Pressure Ulcers: A Personal Perspective

Dr Randall Duffield

Introduction

Pressure ulceration is the consequence of the forces of pressure, friction or shear acting in combination with other factors that adversely affect skin integrity. While reports on the incidence of pressure ulcers vary widely, few would consider the current rates of occurrence acceptable. Strategies for early detection of at-risk patients have been recognised and protocols for appropriate intervention and management continue to be developed. How-ever, it should be acknowledged that pressure ulceration will remain an inevitable outcome in a small number of cases, meaning that the holistic management of the person suffering from pressure ulcers will continue to pose a challenge.

This paper reflects on the author's experience of developing pressure ulcers during a prolonged intensive care unit (ICU) admission and discusses some of the issues encountered in the management of chronic pressure ulceration – from both a professional and a personal viewpoint. Major factors contributing to the development and persistence of pressure ulceration within the ICU setting are discussed, as are multiple issues associated with the challenge of chronic pressure-area care. These include complications, costs, communication, the role of the carer and the need for consistency of approach and collaboration among professionals in chronic wound management.

In the United Kingdom, the prevalence of pressure ulceration is reported as ranging from 5 to 32 per cent of general hospital inpatients [1], while prevalence within ICUs has been esti-mated at 40 per cent [2]. Although these reports vary widely, such measures remain invaluable within a health-care facility, as an indicator of the effectiveness of the preventive strategies imple-mented. For instance, the point prevalence of pressure ulcer-ation in an aged-care facility in the UK was initially recorded as 13.9 per cent. When the prevalence survey was repeated a year later [3], after implementation of preventative strategies, the rate had reduced to 5.6 per cent.

Few practitioners would agree that the present rate of pressure ulceration is acceptable. Waterlow [4] has suggested that 95 per cent of pressure ulcers identified could have been prevented. Conclusions such as these indicate that clinicians face a considerable challenge in reducing the incidence of pressure ulceration to a rate more acceptable than that at present. However, Waterlow's findings also suggest that, despite best practice and optimal management, some 5 per cent of those under our care may still develop pressure ulceration. My recent experiences as a patient have convinced me that this is indeed the case. Clinical situations arise in which pressure ulcers can occur in spite of appropriate interventions. Our aim as clinicians must be to ensure that such situations are kept to a minimum and, when pressure ulcers do occur, they are treated appropriately.

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Case Study

My experience of chronic pressure ulceration arose from a prolonged period of hospitalisation during 1997. Biopsies of a recently diagnosed chronic peptic ulcer revealed a moderately well-differentiated adenocarcinoma at the gastro-oesophageal junction. I underwent a gastro-oesophagectomy in late January of that year. Several days post-operatively, I commenced a rapid downward spiral of severe post-operative complications. As a medical practitioner I had long held the opinion that, because of the dynamics and intricacies of function of the human body, things can simply go wrong during an episode of medical care. Further, such occurrences cannot necessarily be attributed to negligence or any particular fault. I was certainly to become an illustration of my own paradigm.

Early post-operative complications included septicaemia, pleural effusion and adult respiratory distress syndrome. The latter resulted in a 3-month admission to intensive care, where I was ventilated via tracheostomy. Further complications in-

cluded bilateral tension pneumothoraces, recurrent septicaemia, renal impairment, cardiac arrhythmias and critical illness polyneuropathy. In critical illness polyneuropathy [5], a condition of unknown aetiology, demyelination of motor neurones occurs systemically. This leads to whole-body paralysis, with subsequent profound muscle wasting. Its prognosis is usually favourable, provided the underlying comorbidities are survived.

During my ICU admission I also developed four pressure ulcers. Three were stage 2 ulcers (one on each ankle posteriorly and one on the upper right pinna). The fourth, a stage 3 ulcer, developed in the sacral area and remained unhealed for almost 10 months.

