

Benefits of inelastic and short-stretch bandages in leg ulcer: a narrative review

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ABSTRACT

Compression therapy (CT) in venous leg ulcer (VLU) treatment has been further investigated, obtaining such favourable results – by improving chronic venous hypertension and enhancing other positive effects in its pathophysiology – that it is currently the cornerstone of its treatment. However, leg ulcers (LU) of non-venous aetiology can also benefit from CT. To date, current contraindications for CT are minimal. Despite these benefits, only 50 - 60% of these patients receive CT as part of their treatment, resulting in lower healing rates than expected.

Inelastic bandages (IB) and short-stretch bandage (SSB) have multiple benefits in LU and VLU treatment as they provide low resting pressures and high working pressures >60mmHg in standing and walking, improving venous haemodynamics. The aim of this narrative review was to describe the benefits of IB and SSB in the treatment of LU non venous etiology.

We conducted a non-systematic review of literature guided by the Scale for the Quality Assessment of Narrative Articles (SANRA), regarding the benefits of IB and short-stretch bandage (SSB) CT systems in LU non venous etiology. IB are safety systems which can be useful in multiple LU aetiology, including chronic venous hypertension, diabetes, peripheral arterial disease (PAD) and inflammatory diseases, reducing pain, time for wound healing, oedema, exudate, inflammatory process, and sanitary costs. IB and SSB have benefits that other elastic materials are often unable to achieve and, when their knowledge and training are well established, they have been shown to improve LU patient care.

Keywords compression bandage, inelastic bandages, short-stretch bandages, leg ulcer, wound healing

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KEY MESSAGES

- Compression therapy (CT) is the cornerstone treatment in people with Venous Leg Ulcer (VLU) or any type of leg ulcer (LU), leading to wound healing. However, only around half of the patients are beneficiaries for this kind of treatment.
- Inelastic bandages (IB) are safety systems which can be useful in multiple LU aetiologies (for example diabetes, peripheral arterial disease (PAD) and inflammatory diseases), and healthcare professionals should aim to incorporate these in their treatment.
- IB and short-stretch bandages (SSB) reduces healing time, pain, oedema, exudate and inflammatory process, improving patient quality of life (QOL)

INTRODUCTION

Compression therapy (CT) is a fundamental pillar in the treatment of leg ulcers (LU) and has been practised for over 300 years.^{1,2} Because venous leg ulcers (VLU) are the most prevalent chronic LU,³⁻⁶ affecting 1–2% of the population, increasing with age,³⁻⁶ CT has been extensively studied in this type of wound, obtaining such favourable results that it is currently the cornerstone of its treatment together with the early surgical resolution of venous reflux.⁷⁻¹³ Relative frequencies of other aetiologies (including arterial, mixed

and other types) are between 5–30% of chronic lower limb wounds.⁹ However, LU of non-venous aetiology can also benefit from CT, by acting on inflammation process and gravity on legs.^{14,15} To date, current contraindications for CT are minimal.¹⁶⁻¹⁸ Despite these benefits, only 50 - 60% of these patients receive CT as part of their treatment,¹⁹ resulting in lower healing rates than expected.^{13,20-24}

When there is no arterial involvement, the necessary level of CT to treat LU and VLU should be high compression, that is 40mmHg,^{7,12,13,21,25-29} and when an appropriate vascular assessment has been done. Current expert consensus indicate if there are no distal peripheral pulses, an Ankle Brachial Pressure Index (ABPI) should be performed so all patients with LU and palpable pulses can receive this compression level²⁴. It is important to consider that patients with diabetes or end-stage chronic kidney disease could have an inaccurate ABPI result due medial calcification.²⁴ Some stiff bandages as inelastic bandages (IB), short-stretch bandage (SSB) and multicomponent SSB (MSSB) can provide low resting pressures and high working pressures >60mmHg in standing and walking,^{21,30} improving venous haemodynamics, when compared with elastic bandages and elastic compression stockings.^{31,32} In fact, the stiffer the compression product, the greater the effectiveness in peak pressure on calf pump while walking⁸. To achieve these pressure ranges in an elastic

bandage, they would also have to be applied at rest, which would be intolerable for patients and could increase the risk of some side effects related to the high level of rest pressure³⁰. However, while O'Meara et al state that multicomponent systems containing an elastic bandage appear to be more effective than those composed mainly of IB materials, and two-component bandage systems appear to perform as well as four-layer bandages (4LB).¹⁰

It was therefore considered necessary to carry out an investigation of the evidence to make a better therapeutic understanding of IB and SSB. Considering the conflicting evidence between different types of dressing materials, an investigation of the current evidence is necessary to achieve a better therapeutic understanding of BI and SSB. The aim of this narrative review was to describe the benefits of IB and SSB in the treatment of LU non venous etiology.

