restitutio in integrum della ferita e generale miglioramento della qualità di vita. I controlli successivi presso l'ambulatorio di Lesioni Difficili permettono di monitorare la stabilizzazione della cicatrice post operatoria.

PP128 TPN MONOUSO + IDROFIBRA IN CELLULOSA NEL TRATTAMENTO DELLE COMPLICANZE POST-CHIRURGICHE ORTOPEDICHE

Barbara De Angelis[1], Fabrizio Orlandi[1], Chiara di Segni[1], Valerio Cervelli[1]

[1]*Facoltà di Medicina e Chirurgia, Plastic and Reconstructive Surgery, Roma, Italy*

Scopo: Negli ultimi anni, la terapia a pressione negativa per le lesioni cutanee ha fornito ai medici un ottimo strumento nella gestione e nel trattamento delle ferite acute e croniche. La NPWT agisce attraverso diversi meccanismi per rimuovere le barriere alla guarigione e per stimolare risposte specifiche del processo di riparazione. NWT monouso è un sistema semplificato che fornisce una terapia topica negativa adatta a competere con i sistemi classici nella gestione di ferite di piccole e medie dimensioni con livelli di essudato medio-bassi. Non è un semplice dispositivo ma piuttosto un nuovo concetto di NPWT. In particolare la medicazione in idrofibra di cellulosa multistrato ed il supporto adesivo conformabile conferisce particolare tolleranza, adattabilità e sicurezza nell'area interessata. Può essere usata anche in prevenzione delle complicanze post-chirurgiche direttamente in sala operatoria.

Metodi: Dal 2019 al 2022, 50 pazienti di età compresa tra i 26 e gli 85 anni sono stati trattati con il sistema TPN monouso per un periodo da 20 a 40 gg . L'eziologia delle lesioni includeva ferite post chirurgiche ortopediche complicate infette trattate con bonifica del sito affetto e terapia antibiotica su abg.

Risultati: Il follow-up è stato di 1-3-6-12 mesi. I risultati sono stati valutati secondo i seguenti parametri: tempi di guarigione delle ferite, gestione dell'essudato, controllo delle infezioni, qualità dell' esito cicatriziale, soddisfazione dell'operatore, comfort dei pazienti e diminuzione dei costi. In tutti i parametri abbiamo ottenuto un miglioramento soddisfacente.

Conclusioni: Nella gestione di una ferita incide sicuramente molto sull'utilizzo delle risorse: la scelta della medicazione, la sua efficacia, la frequenza dei cambi che riduce anche i traumi ad essa connessi e l'esposizione a contaminanti, la prevenzione delle infezioni. Il TPN monouso ha risposto alle aspettative di cura in termini di , gestione delle ferite per una guarigione più rapida portando con sé innovazioni come la medicazione multistrato in idrofibra , facilità d'uso e riduzione dei costi.

Avelle

PP129 GESTIONE MULTICENTRICA DI LESIONI CUTANEE: APPROCCIO COMBINATO OSSIGENOTERAPIA IPERBARICA OSPEDALE POLICLINICO SAN MARTINO GENOVA E VULNOLOGIA ASL3 REGIONE LIGURIA

Marco Marchelli[1], Paola Salvetti[2], Carmen Robolà[2], Giovanni Piredda[2], Cinzia Viaggi[1], Deborah Cesura Granara[1], Silvia Pienovi[1]

[1]*ASL3 Regione Liguria Vulnologia, Italy*; [2]*Ospedale Policlinico San Martino Genova, Anestesia e Rianimazione, Genova, Italy*

Scopo: L'ossigenoterapia iperbarica è una terapia basata sulla respirazione di ossigeno puro o miscele gassose iperossigenate all'interno di camere iperbariche in cui la viene portata ad un livello superiore rispetto alla pressione atmosferica fino a raggiungere una quota o profondità di terapia pari a 12, 15 e 18 Mt (ovvero 2.2, 2.5 e 2.8 Atmosfere (ATA)).I pazienti nella camera iperbarica respirano ossigeno in un cifrcuito chiuso mediante maschere oronasali. La somministrazione dell'ossigeno a livello alveolare ed arterioso incrementa la quantità di ossigeno inspirata (FiO2) portando all'aumento della saturazione dell'emoglobina (SpO2) e dell' O2 nel sangue.Questo migliora l'ossigenazione dei tessuti favorendo il processo di rigenerazione tissutale ed il controllo della carica batterica.

Metodi: Casi trattati in sinergia tra Vulnologia e Servizio Ossigenoterapia Iperbarica.

Risultati: 1) Lesione post traumatica all'arto inferiore destro in un paziente del 2005, è stato seguito inizialmente dalla Terapia Iperbarica dal 21/06/2021 al 21/07/2021 con terapia a 2.5 ATA in 20 sedute. In data il 16/07/2021, è stato inviato all'attenzione del centro vulnologico (CAV) per valutazione e trattamento locale. Alla presa in carico la lesione misurava 15 cm2. Il paziente, dopo courettage, è stato approcciato con le 4 fasi del Wound Hygiene (WH) e medicato con dispositivi in carbossimetilcellulosa sodica (CMCNa): CMCNa con argento ionico (attiva anche sul biofilm), e terapia topico negativa monouso della durata di 30 gg fino a miglioramento significativo. Successivamente abbiamo posizionato una medicazione bioattiva fno a completa cicatrizzazione avvenuta in due mesi.

2) Piede diabetico neuroischemico giunto in vunologia il 03/02/2021, inviato in chirurgia vascolare per rivascolarizzazione e drenaggio flemmone. Dal 15 febbraio al 5 marzo abbiamo gestito la lesione, di 20 cm2 e sottominatura di 1,5 cm, secondo TIME, WH e ortesi di scarico. Visto il riscontro osteomielitico, si è inviato il paziente all'attenzione del Servizio Ossigenoterapia Iperbarica dove è stato sottoposto a 30 sedute di terapia a 2.5 ATA. Contemporaneamente il trattamento locale è sato eseguito dal CAV con medicazioni avanzate in CMCNa e Argento ionico con agenti con specifica azione sul biofilm e terapia topico negativa monouso della durata di 30 gg fino a miglioramento significativo. Successivamente abbiamo posizionato una medicazione bioattiva, fino a completa chiusura della lesione avvenuta il 10/4/2021.

Conclusioni: La collaborazione sinergica tra Vulnologia e Ossigenoterapia Iperbarica è fondamentale per gestire lesioni ad alta complessità, riducendo i tempi di presa in carico ed evitando la cronicizzazione o peggioramento delle lesioni.

PP130 TRATTAMENTO CON TERAPIA A PRESSIONE TOPICA NEGATIVA (TPN) SU FERITA DA TRAUMA

Shpresa Haxhiaj[1], Manuela Martolini[2], Simone Ferraro[3]

[1]ASL 2 Regione Liguria, Cure Primarie, Finale Ligure, Italy; [2]Coordinatore Infermieristico Dipartimento di Cure Primarie ASL2 Regione Liguria, Savona, Italy; [3]Dirigente medico U.O. Chirurgia Plastica, Pietra Ligure, ASL2 Regione Liguria, Italy

Scopo: Nei due casi considerati si è voluto comprendere se e come il trattamento con TPN potesse fornire vantaggi nel processo di riparazione tissutale e sotto quali punto di vista. Caso A, paziente ricoverato in traumatologia per politrauma da incidente stradale, con frattura scomposta di tibia e perone, operato, con lesione lungo tutto l'asse tibiale anteriore di circa 100 cm2, profonda circa 2 cm Caso B, paziente ricoverato trauma da caduta in bicicletta con lesione al terzo distale 50 cm2, profonda circa 1 cm.

Metodi: Caso A, tibia e perone sono stati stabilizzati con fissatori esterni è stato effettuata il debridement chirurgico e in seguito applicato la pressione topica negativa (filer in schiuma di poliuretano) a -125 mmHg per 3 settimane. Alla fine del trattamento è stato possibile di effettuare un innesto autologo. Caso B, dopo debridement chirurgico è stata applicata la terapia a pressione negativa (con filer in schiuma in poliuretano) a -125 mmHg per 2 settimane. A fine trattamento la lesione ci presentavo un fondo idoneo alla chiusura con l'utilizzo di una medicazione avanzata.