To treat the ulcers I was nursed on a dynamic airflow mattress (an alternating large-cell airflow device). While such devices may be considered ideal for minimising pressure effects, several limitations should be recognised. Due to my height (of 186 cm), the device provided was too short (as were all the other hospital beds to which I was admitted in the months subsequent to my ICU discharge!). My feet usually hung over the end of the bed, with the backs of my ankles resting on the bottom edge of the mattress; this provided an unwanted additional source of pressure. Limitations on physical space in an overcrowded ICU within a tertiary public hospital may have precluded the use of available mattress extension devices. (The semi-rigid foam splints used earlier, in an effort – unfortunately futile – to avoid bilateral foot drop, similarly had the unwanted effect of producing, through their design, additional pressure on the posterior ankle region.) The device's air-pump was on occasions inadvertently disconnected. At one stage, a punctured cell left my already compromised and damaged sacral area unsupported on the hard bed-base. My limited ability to communicate meant the problem took 1 or 2 days to be rectified.

The ulcer on my outer ear was managed with regular foam dressings combined with a cube of foam rubber, one face of which was scooped out to alleviate pressure on the ear. That ulcer healed within a month. The heel ulcers, which were managed with hydrocolloid sheet dressings, healed within 10 to 12 weeks. However, the sacral ulcer, despite being treated with a range of modern and traditional techniques, became a major challenge. Of the variety of modern dressings used – varying permutations and combinations of hydrogels, hydrocolloids, alginates, foams and films – no one type of dressing appeared to be more effective than another in terms of achieving definitive healing. Indeed, each type posed its own particular challenge. Dressing retention, even with the use of self-adhesive films and sheet dressings, was a frequent problem. Alginate packs inappropriately used in a cavity with minimal exudate produced a hard pellet within the wound. This not only increased the ulcer pain but also, in my opinion, exacerbated the pressure effects on the tissue.

I consider that final healing of this sacral wound occurred only when significant underlying factors impeding healing were resolved – and this occurred only when there was an improvement in my general health. Adequate nutrition was regained, along with a level of mobility and independence such that unrelieved pressure on the sacral area was no longer a compromising feature, and the hypergranulation tissue resolved. To my mind, this episode reinforced the notion [6] that dressing products themselves do not heal wounds but, rather, play an ancillary role in the healing process.

Discussion

Definitions of pressure ulceration abound. Clochesy [7] characterises pressure ulceration as "integumentary damage on any body surface that is related to immobility and … to the forces of pressure, friction and shearing, or to moisture."

Definitions such as this emphasise that ulceration arises from the interplay of pressure, shear and/or friction with other risk factors that can adversely affect tissue viability. The risk factors discussed form the basis of various risk assessment tools [8] (such as Waterlow, Norton) in general use for the identification of those at increased risk of pressure ulceration. Due to the unique nature of the ICU setting, these general risk assessment tools have been considered inadequate for ICU usage. Modified assessment tools (such as the Cubbin and Jackson Risk Calculator [9] or the Sunderland Pressure Sore Risk Calculator [10]), based on risk factors specific to ICU, have been developed (see Figure 1).

Principles for the appropriate management of pressure ulcers are shown in Figure 2. The primary purpose of management must be the prevention of ulceration. Pressure must be adequately relieved from vulnerable body sites to avoid pressure necrosis. Appropriate lifting and transfer techniques will minimise the effect of shearing forces, as will proper positioning. Attention to the nature of contact surfaces and the use of products which minimise friction (such as sheep skins) will counter the adverse effects of friction forces on the skin.

The aforementioned risk assessment tools are not only valuable for early identification of at-risk patients but have also been shown to increase staff awareness in issues of pressure-area care.

Figure 1. Risk factors for pressure ulceration in the ICU.

- Age > 40 years
- Body build – cachexia or obesity
- Body temperature – hypothermia, hyperthermia
- Duration of admission
- Environmental factors – climate, mattresses, linen
- Hydration
- Hypoperfusion – reduced cardiac output
- Hypoxia
- Immobility – sedation, concomitant fractures
- Incontinence
- Intercurrent illness – anaemia
- Medications – corticosteroids, ionotropic agents
- Neurological status – consciousness, sensory/ motor activity
- Nutritional status – protein, carbohydrate, zinc deficiency
- Psychological status – sedation

They have been shown to provide a focus and drive for change in clinical practice [2]. However, anecdotal evidence suggests that there is still a significant gap between awareness of such tools and their utilisation in practice. In many situations, identification of those at risk of pressure ulcers still seems subjectively based on clinical experience or intuition (that is, 'gut feeling'), rather than the objective forms of assessment available.