METHODS

A non-systematic review of literature was carried out which was guided by the Scale for the Quality Assessment of Narrative Articles (SANRA).³³ A search was carried out in five scientific databases – Pubmed, Web of Science, CINAHL, SciELO and Cuiden. The Boolean operators AND and OR were used, with the following keywords: inelastic bandages, short-stretch bandages, leg ulcer, wound healing. Filters used were English, Spanish and Portuguese languages, and publication years 2013–2023, all study design and international consensus document by scientific associations were included, except grey literature. A final result of 30 articles was obtained for complete reading plus nine consensus and manually selected articles which were independently analysed by two researchers where the inclusion criteria were studies that address treatments with IB and SSB in people with any type of LU (Figure 1).

RESULTS

Analysis of articles and consensus led to describing eight dimensions to consider regarding the clinical decision of the use of IB and SSB in the treatment of people with any type of LU. The different CT systems appearing in the research are described in Table 1.

Faster healing time

A Cochrane Systematic Review that evaluated the effectiveness of using bandages or compression stockings compared with not using them in the treatment of VLU determined that using CT doubles the probability of healing, compared with not using it, with a moderate level of evidence¹¹. Subsequently, evidence supports the use of all forms of CT in comparison to no CT for treating LU^{24,34}. In fact, in a RCT comparing the use of SSB with not using CT, the rates of complete healing at 3 months was 71% versus 25% respectively.³⁴ In addition, 21% of people who did not use CT experienced an increase in the size of their LU within 3 months³⁴.

Dolibog et al, in a clinical randomised pilot study (70 participants), compared three types of CT in persons with superficial deep venous reflux alone or combined with the segmental variety – intermittent pneumatic compression (IPC), stockings and SSB. The results showed that 2SSB improved the area of the wound at 15 weeks ($p=0.01$), but it was not better than the other CT systems. The authors conclude it could be related to the fact that it is not a multilayer system with 40–50mmHg.³⁵ The same authors in another study mentioned that MSSB are more effective in achieving wound healing, probably because they maintain pressure and rigidity, than those that use only one type of material; they are also cost-effective by reducing healing time³⁶ (Figure 2). In addition, according with Zarchi and Jemec, this may be related to the