Risultati: Valutare il contributo della TPN nel processo di riparazione tissutale e in particolare: - Caso A, utilizzo della terapia a pressione topica negativa, con fine di raggiungere le condizioni per effettuare l'innesto autologo. - Caso B, utilizzo della terapia a pressione topica negativa, con fine di raggiungere le condizioni che consentano, la guarigione per mezzo di medicazioni avanzate. **Conclusioni:** La pressione topica negativa ha consentito un buon drenaggio di queste complesse lesioni, prevenendo la contaminazione batterica, accelerando la formazione del tessuto di granulazione, cosi da raggiungere in breve tempo, nel caso A all'innesto autologo e nel caso B alla chiusura con la medicazioni avanzati. In aggiunta il trattamento è stato confortevole in entrambi i pazienti. In conclusione si può affermare che l'impiego della TPN con medicazione in schiuma sostiene gli obiettivi clinici nel processo di riparazione tissutale grazie alla stimolazione della crescita del tessuto di granulazione e alla formazione delle migliori condizioni utili anche all'innesto autologo.

PP131 GESTIONE BREAST UNIT DI UNA LESIONE CON DIASTASI DI FERITA CHIRURGICA POST INTERVENTO

Stefania Fortunato[1], Silvia Zappa[1], Valter Panichella[1], Umberto Cosce[1], Luisa Reggiani[1], Giuseppe Pizzonia[1], Alessandra Amore[1], Liala Trespi[1]

[1]ASL2 Regione Liguria, Italy

Scopo: Gli interventi oncologici al seno sono tra le procedure ad alto rischio di complicanze della ferita chirurgica a causa degli specifici fattori di rischio associate a questa tipologia di pazienti. Le complicanze possono ritardare l'erogazione dei trattamenti adiuvanti e influenzare gli esiti oncologici, oltre a quelli estetici a lungo termine.

Metodi: Paziente di anni 68 sottoposta a numerosi interventi per carcinoma mammari in paziente con mutazione di BRCA2. In data 29/08/2018 asportazione di recidiva sulla cicatrice in sede mammaria destra (incisione a losanga su cicatrice in esiti di mastectomia destra comprendente i due noduli sottocutanei fino al piano profondo del muscolo pettorale con posizionamento di drenaggio aspirativo; sutura a strati). Proseguendo asportazione del drenaggio aspirativo, si è rivelata una diastasi di ferita chirurgica di dimensioni pari a 6X3 cm e profondità di 3 cm. Si procede con medicazione in carbossimetilcellulosa sodica con Argento e sostanze antibiofilm (formato 10X10 cm), come agente antimicrobico topico. Per stimolare la contrazione della lesione, dal 30 settembre al 29 ottobre 2018 abbiamo posizionato una pressione negativa monouso portatile con medicazione con carbossimetilcellulosa sodica, con idrofibra con argento a riempimento della cavità. Successivamente abbiamo proseguito con medicazione antimicrobica in carbossimetilcellulosa con argento ionico fino a completa risoluzione della lesione avvenuta a dicembre 2018.

Risultati: l'applicazione di una terapia a pressione negativa monouso ci ha aiutato ad ottenere una guarigione più rapida evitando ritardi sulle successive terapie oncologiche o radioterapiche.

Conclusioni: Per noi operatori è stato vantaggioso utilizzare queste medicazioni facilmente sostituibili, atraumatiche, particolarmente performanti che hanno mantenuto un ambiente sempre umido ideale per la riparazione tissutale, evitando di macerare i bordi della lesione. La pressione negativa monouso ci ha portato a sperimentare che la giusta combinazione di pompa e medicazione ha fatto la differenza in termini di guarigione della lesione cutanea e riabilitazione della paziente. La paziente ha imparato velocemente a gestire la pompa riferendo che è stato importante poter comunque fare la doccia durante il trattamento ed ha apprezzato che l'abbigliamento non si è mai sporcato di essudato grazie all'assorbimento dell'idrofibra.

PP132 NPWT POST CHIRURGICA SECONDARIA A SINDROME COMPARTIMENTALE: CASE REPORT

Francesca Turrini[1], chiara bassi[1], Cecilia Muscarà[1], Simone Toscano[2], Stefania Chiarenza[2]

[1]Istituti Clinici Zucchi Monza, Centro di Vulnologia, Monza, Italy; [2]Istituti Clinici Zucchi Monza, Centro di Vulnologia, Italy

Scopo: Paziente inviato da cardiologia per esiti sindrome compartimentale gamba sinistra e TVP vene gemellari post intervento di sostituzione mitralica e rivascolarizzazione miocardica (prelievo vena grande safena), decorso post operatorio pluricomplicato. Successive valutazioni specialistiche senza presa in carico per la problematica dell'arto inferiore.

Metodi: Giunge in data 29/06/22 presso il centro di vulnologia ICZ Monza con necrosi dei tessuti molli, multiple fistole cutanee con perdita di sostanza estesa circonferenzialmente. La prima TAC documenta interessamento del comparto anteriore e posteriore. Si programma rivalutazione radiologica e intervento di revisione chirurgica.

Risultati: Presa in carico e iniziale ciclo di medicazioni. A rivalutazione CT: necrosi interessante tutti i comparti della gamba fino ai piani profondi. In data 19/07/22 intervento di incisione e drenaggio della raccolta della loggia posteriore e laterale con evidenza di completa necrosi muscolo-fasciale e successivo posizionamento di terapia a pressione negativa (alternata -80 / -60 mmHg). Revisione il 2/08/22 per rimozione residui di necrosi e riposizionamento di NPWT per 3 settimane con risoluzione delle lesioni cavitarie profonde. Il 13/09/22 revisione chirurgica e posizionamento di sostituto dermico HMPA sulle residue lesioni superficiali. CT di rivalutazione a 3 mesi: completa risoluzione, normale il segnale della componente scheletrica che non mostra segni di osteomielite, presenti raccolte ipodense prive di enhancement contrastografico, riferibili a raccolte in esiti chirurgici.

Conclusioni: La gestione di questo caso è un esempio di ottimale sinergia tra cure mediche e cure infermieristiche. La presa in carico presso un centro ospedaliero di vulnologia ha consentito infatti un approccio intensivo e coordinato di trattamento chirurgico di revisione/ricostruzione in sala operatoria e medicazioni semplici/avanzate mediante posizionamento di terapia a pressione negativa sotto bendaggio ad elevato stiffness. Il paziente ha beneficiato di tale approccio combinato e coordinato in termini di risultato clinici oltre che di compliance e di benessere psicofisico.

PP133 CRITERI DI ELEGGIBILITÀ NELL'APPLICAZIONE DI TERAPIA A PRESSIONE NEGATIVA CON INSTILLAZIONE NEI PAZIENTI PORTATORI DI LESIONI CUTANEE DIFFICILI IN UN CONTESTO EXTRA-OSPEDALIERO

Michele Blasina[1], Martina Pangos[1], Simone De Meo[1], Luca Spazzapan[2], Francesca Mele[1], Laura Grezar[2], Giovanni Papa[2]

[1]ASUGI, Cure Ambulatoriali e Domiciliari, Trieste, Italy; [2]ASUGI, Struttura Complessa (UCO) Chirurgia Plastica, Trieste, Italy

Scopo: Lo scopo di questo studio osservazionale descrittivo è di definire i criteri di eleggibilità che consentano di individuare in modo univoco le caratteristiche dell'assistito portatore di lesioni cutanee candidabile al trattamento con terapia a pressione negativa a Instillazione nel contesto dell'assistenza extraospedaliera, che include sia l'ambito domiciliare che le strutture paraospedaliere.

Metodi: all'interno della popolazione in carico a livello extraospedaliero, domiciliare e residenziale, si valutano le caratteristiche che orienterebbero la prescrizione di avvio o di proseguo di tale Terapia a pressione negativa a Instillazione iniziato in ambito ospedaliero, in base alle condizioni cliniche e sociali dell'utente,unite all'esperienza dei professionisti coinvolti e alla letteratura esistente.

Risultati: I principali aspetti valutati sono la presenza di caregiver adeguato per l'educazione alla corretta gestione del trattamento, sulle 24h; presenza di condizioni igienico-sanitarie ambientali idonee e appropriate per la sicurezza del trattamento; la possibilità di fare affidamento a un *professional* formato e reperibile sulle 24h.