The ICU poses particular challenges in the management of pressure ulceration. Monitor leads, ventilation tubes, drains or catheters may raise pressure on localised skin areas if improperly placed. Ventilators and other equipment used confine space, hampering lifting and turning techniques, while cardiorespiratory instability – which can trigger a significant reduction in cardiac output and respiratory effort when body position is altered – can make routine turning and repositioning impossible. In my case, gross oedema further precluded position changes. Certain medications, including corticosteroids or ionotropic agents, have an adverse effect on tissue healing.

In their efforts to cure a condition, clinicians may too readily lose sight of the person suffering from it. In the field

Figure 2. Principles of management – pressure-area care.

Prevention

- Identification and staging
- Regular inspection
- Assessment

Intervention

- Minimise forces
- Provide wound management
- Correct adverse factors

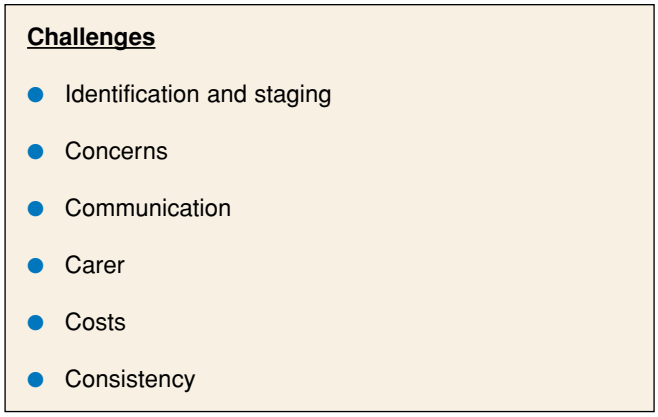
Maintenance

- Promote skin integrity
- Avoid recurrence

of chronic wound management, there is always the potential for directing attention only to the wound itself, or the dressing product, los-ing sight of the person suffering with the wound in the process. In her review of pressure ulcer management, Davies [11] highlights the burden of care this places on health-care systems. Of note, she also stresses the "extensive human suffering" pressure ulcers cause the individual. My experience has reinforced not only the challenges that management of pressure ulceration poses for the clinician but also the significant impact of that condition on the quality of life of the person suffering from it.

As clinicians labouring for 'best' practice and adherence to policies and protocol (thereby avoiding possible litigation), is ours merely a quixotic quest for that utopian health-care facility in which no pressure ulceration exists? Or must we, while continuing to guard against complacency, concur with Brooks that "pressure ulcers can develop even with good care" [12]. There will be those who argue that pressure ulceration should never occur, and that its occurrence represents a lapse in practice standards and quality. At times I have wondered if my episode of pressure ulceration could have been avoided. With hindsight, however, I consider my clinical condition at that time was such that pressure ulceration was inevitable. When viewed in perspective, my pressure ulcers were but one component of a plethora of severe clinical problems that were, at times, life-threatening. On occa-

Figure 3. Challenges in wound care.



sion, my clinical condition viewed as a whole precluded the use of standard pressure-area preventive practices. When I was suffering from cardiorespiratory insufficiency, the risk of routine repositioning outweighed its benefit of relieving pressure. Given the choice, I would suffer the consequences of unrelieved pressure rather than risk irreversible cardiorespiratory failure.

Morito [13] wrote: "If you go through life convinced that your way is best, all the new ways of the world will pass you by." My experiences as one who not only manages or treats chronic wounds but has also suffered a chronic wound raise a number of challenging issues for consideration. These, as illustrated in Figure 3, strongly suggest that for us, as clinicians, there remains a significant need to improve on much that is common practice. Major sequelae experienced in my situation, and which related to the chronic sacral ulcer, included recurrent wound infections and hypergranulation.

The issue of identification and appropriate management of wound infection needs to be further addressed at the practice level. It appeared to me that antibiotic therapy was, on occa-sions, instituted only on the basis of microbiological reports from routine wound swabs, without consideration of clinical signs of wound infection. Over and inappropriate use of antibiotics in Australian practice not only enhances the development of multiresistant bacterial strains but also inflates the cost of episodes of care.

I consider persistent wound hypergranulation – known colloquially as 'the clinician's curse' – a key factor in the chronicity of my sacral wound. In the current literature, little attention seems to be paid to the management of hypergranulation . In my case, various means of resolving it were attempted without success. I believe its persistence was due to recurring pressure and friction effects at the sacral site. Avoiding pivoting on the sacral area during transfers proved difficult.