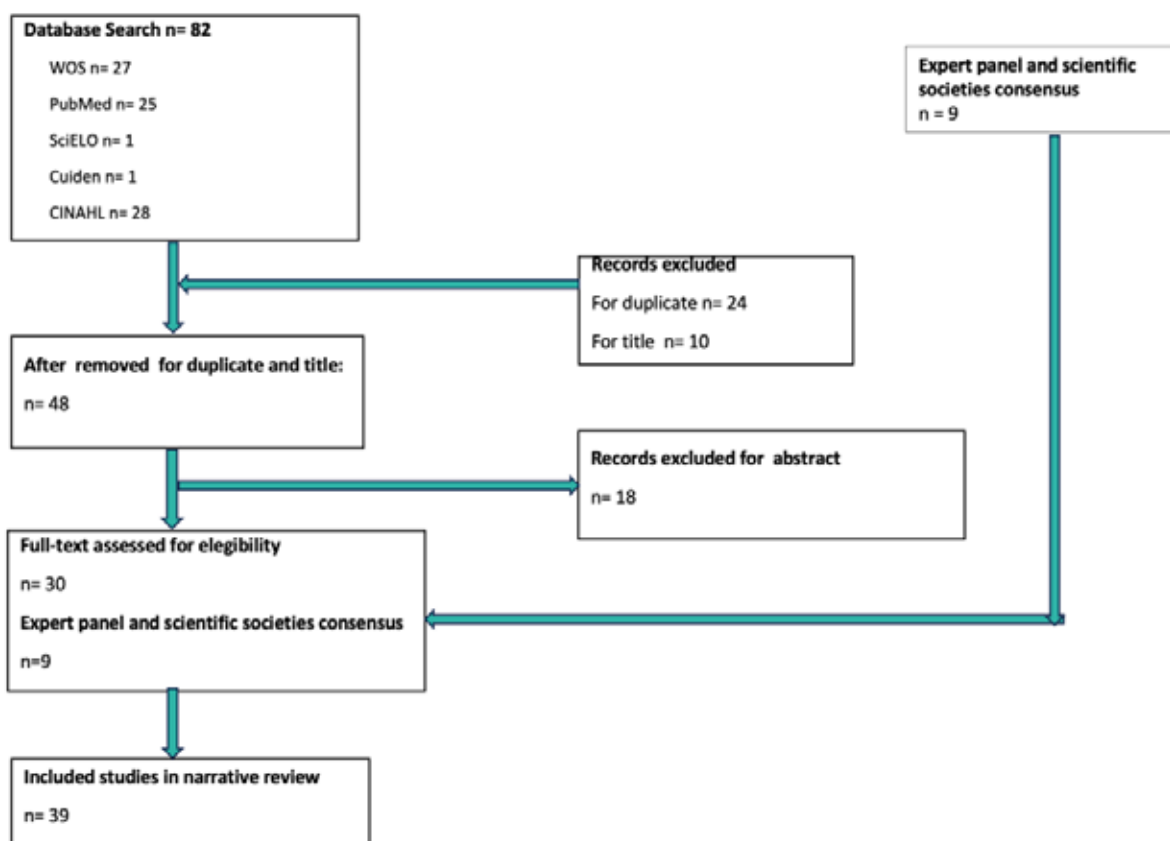


Figure 1. Flow diagram for the review process



Figure 2. LU burn treated with multicomponent SSB which healed within 4 weeks



Figure 3. Multicomponent SSB with indicators

greater accuracy that MSSB can provide, compared to other types of bandages; they showed in their study that more nurses achieve the level of compression expected when using this kind of system³⁷ (Figure 3). Similar conclusions about multicomponent systems being superior to single component systems were mentioned by Mauck et al on a systematic review and meta-analysis.³⁸ In fact, results from a scoping survey of registered nurses showed that the most used type of CT was MSSB.³⁹

In a meta-analysis that included seven studies and analysed 1446 ulcers to compare healing times between 4LB and 2SSB, it was determined that healing time is similar for both systems, with no statistically significant differences between them – 73.6±14.64 days for ulcers treated with 4LB and 83.8±24.89

days for 2SSB. The authors highlighted the relevance of training of healthcare providers to achieve those levels of compression, and that selection must be based on evidence, patient tolerability and preferences.⁴⁰ In fact, Stücker et al showed in their narrative review a MSSB clinical evaluation that revealed no significantly different healing rates within 2 months of treatment compared to 4LB.⁴¹ However, Nelson and Harrison showed in a meta-analysis result that in a comparison between 4LB and 2SSB, there was no superior benefit in favour of 4LB (hazard for healing with 2SSB over 4LB 0.88, 95% CI 0.76–1.02). The authors concluded that when a new product is compared in a clinical context where greater skills with the old product has already been generated, learning curves may bias its use.⁴²

LU healing rates are connected to ankle range of motion and bulk. 4LB can impair the dorsiflexion and consequently diminish the contraction of a calf pump to improve venous return and lymphatic drainage.⁴³ Brambilla and colleagues conducted a study with 63 participants to determine an holistic treatment involving CT and moist wound healing. The cover of the wounds were resolved with bacterial binding dressing, three-layer silicone foam, periwound skin protectant, 1SSB and IB double compression stockings system (DCSS) where oedema was controlled. In 85% of cases, a reduction in size or complete wound healing was achieved within 12 weeks. Wounds that had not healed in that timeframe had reduced in size, ranging from 43.8–92.4%.⁴⁴