Conclusioni: I diversi parametri individuati possono primariamente garantire la sicurezza per l'assistito e configurarsi come criteri di elezione nella scelta di applicazione della terapia a Instillazione in sede territoriale; garantendo la continuità del trattamento ospedaliero in contesto extraospedaliero, si riducono i tempi di ospedalizzazione e si offre l'opportunità di eseguire un trattamento complesso nell'ambito dell'assistenza territoriale ,riducendo inoltre la frequenza di accessi da parte del personale sanitario e i costi legati all'utilizzo di medicazioni avanzate.

PP134 TRATTAMENTO FERITA CHIRURGICA POST AMPUTAZIONE GAMBA

Antonio Nardelli[1], Liliana Lanteri[1], Rita Maccario[1], Filippo Caruso[1], Raffaello Oggioni[1], Marino Anfosso[1]

[1]Regione Liguria, Italy

Scopo: Da aprile ad agosto 2022 è stata presa in carico una paziente con deiscenza chirurgica post-amputazione, gamba sinistra. Il nostro obiettivo è stato quello di velocizzare e ottimizzare la chiusura della lesione per consentire la riabilitazione e la ripresa delle attività sociali della paziente.

Metodi e risultati: Paziente femmina di 89 anni, in buona salute con una grave insufficienza vascolare all'arto inferiore sinistro. Alla signora viene effettuata una amputazione sotto il ginocchio causa ischemia acuta in data 5 aprile 2022. La paziente viene dimessa in data 14 aprile 2022 con indicazione per medicazioni bi-settimanali ed appuntamento per una prima valutazione evolutiva della ferita chirurgica a distanza di un mese. Nelle settimane successive si è notato un peggioramento sia della ferita chirurgica sia della vascolarizzazione dell'arto con comparsa di cianosi. Durante una visita di controllo viene riscontrata la presenza di necrosi estesa ed i chirurghi hanno eseguito un ulteriore intervento, per cui l'11 maggio la signora viene amputata sopra il ginocchio. Il 1 luglio 2022 la paziente viene dimessa con consiglio di medicazioni tri-settimanali. A fine luglio si posiziona una medicazione antimicrobica in idrofibra con Ag e agenti antibiofilm al fine di controllare la carica batterica (nonostante tampone colturale di ferita negativo). A tale medicazione è stata associato un sistema a pressione negativa monouso portatile della durata di 30 giorni con 1 accesso settimanale al fine di ridurre il numero di accessi. Il 23/08/2022 la paziente viene dimessa dal servizio di assistenza domiciliare integrata per guarigione.

Conclusioni: Si evince da quanto sopra che, con un appropriato trattamento della lesione, si riducono gli accessi domiciliari e, al paziente, si riduce il disagio di continue medicazioni. Abbiamo riscontrato anche un beneficio economico relativo ai costi sanitari diretti e indiretti.

PP135 MALNUTRIZIONE VS LESIONI CUTANEE COMPLESSE : QUALE INTERVENTO PER CONTRASTARE LA DEPLEZIONE DELLE RISERVE TISSUTALI ED I DEFICIT DEL QUADRO FUNZIONALE GENERALE? – LE INTEGRAZIONI SUPPLEMENTARI DEI MICRONUTRIENTI

Sonia Silvestrini[1], Marta Nassi[2]

[1]Az Ospedaliera San Giovanni Addolorata di Roma, Medicina, Roma, Italy; *[2]Az Ospedaliera San Giovanni Addolorata di Roma, Cardiologia, Roma, Italy*

Scopo: Tra una cellula e l'altra del tessuto connettivo ci sono sostanze come proteine, aminoacidi che fanno da trasduttori di segnali per le cellule sia in condizioni sane che di stress infiammatori, tissutali o sistemici, come nel caso di presenza di ferite ed hanno un ruolo attivo nella sintesi delle cellule tissutali attraverso i processi anabolici e catabolici che avvengono nel nostro organismo. Il 70% dei pazienti con piaghe e il 55% dei soggetti a rischio presentano una condizione di malnutrizione. Sia negli ospedali per acuti, sia nei reparti di lungo degenza, i deficit nutrizionali si riflettono sulla possibilità di guarigione.

Metodi: Il punto di partenza è stato quello di porsi delle domande, poichè il processo di guarigione, lungo e complesso, necessita della biodisponibilità di molti nutrienti essenziali, quali sono? Qual'è la causa del ridotto introito di nutrienti? Qual'è la causa della perdita di nutrienti? Cos'altera il metabolismo dei nutrienti? Cos'aumenta il fabbisogno di nutrienti? RICONOSCERE la malnutrizione entro 48 ore dal ricovero o alla presa in carico, ogni paziente dovrebbe essere sottoposto ad uno screening dello stato nutrizionale, eseguito da personale addestrato, impiegando metodo valido: PARAMETRI ANTROPOMETRICI - PARAMETRI ANAMNESTICI - PARAMETRI CLINICI - PARAMETRI EMATICI.

Risultati: Lesioni Cutanee essudanti = aumento del fabbisogno proteico e le Linee guida NPUAP/EPUAP/PPPIA raccomandano di fornire da 30 a 35 kcal per kg corporeo negli adulti a rischio di ulcere da pressione, valutati a rischio di malnutrizione. Sono state forniti adeguati apporti di proteine per riportare il bilancio azotato in positivo nei soggetti considerati a rischio di ulcere da pressione ed impiegati supplementi ad alto contenuto di proteine, arginina e micronutrienti in adulti con ulcere da pressione di Categoria/Stadio III o IV o con multiple ulcere da pressione, quando le esigenze nutrizionali non potevano essere soddisfatte con i tradizionali integratori ad alto contenuto calorico e proteico, supportando anche pazienti portatori di lesion cutanee differibili.

Conclusioni: Ristabilire l'equilibro dei macro e micro nutrienti è stato fondamentale nel processo di guarigione delle lesioni cutanee trattate, specialmente nell'integrare tempestivamente ove si sono evinte carenze, favorendo il processo di guarigione , con l'intervento mirato nelle fasi : infiammatoria, proliferative, di maturazione e cicatrizzazione.

PP136 IL RUOLO DEL WOUND-OSTOMY CARE NURSE NELLA GESTIONE DEL PIODERMA GANGRENOSO PERISTOMALE (PGP): CASO CLINICO

Alessia Bartolini[1], Nella Mosca[1], Luciano Del Papa[1], Maria Tangianu[1], Alessandro Sili[2], Jacopo Fiorini[2]

[1]Policlinico Tor Vergata, Ambulatorio Infermieristico, Roma, Italy; [2]Policlinico Tor Vergata, UOC Direzione Infermieristica, Roma, Italy

Scopo: Comprendere attraverso un case-report come la gestione affidata al wound-ostomy care nurse (WOCN) riduca il dolore e favorisca la guarigione del PGP. Attualmente non esistono linee guida per il trattamento del PGP, caratterizzato da ulcere dolorose, essudanti che provocano infiltrazioni e difficoltà di tenuta in situ del presidio stomale.

Metodi: Previo consenso, una paziente donna caucasica di 38 anni con Morbo di Crohn portatrice di colostomia è stata arruolata con ulcera peristomale di 24 cm^2 essudante, infetta, bordi spessi, violacei e minati, NRS score 10. Dal ricovero al post-dimissione, il WOCN ha implementato un approccio che prevedeva (1) gestione del dolore (lidocaina 5% crema, 2 volte/die), (2) dell'essudato (medicazioni primaria in alginato e secondaria in idrocolloide) e (3) utilizzo di presidio stomale a due pezzi convesso, anello di pasta riempitiva e cintura. Il dolore è stato valutato con la NRS scale e le ulcere documentate fotograficamente.

Risultati: Durante il ricovero (Luglio 2021), è stato implementato l'approccio di gestione WOCN, associato a terapia biologica con anticorpo monoclonale anti-TNF ed antibiotica. Dopo il ricovero, la paziente proseguiva l'approccio di WOCN nell'ambulatorio infermieristico con accessi programmati fino al raggiungimento dell'autonomia grazie ad interventi educativi di self-care. La guarigione si è riscontrata a marzo 2022 con diminuzione del dolore contemporanea al processo di guarigione.

Conclusioni: Il PGP richiede un approccio integrato, per la difficile diagnosi, trattamento e presenza del dolore percepito, e un approccio multidisciplinare gestito WOCN dal ricovero all'educazione al self-care quotidiano.