Initial treatment of the hypergranulation using topical application of silver nitrate solution failed. Surgical excision of the hypergranulation tissue and ulcer margins and suturing of the wound were also unsuccessful, due to early wound dehiscence and rapid regrowth of the hypergranulation tissue. My self-prescription of silver nitrate applications twice weekly using a 'caustic' stick resolved the excess granulation, allowing complete healing of the wound over the following 3 to 4 weeks. The success of this latter form of silver nitrate probably relates both to the increased concentration of silver nitrate in the solid stick form and the more frequent application. Due to its caustic effect on normal tissue it should be applied with extreme care.

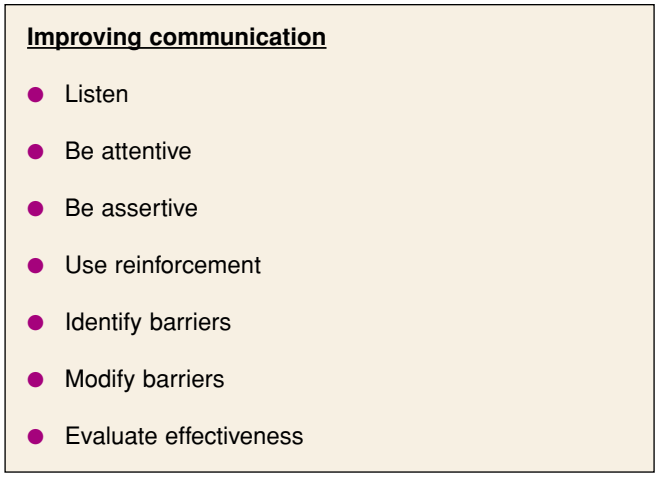
As practitioners, it is often too easy to overlook or ignore aspects of wound care that can be of concern to the patient. The morbidity associated with pressure ulceration or its complications can be quite significant, viewed from the sufferer's perspective. Chronic pain associated with my sacral ulcer was sufficient to require prolonged use of oral narcotic analgesia, with its associated risks and complications. Further, the odour associated with a discharging wound can cause considerable social embarrassment. Some newer wound care products (such as the hydrocolloids) can significantly exacerbate this odour. Patient issues such as comfort, pain, privacy and dignity should receive the same degree of attention and regard as is paid to aseptic technique during dressing changes.

That there is room for improvement in the communication skills of health professionals is widely acknowledged [14]. Successful communication can be a key determinant for a favourable outcome in any medical intervention. Communication during all phases of clinician-patient interactions is important, whether the information imparted seems minor or significant. Since chronic wound management usually involves a multidisciplinary approach, inter-clinician communication is also vital.

Key elements which lead to improved communication are shown in Figure 4. Recognised barriers to adequate communication [15, 16] include:

- physical disability (such as hearing impairment or a speech impediment);
- bias (personal, cultural/racial, professional, values and attitudes);
- faulty messages (including poor logic, lack of clarity and precision and poor expression);

Figure 4. Steps to improved communication.



- false assumption of knowledge bases;
- emotive factors (such as those pertaining to terminal illnesses, death and dying);
- failure to listen;
- time constraints (particularly within the public health system);
- carer stress and fatigue, and
- socialisation (the way our social environment moulds us as individuals and alters expectations).

In my circumstance, professional socialisation was a particular issue. I am told that, as a health professional who became a patient, my position and role in the traditional carer-patient model was difficult to determine at times and challenged those caring for me. My experience suggests that the need for ongoing improvement with respect to communication in the field of chronic wound management should be addressed.

The importance of the carer's role should never be overlooked in wound management. In many instances it is the capable carer who has the responsibility for wound care once the sufferer returns to the community. That carer will require as much information regarding wound management as the sufferer, if not more.

As much as possible, dressing regimens should be consistent with the carer's capabilities. Further, the cost-effectiveness and cost-benefits of the newer wound care products must justify their continued use. Cost analyses in the hospital setting, where nursing time-on costs are significant, may not be confidently extrapolated to the community care context. There is a need to produce evidence of cost savings for their use in the community, particularly in the area of private primary care.