In a RCT by Mosti and colleagues comparing other type of IB devices with SSB, they found there was no statistical significance difference in healing rate between adjustable velcro systems (AVS) and MSSB⁴⁵ when it is properly applied through training healthcare professionals. Paranhos et al conducted a systematic review and meta-analysis including eight studies and 643 patients to evaluate the efficacy of IB, showing that IB had best results for wounds with areas more than 10cm², and elastic bandages with areas below 10cm². In their conclusions, a moderate degree of evidence showed there was no difference using IB regarding the healing rates of VLU; nevertheless, they claim that IB is a low cost alternative to reduce venous hypertension and oedema in reduced public health resources, which boosts the treatment of VLU. Also, they mentioned its effectiveness depends on correct application technique, healthcare professional involvement, cooperation and patient compliance.⁴⁶

Table 1. Compression Therapy systems that appeared in the literature review (adapted from Partsch²¹)

Type of compression	Abbreviation	Description
Short-stretch bandage single or double layer	Single: 1SSB Double: 2SSB	Maximal extensibility in the laboratory is 100% One or two bandages applied should preferably be used with a thin padding layer to prevent slippage
Inelastic bandage	IB	Non- stretchable textiles impregnated with zinc paste (Unna boot)
Multicomponent short-stretch bandage	MSSB	All single components consist of SSB material which may have cohesive surfaces Some have ovals indicators to accurate level of compression
Four layer bandage	4LB	They consist of a combination of different materials bandages, all of them long-stretch
Double compression stockings system	DCSS	One stocking (liner), worn day and night, and a second compression stocking (may have zipper to facilitate donner) applied on top is worn during the daytime
Adjustable velcro systems	AVS	SSB material wrapped over the leg and fixed by Velcro bands are the only IB products which can be properly applied by the patient
Intermittent pneumatic compression	IPC	Pneumatic chambers or battery operated, peristaltic pumps generate a wave-form motion on the leg

A mixed-treatment comparison (MTC) meta-analysis of high-CT treatments for VLU showed that among MSSB, SSB, IB, 4LB and DCSS, MSSB was the most effective.⁴⁷ Considering that data came from two small RCTs; is crucial aiding the interpretation of these findings based in the quality of the evidence.

Reduction of oedema and exudate

CT is capable of controlling oedema and exudate, by reducing capillary filtration, moving fluid from compressed tissues to non-compressed tissues, and improving lymphatic drainage. Additionally, it increases venous blood flow and reduces venous pressure and pooling.^{11,48} According to Atkin et al, CT should be used to control wound moisture when there is oedema since it improves tissue oxygenation and promotes an adequate environment for cell and keratinocyte migration, in addition to the consequent reduction in exudate, by reducing interstitial oedema.²² This allows a shorter distance between tissue, capillaries and lymphatic vessels, improving supply of oxygen, nutrients, antibiotics and other cellular products that enhance tissue conditions and even treat infections such as lower limb cellulitis.⁴⁹

Ritchie mentioned IB as first choice for patients with a large amount of reducible oedema and exudate, on both mobile and immobile patients and unusually shaped limbs, before changing to another type of CT like DCSS or AVS in VLU.⁴³ This change of CT type was made in an holistic treatment of VLU in the initial oedematous phase.⁴⁴ Despite any venous aetiology, hydrostatic pressure in the upright position can produce oedema and leads to a LU.⁵⁰ According to Bjork and Ehmann oedema classification, watery oedema decrease easily with multilayer bandages. Putty tissue and woody tissue oedema (whose have more fibrotic damage), reduces better with rigid materials, since it improves lymphatic drainage.⁸

According to Partsch and Mosti, SSB are capable of quickly reducing oedema in lower limbs, so it is important to reapply frequently or installing them with a 50mmHg in the initial oedematous phase. This is related to the fact that 20% of the loss of compression level is caused by the rapid reduction of oedema⁵¹ (Figure 4). Although benefits among different CT are clear, clinical judge and patient preferences must consider in the election when is a large, oedematous or awkwardly shaped legs.⁴⁷