PP137 CONTROLLO DEL DOLORE ED INFEZIONE NELLE FERITE ACUTE/CRONICHE CON LIDOCAINA CLORIDRATO E SULFADIAZINA AG: PROTOCOLLO APPLICATIVO

Barbara De Angelis[1], Fabrizio Orlandi[1], Chiara di Segni[1], Nico Preite[1], Carlo Cossi[1], Ruggiero Marrano[1], Stefano Mogavero[1], Valerio Cervelli[1]

[1]Tor Vergata/Medicina, Plastic and Reconstructive Surgery, Roma, Italy

Scopo: Il paziente anziano, in considerazione delle sue fragilità, richiede, nella cura e nella gestione delle ferite difficili, un approccio multidisciplinare integrato che poggi su una valutazione accurata delle condizioni locali e su un comprehensive geriatric assesment. L'utilizzo del protocollo T.I.M.E. permette un'ottimizzazione dei trattamenti. Tuttavia alcune problematiche come dolore ed infezione restano sfide complesse. Le terapie locali sono da preferirsi a trattamenti sistemici, limitati anche dalle comorbidità spesso presenti. Nella nostra esperienza sul paziente anziano, gli anestetici in crema e la sulfadiazina argentica micronizzata sono risultati presidi di medicazione avanzata molto sicuri ed efficaci nella gestione del dolore e dell'infezione.

Metodi: Abbiamo trattato molti pazienti età compresa tra i 25 e oltre i 90 anni, con ulcere di diverso genere e policomorbilità. In relazione all'indicazione clinica sono state utilizzate SULFADIAZINA ARGENTICA MICRONIZZATA e LIDOCAINA CLORIDRATO con il seguente schema di trattamento: applicazione dell'anestetico in crema e, a seguire, applicazione di sulfadiazina argentica.

Risultati: Il tempo di riepitelizzazione, il controllo dell'infezione, la gestione dell'essudato, la cura dell'area perilesionale e la soddisfazione del paziente e degli operatori sanitari sono state oggetto di valutazione. Il trattamento è stato ben tollerato da tuti i pazienti. Sono stati riscontrati miglioramenti significativi con riduzione della sintomatologia dolorosa durante le medicazioni e la guarigione delle ulcere croniche. E' stata altresì evidenziata una riduzione dei costi. Il Follow up è stato effettuato a 6 e 12 mesi.

Conclusioni: L'utilizzo della sulfadiazina argentica micronizzata nelle ulcere del paziente anziano ha dimostrato un'accelerazione dei processi di guarigione, determinando una ottimizzazione del rapporto costo-beneficio, la riduzione dei tempi di ospedalizzazione, e un miglioramento della qualità di vita del paziente. La lidocaina cloridrato in crema è un presidio di medicazione sicuro, economico. Grazie all'azione veloce sul sito di applicazione, si è mostrata in grado di ridurre le sintomatologie algiche durante la medicazione. L'efficacia della combinazione dei due presidi nella gestione delle problematiche infettive e del dolore permette l'ottimizzazione della medicazione avanzata, con aumento della compliance del paziente e miglioramento della qualità della vita.

Ortodermina Crema/Sofargen Crema

PP138 VASCULITI : GESTIONE DELLE SOVRAINFEZIONI E DEL DOLORE

Donatella Rossolini[1], Marika Fabbretti[2], Pamela Orazi[3], Gabriele Picchiò[4]

[1]Ast Ancona Marche, Distretto Sanitario Jesi, Italy; *[1]Ast Ancona Marche, Distretto Sanitario Jesi*; *[3]Ast Ancona Marche, Adi - Dure Domiciliari Jesi, Italy*; *[4]Ast Ancona Marche, Ospedale Carlo Urbani Jesi, Italy*

Scopo: Le vasculiti sono malattie autoimmuni accomunate dalla presenza di infiammazione e necrosi delle pareti dei vasi sanguigni di qualunque calibro e in qualunque parte dell'organismo. Caratteristiche fondamentali sono il ritardo di guarigione e la presenza di dolore.

Alla base delle vasculiti primitive c'è un meccanismo autoimmune: il sistema immunitario si attiva contro i vasi sanguigni, determinando un'infiammazione cronica. Perché questo avvenga, però, non è ancora stato scoperto.

L'infiammazione dei vasi può causare danni in diverse sedi, tra cui manifestazioni cutanee con ulcerazioni con caratteristiche diverse.

La terapia va comunque personalizzata in ogni paziente e in base al tipo di vasculite. Generalmente le cure proseguono per alcuni mesi o anni, possono essere sospese quando la malattia è in remissione (cioè quando i sintomi scompaiono), ma può essere necessario doverle riprendere alla ricomparsa delle manifestazioni, per tenere sotto controllo la malattia.

Obiettivo dello studio è quello di riuscire a gestire le lesioni con un approccio olistico di presa in carico del paziente nelle sue problematiche; a livello locale utilizzare un prodotto che riesca a gestire la sovrainfezione ed il dolore.

Metodi: Studio osservazionale prospettico su pazienti che accedono all'Ambulatorio Specialistico Infermieristico Ferite Difficili ASIFD per la gestione delle lesioni vasculitiche con l'utilizzo di un dispositivo medico sotto forma di gel oleoso che facilita il processo di guarigione creando un microambiente favorevole all'attivazione del microcircolo e nel contempo sfavorevole alla proliferazione dei patogeni, esercitando inoltre un'azione filmogena, protettiva e di barriera.

Criteri di inclusione: pazienti afferenti all'ASIFD con diagnosi di vasculite o sospetta

Criteri di esclusione: presenza di una o più lesioni di altra eziologia.

Risultati: I dati saranno raccolti utilizzando schede appositamente costruite prendendo in considerazione i seguenti items: caratteristiche demografiche dei pazienti, caratteristiche delle lesioni, scala valutazione dolore NRS, trattamento eseguito.

Conclusioni: In linea con le recenti evidenze scientifiche, l'approccio più naturale con medicazioni su base oleosa con arricchimento di ossigeno permettono una gestione semplice ed efficace delle lesioni vasculitiche con buona compliance del paziente.

PP139 TRATTAMENTO IN REGIME DOMICILIARE DI LESIONE DA PRESSIONE IN PAZIENTE PEDIATRICO COMPLESSO

Shpresa Haxhiaj[1], Luciana Boggiatto[1], Manuela Martolini[2]

[1]ASL 2 Regione Liguria, Cure Pimarie, Finale Ligure, Italy; *[2]Coordinatore Infermieristico Dipartimento di Cure Primarie ASL2 Regione Liguria, Savona, Italy*

Scopo: Nel nostro servizio ADI seguiamo anche pazienti pediatrici portatori di disabilità. Questo richiede un costante aggiornamento sulle metodologie e tecnologie in uso in ambito pediatrico al fine di ottenere il risultato migliore possibile nel rispetto della qualità di vita del bambino e della famiglia.

Metodi e Risultati: Dal 2018 abbiamo in carico, per la gestione di tracheotomia e gastrostomia endoscopica percutanea (PEG), un paziente pediatrico complesso affetto da sindrome di Leigh e relative complicanze. A fine settembre 2021 è insorta una lesione da pressione di IV stadio in zona sacrale, inizialmente gestita secondo le procedure aziendali, la lesione non ha risposto al trattamento come sperato. Il 20 ottobre 2021, a seguito di consulenza specialistica vulnologica interna, abbiamo posizionato una pressione negativa monouso portatile della durata di 30 gg e relativa medicazione con interfaccia in idrofibra, per provare a velocizzare la ripresa dei processi di riparazione tissutale. Dopo 30 giorni di utilizzo la lesione, inizialmente di 4 cm^2, 2 cm di profondità e 1 cm di sottominatura a 360°, si era notevolmente contratta. Dopo una settimana di interruzione, durante la quale abbiamo posizionato solamente una medicazione in carbossimetilcellulosa sodica, abbiamo riposizionato la pressione negativa monousfo per altri 30 gg, che ha portato, in data 26 dicembre 2021, alla chiusura totale della lesione.

Conclusioni: Questo caso ci ha dato l'opportunità di implementare le nostre conoscenze e di accrescere le nostre competenze nella gestione del paziente pediatrico complesso, paziente spesso di difficile gestione anche in relazione al contesto familiare.