Unit costs for newer wound products are significantly higher than for their traditional counterparts. Presently, these costs must be borne either by the patient or the provider, unless there is entitlement to treatment under the Department of Veterans' Affairs or the ability to access dressing supplies through a domiciliary nursing service. Anecdotally, this situation is currently a significant barrier to the uptake of modern wound management within general practice in Australia.

Given these circumstances, it was disturbing to witness the frequently high level of wastage of unused dressing products within the public hospital system. More judicious selection of a dressing regimen by the prescriber, with greater efficiency in application by those managing the wound, would help minimise the levels of wastage observed. Similarly, there is the need for both producers and purchasers of supplies to ensure that packaging quantities are appropriate, in order to minimise waste.

Similarly, the costs of pressure-relieving devices for use in the community setting can be prohibitive for the individual. Recommended cushioning devices such as the IschDish or RoHo cushion retail for $400 to $500 each. Unless there is entitlement to the provision of therapeutic aids via government-subsidised schemes, such items will remain inaccessible to a significant number of patients. Investigation of the cost benefits of these and similar devices for preventive use is needed. Anticipated cost savings to the community through the use of preventive devices would be significant in comparison to costs for treating pressure ulceration.

There is a strong need for consistency and consensus among the various practitioners involved in management of the individual patient. It should be acknowledged that wound healing is a dynamic yet gradual process. All staff, in particular clinical managers, should ensure that the approach and focus of wound management within a particular unit remains consistent at all times. Continually changing the wound care plan each few days because 'this dressing is not working' is not only futile but frustrating for the person with the wound. It is quite disheartening to lie wedged into metal bedrails, with buttocks exposed to all and sundry, listening to a hot debate between two practitioners regarding the pros and cons of pre-moistening an alginate dressing prior to its application..

On reflection, the clinical circumstances contributing to the development of my pressure ulcers were of themselves unavoidable. With hindsight, I remain unconvinced that any additional strategy would have intervened in their onset. My experience strongly suggests that a small percentage of patients will continue to develop pressure ulceration in spite of our best efforts at care. As clinicians, we should thus acknowledge that management of pressure ulceration will remain a component of modern wound care.

From my personal insight into the manner in which chronic ulceration can adversely affect one's quality of life, along with the frustration and suffering associated with it, I also now feel that it is inexcusable for clinicians to accept current practice with respect to pressure ulcer management. We must continually strive to ensure the prevalence of pressure ulceration is reduced to its lowest possible level. And, in the event that it does occur, we, as clinicians, must make sure our clinical practice leads to healing in the manner most appropriate for the person with the wound. We must also ensure that our management processes do not adversely affect the sufferer. At all times we should focus not just on the ulcer, nor the factors producing and maintaining it, but also on the patient as a whole. Ideals such as these can only be achieved by way of a collaborative approach to pressure ulcer management by all health-care professionals involved in wound care.

I must stress that the intent of the article was not to criticise those involved in my care. Any perceived shortcomings in my management arose, in my view, out of an entrenched system of health care rather than the actions of specific individuals within that system.

Nor is it the intent of this paper to provide answers to the issues and challenges raised. To do so is beyond the ability of any one practitioner. Rather, my purpose is to highlight, from the perspective of those we care for, the issues and challenges confronting us as health-care professionals. It is to be hoped that, by raising awareness to these issues, the answers will be found collectively, through professional deliberation and action.

Author's Comments

This paper is based on an address to the national conference of the Australian Wound Management Association, held in Brisbane in April 1998. Readers not present at that conference will be unaware of the context in which this episode of my wound experience occurred. The management of my chronic skin ulceration was a mere fraction of a broad spectrum of ill-health (several episodes life-threatening) through 1997.

May I reiterate that the paper is written more from the author's experience as a patient and less from the perspective of a practising clinician. Therefore, it is my opinion that it will be best appreciated if the usual research paradigm adopted when reading articles in scientific journals is set aside.

I have chosen not to rely heavily on clinical detail with respect to my 'case study'. Most of the information provided is based either on anecdotal information supplied to my wife and me during my episode of care or my perceptions and recollections of that care. For a variety of reasons (many of them personal), I have chosen not to access my hospital notes to elicit finer clinical detail and add 'scientific weight' to matters raised in a number of the areas mentioned.

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