PP140 OSSERVAZIONE E ANAMNESI: INGREDIENTI FONDAMENTALI PER IL CORRETTO TRATTAMENTO DI UNA LESIONE

Pamela Orazi[1], Gabriele Picchiò[2], Donatella Rossolini[3], Marika Fabbretti[3]

[1]Ast Ancona Marche, Adi - Cure Domiciliari Jesi, Jesi, Italy; [2]Ast Ancona Marche, Ospedale Carlo Urbani Jesi, Jesi, Italy; [3]Ast Ancona Marche, Distretto Sanitario Jesi, Jesi, Italy

Scopo: Nella gestione delle lesioni croniche è di fondamentale importanza eseguire una completa e accurata presa in carico del paziente al fine di strutturare l'idoneo percorso di trattamento.

Metodi: Caso clinic.

P.G. donna 88 anni. Esiti di ictus ischemico (15 anni fà). Paziente allettata. Lesione al braccio Sx comparsa da 2 mesi circa. Verosimile lesione da pressione in sede atipica.

Risultati: CASO

Nonostante l'applicazione del corretto trattamento la lesione dopo un'iniziale miglioramento, non mostrava ulteriori segni di guarigione. Effettuata una nuova valutazione della lesione e una più accurata indagine anamnestica con il care giver si giunge a mettere in evidenza che la posizione del braccio tenuta abitualmente dalla paziente aumenta notevolmente la pressione sul fondo di lesione.

Effettuata un'idonea educazione sanitaria al care giver e al paziente sulla corretta posizione da tenere per scaricare l'arto, il percorso di guarigione della lesione è ripreso.

Conclusioni: Per rendere veramente efficace il trattamento è fondamentale eseguire una corretta valutazione della lesione e un'accurata presa in carico del paziente del paziente, dell'ambiente in cui vive e di tutte le sue abitudini di vita.

PP141 L'IMPORTANZA DELLA PREVENZIONE: GESTIONE E TRATTAMENTO DI LESIONE AL TALLONE INSORTA IN AMBITO OSPEDALIERO

Mara Saccone[1]

[1]ASL2 Regione Liguria, Italy

Scopo: Una non corretta gestione del paziente nel post operatorio, può causare lesioni cutanee tali da limitare gli aspetti riabilitativi e creando al paziente dolore e disagio psicofisico.

Metodi e Risultati: Paziente donna di aa 85, affetta da Parkinson da molti anni, con conseguente rigidità articolare, diffusa soprattutto agli arti inferiori. Patologie concomitanti: Ipertensione arteriosa, fibrillazione atriale in terapia con Dabigatran etexilato, insufficienza venosa cronica. La paziente presentava una lesione al tallone SX conseguente ad ospedalizzazione per intervento frattura di femore sx. La lesione, presa in carico il 19 ottobre 2021, si presentava di 1,26 cm2, molto secernente, con fondo parzialmente deterso, bordi macerati ed introflessi, cute perilesionale con callosità estesa. La lesione se pur, di piccole dimensioni, era presente da oltre 6 settimane e da circa 4 completamente in stallo. Pervenuta alla mia attenzione, ho effettuato l'anamnesi fisiopatologica della paziente, individuata la badante come care giver che potesse seguirla direttamente, in accordo con la figlia che supervisionava la gestione. La presenza della lesione, limitava la paziente nei movimenti, peggiorando ulteriormente il quadro di rigidità articolare legata al Parkinson.

Abbiamo quindi pianificato una serie di interventi che aiutassero la paziente nella sua globalità: Utilizzo di presidi idonei allo scarico del tallone con relativa formazione del caregiver sui cambi posturali, sostituzione del plantare già presente con uno più adeguato, inquadramento vascolare dello specialista con conseguente posizionamento di calza elastocompressiva, corretta gestione della lesione.

Per quanto riguarda quest'ultimo punto, abbiamo utilizzato come medicazione primaria Idrofibra con Ag e agenti attivi sul Biofilm, posizionata dopo impacchi di 10/15 minuti di poliesametilene biguanide. Superiormente veniva posizionata una medicazione in schiuma di poliuretano per gestire l'abbondante essudato e contestualmente scaricare la pressione in eccesso. La medicazione veniva sostituita ogni 72 ore. La perilesionale è stata trattata meccanicamente fino a completa eliminazione dell'estesa callosità presente.

L'intervento si è concluso, con riparazione completa della lesione, in data 30 novembre 2021. Durante le ultime settimane di trattamento, visto il notevole miglioramento della lesione, è stato posizionato collagene equino come medicazione di chiusura ed una schiuma di poliuretano per lo scarico pressorio.

Conclusioni: La prevenzione e la formazione del personale ospedaliero e del territorio sono fondamentali per evitare e/o contenere l'insorgenza di lesioni cutanee. Ne conseguirebbero: migliore qualità di vita del paziente, precoce recupero riabilitativo, ottimizzazione del tempo infermieristico e miglior gestione costo-efficacia.

PP142 PROGETTO MULTINAZIONALE DI PREVALENZA SULLE LESIONI CUTANEE CORRELATA ALLÁ DIPENDENZA NELLA POPOLAZIONE NEONATALE IN ITALIA E IN SPAGNA

Biagio Nicolasi[1], Evelin Balaguer-López[2], Felice Curcio[3], Daniele Ciofi[4], Pablo García Molina[5]

[1]Lesioni Complesse AOU Meyer IRCCS , Centro ustioni, Firenze, Italy; *[2]Hospital Clínico Universitario de Valencia , Valencia, Spain*; *[3]Palazzo Rosa - Azienda Ospedaliera Universitaria di Sassari, Sassari, Italy*; *[4]University Hospital Meyer, Firenze, Italy*; *[5]Facultad de Enfermería y Podología - UDC, Ferrol, Spain*

Scopo: Descrivere la prevalenza nazionale in Spagna delle lesioni cutanee legate alla dipendenza nei neonati. Descrivere il progetto multinazionale di prevalenza nazionale tra Spagna e Italia.

Metodo: Analisi trasversale descrittiva di una serie di 3 tagli di prevalenza nazionali, supportati dalla Società Spagnola di Infermieristica Neonatale e dal gruppo scientifico Upppediatria nell'anno 2022. 14 ospedali della rete pubblica nazionale spagnola hanno partecipato allo studio. Sono state raccolte variabili relative alla prevenzione e ai fattori di rischio, nonché variabili direttamente correlate alle lesioni cutanee: lesioni da pressione, frizione, umidità e MARSI.

Risultati / Discussione: Nei i 3 tagli sono stati arruolati 419 neonati in totale, ripsetto alle 715 incubatrici o culle, occupate durante i tre tagli.

Il 28,4% aveva un rischio secondo la scala e-NSRAS. Il 27,6% (116) ha sviluppato qualche tipo di CSF. Il 43,7% (52) ha avuto almeno 1 LPP, il 61,3% (73) ha avuto almeno una lesione correlata da umidità e il 10% (12) ha avuto almeno una lesione da frizione.

Dopo l'analisi di questa prima bozza della serie di prevalenza, si propone uno studio multinazionale di prevalenza, con l'intento di creare un osservatorio europeo di lesioni cutanee correlate alla dipendenza nella popolazione neonatale.

Conclusione: I neonati ricoverati sono una popolazione vulnerabile, dipendente e a rischio di subire lesioni cutanee correlate all'ospedalizzazione. La creazione di un'organizzazione europea per monitorare l'evoluzione di queste lesioni è un fattore chiave per la loro prevenzione.

PP143 COMPLICANZE DELLA CHEMIOTERAPIA DA CATETERE VENOSO PERIFERICO: PREVENIRLE CON UN DERMOCOSMETICO

Aurora Orlandini[1], Gloria Calisti[1]

[1]San Raffaele, Oncologia Day Hospital, Milano, Italy

Scopo: Prevenire l'insorgenza di complicanze, come flebiti chimiche e traumatiche, utilizzando il Dermocosmetico* specifico, sulle zone cutanee sottoposte a venipuntura per infusione di farmaci chemioterapici, che possono determinare conseguenze anche irreversibili con esiti cicatriziali o possibili stravasi di farmaco nei tessuti circostanti.

Metodi: Nell'arco di due anni (settembre 2020 - settembre2022) circa 1000 pazienti, su base volontaria, sono stati trattati per l'intero ciclo chemioterapico somministrato da accesso periferico, con il Dermocosmetico* applicato dalla prima seduta all'ultima.

Ad ogni seduta l'infermiere ha valutato lo stato della cute e del patrimonio venoso.

Risultati: Dalla sperimentazione del Dermocosmetico* si è osservato:

- netta riduzione di flebiti e complicanze cutanee dovute ai trattamenti chemioterapici
- importante riduzione dei fenomeni di stravaso da farmaci antiblastici
- riduzione del posizionamento obbligato di accessi vascolari centrali determinato da danneggiamento del patrimonio venoso periferico dovuto ai numerosi trattamenti chemioterapici
- prosecuzione delle cure anche in pazienti in cui non è possibile posizionare un accesso vascolare centrale o è stato rimosso per complicanze.

Conclusioni: Il Dermocosmetico* specifico può essere utilizzato in prevenzione su tutti i pazienti in trattamento con chemioterapico infuso da vena periferica, determinando un'importante riduzione degli effetti collaterali locali e il conseguente miglioramento della qualità di vita; poichè il Dermocosmetico* è in grado di proteggere la cute e le vene sottostanti, favorendone il processo rigenerativo e ristabilendo elasticità e tono dei tessuti interessati.

*Salvaven di ONCOS

PP144 INFORMAZIONE E FORMAZIONE COME STRATEGIA DI PREVENZIONE DELLE SKIN TEARS : PROPOSTA DI ALGORITMO DECISIONALE

Sabrina Cervesato[1], Mariangela D'Angella[2]

[1]*Azienda Ospedale Università Padova, Padova, Italy*; [2]*Azienda Ospedale Università Padova, Italy*

Scopo: Indagare le conoscenze del personale sanitario rispetto alle skin tears, fornire uno strumento valido con lo scopo di uniformare le conoscenze ed omogeneizzare la cure. **Metodi:** Da giugno 2022 al 3 Agosto 2022 è stato distribuito un questionario Online, composto da 12 domande sulle skin tears. Il questionario veniva inoltrato tramite indirizzo mail fornito dai partecipanti, dei 40 infermieri reclutati è stato compilato da 32. **Risultati:** E' emersa scarsa conoscenza rispetto alle scale di valutazione da utilizzare, dove il 37,5% degli intervistati ha risposto scala di Norton (utilizzata per classificare il rischio di LDP). Per quanto riguarda i tempi di guarigione, il 59.4% sostiene che le skin tears vadano incontro a una guarigione totale dopo 7 giorni, quando nella maggior parte dei casi non vi è una guarigione ad integrum (risposta corretta, individuata dal 28,1%), Sulla natura delle skin tears, ovvero traumatiche e iatrogene ha fornito la risposta esatta solo il 40,6. Per le strategie di prevenzione, il 75% ha individuato la risposta esatta, anche nel trattamento il 62,5% ha risposto in maniera corretta. **Conclusioni:** Nell'ultimo quesito veniva chiesto agli operatori,una preferenza rispetto a uno strumento che migliorasse le conoscenze e le formazione, le opzioni di risposta erano: corso di formazione, procedura operativa e algoritmo gestionale (formato 70x 100), il 50% per cento degli operatori ha risposto algoritmo gestionale E' stato quindi creato un algoritmo decisionale formato 70x100, uno strumento per gli infermieri , voluto dagli infermieri stessi. L'obiettivo finale è diffondere l'algoritmo nelle U.O come strumento di formazione e gestione delle skin tears, in seguito all'utilizzo riproporre al personale lo stesso questionario conoscitivo, e valutare se effettivamente c'è stato un miglioramento delle conoscenze e della gestione grazie all'algoritmo stesso.

PP145 DALL'INVISIBILE AL VISIBILE. L'ESPERIENZA DELL'AMBULATORIO DI VULNOLOGIA PRESSO IL POLIAMBULATORIO DI OPERA SAN FRANCESCO PER I POVERI DI MILANO

Agnese Zucchetti[1], Alma Carrozza[1], Chiara Fiammanti[1], Asma Barakat[1]

[1]*Poliambulatorio Opera San Francesco per i Poveri, Milano, Italy*

Scopo: Assistenza gratuita , ambulatoriale, a tutte le persone senza fissa dimora e/o in grave condizioni di grave marginalità sociale ed indigenza o non iscrivibili al SSN, che presentano lesioni cutanee di pertinenza vulnologica.

Metodo: Presa in cura di utenti con bisogni complessi, gestione e controllo del dolore, guarigione della lesione nel minor tempo possibile, compatibilmente alle condizioni sociali.

L'approccio terapeutico dell'ambulatorio vulnologico avviene secondo le più moderne terapie locali e le evidenze scientifiche che propongono l'uso di medicazioni avanzate interattive. Il focus non è solamente sulla gestione della lesione, ma una presa in carico globale dei bisogni della persona a cui l' èquipe multidisciplinare (infermieri, infermieri vulnologi,medici,specialisti, OSS, assistenti sociali) cerca di rispondere per garantire non solo per la guarigione della lesione, ma anche una risposta più ampia al bisogno di salute ,secondo la definizione OMS.

Risultati: Dal 2015 sono state effettuate 5900 medicazioni e sono stati presi in carico 877 utenti.

Conclusioni: L'infermiere e l 'Infermiere Wound Care, diventano così Case manager che orientano l'utente e lo guidano nel percorso di cura, coinvolgendo i diversi specialisti necessari. Ad una prima valutazione vulnologica segue un programma di rinnovo delle medicazione, con un continuo monitoraggio delle condizioni cliniche che hanno portato allo sviluppo della lesione.

PP146 TIME TO TIMERS: L'ASPETTO SOCIALE COME PARAMETRO PER MIGLIORARE LA QUALITÀ DI VITA NEI PAZIENTI CON LESIONI CUTANEE

Elena Migliozzi[1], Fabio Beghin[2]

[1]Ospedale Infermi Rimini, Ausl della Romagna, Rimini, Italy; [2]Aziende Sanitarie Padova - Ulss - Complesso Socio Sanitario Dei Colli, Padova, Italy

Il problema delle ulcere cutanee e delle ferite croniche come "malattia sociale" è solo parzialmente riconosciuto ma sempre di più preso in carico dal Sistema Sanitario Nazionale. In Italia oltre mezzo milione di persone soffre di questa patologia. Un documento di consenso del 2018 ha ritenuto che mancassero due componenti al framework T.I.M.E ovvero la "R" di rigenerazione e riparazione tessutale e la "S" per i fattori sociali. L'assenza di relazioni sociale o la relativa scarsità delle stesse costituisce uno dei maggiori fattori di rischio per la salute e varie indagini hanno dimostrato che tale condizione rappresenta spesso il punto di partenza per una alterazione e/o la perdita del ruolo che normalmente la persona ricopre, sfociando poi in atteggiamenti d'ansia e in casi più gravi in depressione influenzando in maniera negativa anche la guarigione della ferita.

Scopo: Lo studio si propone di indagare quali sono le problematiche di disagio che spingono le persone ad un isolamento e, in seconda battuta, di implementare l'aspetto sociale come parametro per una corretta presa in carico della persona.

Metodi: Ricerca bibliografica volta ad identificare il materiale presente in letteratura sul nuovo framework per la gestione delle ferite T.I.M.E.R.S seguita da uno studio osservazionale condotto all'interno di una AUSL della ROMAGNA I campioni presi in analisi sono composti da 36 infermieri e da 22 pazienti.

Risultati: Sui 36 operatori che hanno partecipato allo studio solo il 12 valutano l'impatto sociale che la presenza di una lesione può avere nella vita di una persona, nessuno ha annoverato le scale di valutazione della qualità di vita sostituita dal dialogo con il paziente o con il caregiver. I 22 questionari somministrati ad altrettanti pazienti hanno evidenziato che il dolore è il sintomo più significativo che domina la vita di questi pazienti che insieme ad altri elementi come il cattivo odore, la gestione dell'essudato, alla medicazione ingombrante etc. contribuiscono al senso di inadeguatezza di queste persone, alterando l'immagine che hanno di sé e sentendosi così " un peso" per chi li circonda.

Conclusioni: La qualità di vita e l'aspetto sociale dovrebbero diventare parte integrante del piano di cura di una persona portatrice di una lesione, come parametro essenziale da valutare durante il primo approccio, durante il trattamento e alla fine di quest'ultimo. Questo si può fare anche con semplici strumenti come un segnalibro informativo educativo da consegnare al paziente.

PP147 TRA PDTA E REALTA': MULTIPROFESSIONALITA' E TEMPISMO PER UNA GESTIONE EFFICACE ED EFFICIENTE SUL TERRITORIO

Donatella Rossolini[1], Pamela Orazi[2], Marika Fabbretti[1], Gabriele Picchio[3]

[1]Ast Ancona Marche, Distretto Sanitario, Jesi, Italy; [2]Ast Ancona Marche, Cure Domiciliari, Jesi, Italy; [3]Ast Ancona Marche, U.O. Medicina Interna Ospedale Interna Ospedale Carlo Urbani, Jesi, Italy

Scopo: Il percorso diagnostico-terapeutico-assistenziale (PDTA), definito come una sequenza predefinita, articolata e coordinata di prestazioni erogate a livello ospedaliero e/o territoriale, prevede la partecipazione integrata degli specialisti, al fine di individuare diagnosi e trattamenti appropriati alla specifica situazione patologica, generando come efficienza dell'organizzazione sanitaria non solo performance (output), ma outcomes (esito soddisfacente). La Regione Marche delibera al 19/04/21 il "PDTA prevenzione e trattamento delle ferite cutanee difficili", che è stato attuato in modo frammentario dagli enti del Sistema Sanitario Regionale (SSR) a causa del perdurare della pandemia COVID-19 e della riorganizzazione del SSR stesso. Con un caso clinico, documentiamo come l'applicazione del PDTA porti a risultati favorevoli.

Metodi: Caso clinico: P.C., ottuagenario con malattia cardiovascolare e polmonare e soggetto a politerapia:

-12/05/22 inviato dal medico di medicina generale (MMG) all'Ambulatorio Infermieristico Distrettuale (AID) per trauma alla gamba destra: riepitelizzazione in 3 settimane. Il MMG fissa una visita di controllo presso la chirurgia vascolare per il monitoraggio vascolare (il referto non fornisce indicazioni per l'intervento).

-28/05/22, P.C. torna all'AID per il controllo delle varici; gli infermieri istruiscono sulla corretta idratazione della cute e contattano gli infermieri dell'Ambulatorio Specialistico Infermieristico Ferite Difficili (ASIFD). Due giorni dopo, la varice si presenta con una soluzione cutanea continua significativa. P.C. si reca dal MMG che contatta direttamente gli infermieri ASIFD che prendono in carico il paziente (non viene inviato impropriamente al Pronto Soccorso, come invece indicato).

Inizio agosto 2022: P.C. risulta positivo al test Covid-19; attivazione delle Cure Domiciliari; continuazione dei trattamenti di medicazione secondo le indicazioni degli infermieri di ASIFD, che effettuano l'accesso condiviso presso il domicilio del paziente.

-11/08/22: Negatività al test Covid-19, P.C. torna all'ASIFD per il proseguimento dei trattamenti. Riepitelizzazione della lesione l'8/09/22. Educazione sanitaria (uso di calze terapeutiche di classe II prescritte dallo specialista; indicazioni per l'igiene e l'uso dei dispositivi).

Risultati: Gli attori coinvolti nel caso (infermieri ambulatoriali del distretto AID, infermieri delle Cure Domiciliari, infermieri wound care specialist dell'ASIFD, medico di medicina generale e chirurgo vascolare) si incontrano grazie alla rete informale stabilita, collaborando in modo efficiente (tempistiche ridotte) per raggiungere i risultati previsti, con soddisfazione del paziente.

Conclusioni: Lo scambio di informazioni/punti di vista tra i partecipanti al PDTA porta a una maggiore comprensione e apprendimento dei ruoli e delle responsabilità nel processo clinico assistenziale e a una maggiore soddisfazione degli utenti.

PP148 GESTIONE MULTIDISCIPLINARE DI LESIONI CUTANEE PENFIGOIDI INFETTE E DOLORE PROCEDURALE DI DIFFICILE TRATTAMENTO. A CASE REPORT

Sabrina Cervesato[1], Riccardo Carandina[1], Andrea Doria[1], Luca Bettocchi[1]

[1]*Azienda Ospedale Università Padova, DIDAS Medicina dei Sistemi, Padova, Italy*

Scopo: Gestione di lesioni cutanee penfigoidi infette e gestione del dolore procedurale, garanzia del continuum assistenziale. **Metodi:** Uomo, 49 anni, ricoverato in Unità operativa complessa specialistica maggio-luglio 2021, penfigo bolloso dal 2010, trattamento steroideo e immunosopressore, lesioni cutanee in progressivo peggioramento, commorbilità apparato urinario/gastroenterico, trattamenti demolitivi, confezionamento neovescica e colostomia.

Plurimi trattamenti locali, toilette chirurgica, Vac Therapy, Vac instill, innesti cutanei, medicazioni in sedazione profonda per intolleranza procedurale.

Epicrisi: 2 lesioni dorsali dx/sx cm 12x8, 1 coscia sx (25 x 14) fistola perineale (scroto-ano) interessante scavo pelvico, iperessudazione, importante dolore procedurale non tollerato e non responsivo alla terapia.

Tampone cutaneo: Klebsiella pneumoniae, Acinectobacter Baumannii, (Mdr) Candida Albicans.

Valutazione multidisciplinare: trattamento conservativo, no indicazioni al trattamento chirurgico-ricostruttivo.

Presa in carico multidisciplinare, gestione patologia di base con terapia immunomodulatrice, trattamento antibiotico sistemico, modulazione della terapia antalgica sistemica in paziente intollerante agli anestetici locali, drenaggio, Care e Wound Care Infermieristico con Infermieri Esperti in Wound Care.

Trattamento locale: drenaggio su guida fluoroscopica, antisepsi con antisettico surfactante, gestione carica microbica con medicazione antimicrobica 100% carbonio attivato in primaria, gestione iperessudato con medicazione drenante e sbrigliante a celle pervie Poliuretano Monostrato , copertura garze idrofile.

Risultati: Graduale controllo dell'infezione, riduzione e controllo dell'essudato, gestione del dolore procedurale, senza ricorso a sedazione.

Aumento compliance paziente, negativizzazione microbiologica a 75 giorni di trattamento, riattivazione delle lesioni. **Conclusioni:** gestione multidisciplinare, focus esigenze della persona con presa in carico Infermieristica con esperienza in Wound Care, permette la modulazione del trattamento con risultati per salute e qualità di vita.




Maggio 2021


LUGLIO 2021

PP149 TECNICA CHIRURGICA COMBINATA DERMA RIGENERATIVO IN COLLAGENE E PERIPHERAL BLOOD MONONUCLEAR CELLS IN WUOND HEALING

Barbara De Angelis[1], Fabrizio Orlandi[1], Chiara di Segni[1], Maria Scioli[2], Augusto Orlandi[2], Valerio Cervelli[1]

[1]Tor Vergata/Medicina, Plastic and Reconstructive Surgery, Roma, Italy; [2]Tor Vergata/Medicina, anatomo-pathology, Roma, Italy

Scopo: I monociti / macrofagi sono essenziali nel mantenimento dell' omeostasi tissutale .sono cellule ad alta plasticita', alta capacita' angio-vasculogenica, antinfiammatoria ed immunomodulante in grado di cambiare la loro fisiologia e funzione in risposta ai diversi stimoli ambietali.tutti questi meccanismi concorrono alla rigenerazione tissutale. Le pbmnc inducono l'angiogenesi in vitro e in vivo. La loro capacità rigenerativa si basa sull'interazione di diverse popolazioni cellulari.le polarizzazioni m1-m^2 sono essenziali per la rigenerazione dei tessuti è una nuova terapia cellulare in chirurgia rigenerativa ,la procedura ha un'alta compliance sia per il paziente che per il chirurgo. L' impianto di un concetrato cellulare di monociti in un tessuto infiammato porta la poralizzazione da m1 a m^2 promuovendo la rigerazione .a seconda del micro-enviroment i macrofagi presenti nei tessuti possono essere polarizzati nella forma pro infiammatoria, anti-battericida m1 producendo uno stato infiammatorio o nella forma anti- infiammatoria alternativa rigenerativa m^2. È stato dimostrato che impiantando un concentrato cellulare di monociti in un tessuto infiammato i macrofagi m1 vengono "polarizzati" in m^2 con la partenza della fase rigenerativa .gli impianti pbmnc possono spostare l'equilibrio dall'infiammazione allo stato di guarigione nel danno tissutale attraverso la polarizzazione m1 –m^2.

Metodi: Anche l'integrazione dello scaffold e la ricellularizzazione potrebbero essere accelerate attraverso lo spostamento di polarizzazione m1-m^2.

Per questo motivo decidiamo di trattare i pazienti con lesioni post-traumatiche con esposizione tendinea o ossea combinando impianto pbmnc con sostituto dermico. Con una procedura di filtrazione selettiva:in 15(quindici) minuti abbiamo ottenuto il concentrato pb-mnc pronto per l'impianto. Nel nostro primo protocollo è stato utilizzato come scaffold l'acido ialuronico/collagene e per i pazienti con cli e ulcere croniche.tutti i pazienti sono stati sottoposti a :esami del sangue, eco doppler, angio m ar ai-angio tc, mezzo di contrasto, tampone con abg, biopsia, foto, medicazioni avanzate pre e post operatorie. Uno da 1 a tre3 trattamenti ogni 45 quarantacinque giorni secondo la cicatrizzazione della ferita. In questo lavoro presentiamo i risultati ottenuti con la tecnica combinata pbmnc + sostituto dermico (integra or nevelia) in 30 pazienti affetti da ferrite corniche. Inoltre abbiamo trattato uno stesso paziente con revisione della cicatrice da ustione utilizzando entrambi i sostituti dermici con potenziamento pbmnc ed effettuato gli istologici nel follow up fino ad 1 anno. Casi con follow up a 12 anni senza recidiva.

Risultati: Otteniamo risultati significativi in termini di: aumento della rigenerazione dei tessuti, velocizzazione della guarigione delle ferite e riduzione del dolore ,abbiamo osservato una differente interazione tra sostituto ddermico e tessuti come mostrato negli istologici.

Conclusioni: Le pb-mnc autologhe rappresentano una nuova arma terapeutica sicura ed efficace per la rigenerazione tissutale . I dermal templates funzionano in modo DIVERSO ALMENO SE COMBINATI Con pbmnc probabilmente per la diversa composizione del substrato dermico.

Questo risultato suggerisce lo sviluppo di un protocollo clinico ottimizzato per diverse applicazioni cliniche.

Sistema Hematrate
Yalomatrix, Integra, Nevelia

PP150 LE POTENZIALITA' RIGENERATIVE DELLE CELLULE MONONUCLEATE (PBMNC) IN WOUND HEALING

Barbara De Angelis[1], Fabrizio Orlandi[1], Chiara Di Segni[1], Valerio Cervelli[1]

[1]Tor Vergata/Medicina, Plastic and Reconstructive Surgery, Roma, Italy

Scopo: Numerous scientific evidences published in the literature indicate that Peripheral Blood Mononuclear cells are the latest generation of autologous regenerative cells concentrate. E' possibile utilizzare il potenziale endogeno riparativo delle cellule residenti e delle MSC residenti attraverso l'attivazione /regolazione da parte del sistema immunitario , le Capacità immuno-modulatoria e anti-infiammatoria (M1/M2, inibizione NF-KB) e la Capacità di lavorare in ambiente ipossico delle cellule mononucleate. LA COMPRENSIONE DELLE INTERAZIONI TRA SISTEMA IMMUNITARIO E CELLULE STAMINALI e TESSUTI /CELLULE INDICA LA STRADA PER TERAPIE RIGENERATIVE EFFICACI.

Metodi: Recentemente è stato osservato che la capacità rigenerativa delle cellule staminali è influenzata e regolata dalla risposta immunitaria locale ed in particolare dalla popolazione di monociti/macrofagi. Inoltre, il controllo dell'infiammazione è fondamentale nelle terapie rigenerative in quanto la presenza di infiammazione inibisce l'azione rigenerativa delle cellule staminali tissutali residenti. I monociti/macrofagi hanno un meccanismo d'azione multiplo: angiogenico e rigenerativo, sia attraverso l'attivazione delle cellule MSC residenti che attraverso l'immunomodulazione e la polarizzazione dei macrofagi. In tutti i tessuti lesi dove c'è un ritardo nella guarigione la maggior parte dei macrofagi si attivano nello stato M1 che è infiammatorio e degenerativo.

Risultati: La polarizzazione M2 che avviene attraverso l'impianto di monociti prelevati dal sangue periferico e impiantati nel

tessuto permette la rigenerazione del tessuto leso. Comportamento simile è riportato anche nella rigenerazione dei tessuti dell'apparato muscolo-scheletrico (osso, tendine, cartilagine, muscolo) Le Cellule Mononucleari del Sangue Periferico possono sostituire l'uso di concentrati di midollo osseo o concentrati di grasso autologo con l'enorme vantaggio per il paziente di un trattamento non invasivo campionamento.

Conclusioni: I monociti sono una famiglia cellulare ad alta plasticità che è coinvolta nei meccanismi fisiologici di rigenerazione e riparazione tissutale. Sicuramente lo sviluppo di nuove tecnologie rigenerative e lo studio più approfondito dei meccanismi rigenerativi autologhi/immunio ci permetterà l' ottimizzazione delle nostre cure in ambito wound healing ma anche multidisciplinare.

PP151 UTILIZZO IMMAGING A FLUORESCENZA E DEBRIDEMENT AD ULTRASUONI, IN LESIONI CRONICHE ARTI INFERIORI

Barbara Bertini[1], Massimiliano Paolinelli[1], Luca Maria Santoni[1], Carmelina Di Carlo[1], Claudio Cinti[1]

[1]Ospedale Di Chiaravalle, Specialistica Ambulatoriale, Chiaravalle, Italy

Scopo: Effettuare il debridement delle ferite e abbassare la carica batterica sono tra le prime necessità, che permangono durante tutto il processo di cura, per attivare il processo di guarigione e condizione necessaria nella gestione delle ferite acute e croniche.

Con l 'introduzione di nuovi metodiche e tecniche di debridement che agiscono anche sulla carica batterica superficiale e la loro disponibilità nei propri ambiti lavorativi; sorge la necessità di valutarne la praticità, usabilità ed efficacia sulla tipologia di pazienti trattati nel proprio setting lavorativo.

Nel nostro ambulatorio abbiamo avuto modo di utilizzare un debrider ad ultrasuoni e per trarne il maggior beneficio e valutarne l' azione sulla carica microbica superficiale e sui tessuti non vitali, abbiamo utilizzato la metodologia digital immaging a fluorescenza che sfrutta l eccitazione generata dalla luce Viola per evidenziare i componenti dell'ulcera quali: cute,slought,sangue e batteri

Obiettivo:Effettuare debridement ad ultrasuoni , efficace e mirato, su tessuti colonizzati e non vitali su 6 pazienti in carico all'ambulatorio infermieristico, con lesioni croniche agli arti inferiori.

Valutare tempi di applicazione della terapia ad ultrasuoni ed efficacia di sbrigliamento slought e sulla carica batterica.

Metodi: Rilevata nei 6 pazienti arruolati, immagine di visualizzazione reale e con immaging a fluorescenza, dopo detersione e prima di trattamento con debrider.

Visualizzazione con Immaging a fluorescenza dopo il trattamento completo.

Tramite l'orario impresso in tutte le immagini abbiamo stimato, con buona approssimazione, i tempi di applicazione del trattamento di debridement

Risultati: Abbiamo potuto effettuare un debridement efficace testimoniato dalle immaging a fluorescenza che evidenziava la quasi totale asportazione dei tessuti non vitali e colonizzati dal fondo delle lesioni.

Conclusioni: La metodica con Immaging a f. è utile a pilotare l'operatore nell' effettuare un debridement efficace indirizzandolo sulle zone dove la fluorescenza evidenzia la localizzazione di batteri ,slought e cute secca; non sempre di facile individuazione, soprattutto da personale poco esperto.

I tempi di applicazione sono risultati migliori rispetto alle tecniche utilizzate di routine

Non abbiamo valutato ,ma ci riserviamo di farlo, la possibilità di effettuare l'intervento con debrider utilizzando la modalità video.

Digital Immaging @Moleculight
Debrider @Surgisonic