Use in PAD and improvement of capillary flow

It is possible to use stiff CT systems in patients with mixed ulcer (MU) and arterial ulcers (AU), when ABPI is between 0.5–0.8, avoiding <0.5.^{24,50,52,53} Supporting this statement, an Expert Consensus of Vascular Nurses recommends application just with SSB <40mmHg of compression in ABPI 0.6–0.8⁵². Isoherranen et al reported on a systematic review methodology document, a study that showed the promotion of healing through 20–30mmHg CT in MU and AU, resulting in similar healing rates with VLU, 60% (n=24) and 65% (n=20), respectively. The authors concluded that if there are no contraindications, CT should be incorporated in the treatment from the patient's first visit.²⁴

According to a mathematical model to compare 3LB with 2SSB in wound healing rates, one of the variables that they include was improving oxygen flow through the capillary perfusion that both bandages could produce. Although this was not the main result, this study mentioned that more external pressure on the veins could increase oxygen transport over the wound edge.⁵⁴ Sanchez and Partsch conducted a case report on a 72-year-old woman with a 3-month history of LU, accompanied by continuous pain, signs of inflammation, and oedema. ABPI was measured at 0.42, and the diagnosis indicated chronic ischemia of grade



Figure 4. Oedema reduction with IB systems and changes three times a week initially and then twice weekly



Figure 5. Pyoderma gangrenosum treated with i) just with dressing wound, ii) since starting with a SSB, iii) reduction of 50% of wound area at 4 weeks of treatment and iv) healed within 4 months



Figure 6. 2SSB allows secondary debridement in mixed VLU

IV, deemed non-revascularizable. As part of the treatment plan, the patient initiated pharmacological therapy to alleviate pain and manage underlying conditions. Additionally, her leg was wrapped with a first fixation layer and a 1SSB, with precise daily supervision by medical professionals applying 50mmHg pressure. After 4 months, the LU exhibited complete healing. The authors concluded that CT reduced oedema and inflammation while accelerating capillary flow, leading to an increase in shear stress. This, in turn, triggered the release of anti-inflammatory mediators from endothelial cells.⁵⁰ Also, emphasised the importance of such interventions being administered by trained healthcare providers.

Decrease in inflammatory process

Ritchie, in her CT literature review, mentioned that patients with LU and a diagnosis of diabetes, rheumatoid arthritis/vasculitis and presentation of atypical distribution of ulcers were situations that needed to be referred for specialist assessment, but not as a contraindication for CT.⁴³ In fact, Haesler, in her evidence summary, mentioned a best practice recommendation that vasculitis may have a higher risk for individuals, but may be still indicated.³⁴ According to Isoherranen et al, once advanced or critical PAD has

been ruled out, CT should be used in all patients with LU and oedema, even if the cause is not venous. Pyoderma gangrenosum or vasculitic ulcers are inflammatory disease and very painful ulcers, and CT can reduce tissue deposits of immunological complexes, so it is recommended to start with low compression levels of 20mmHg to achieve 30mmHg increase gradually based on tolerance⁵⁵ (Figure 5). These low compression levels at rest can be achieved with IB or SSB. CT has been used safely in LU with inflammatory aetiology, reducing the use of corticosteroids, reducing inflammation, odour, pain and oedema, without major complications.⁵⁶ In addition, it is able to aid the debridement of devitalised tissue due to the control of underlying inflammation (Figure 6), allowing it to pass from this stage to the next one; this was shown within an evaluation of a MSSB system in 19 patients who showed improvement in type of tissue in 63% of patients within 4 weeks.⁵⁷

Cost-effectiveness

Albuquerque et al presented a systematic literature review, to compare the effectiveness of SSB with other types of treatments, among other objectives. One of the included RCTs demonstrate there is no significant difference between 4LB and 2SSB. Another RCT included a small sample of 45 participants, finding 2SSB more expensive than 3LB.⁴⁸ Sodré et al conducted a cost-effectiveness study that considered 12 RCT of LU comparing multilayer bandages with IB (Unna boot) and 2SSB. The results determined that multilayer bandages are the most cost-effective option (including 4LB and MCSS) in terms of costs and healing times, followed by the IB and then 2SSB. Treatment with IB was found to have the lowest cost, while the 2SSB had the highest cost, considering additional factors such as padding layer and bandage washing, which increased total costs,⁵⁸ but still maintained its effectiveness. Considering the frequency of changing bandages as part of the effectiveness and costs, Partsch and Mosti described the concept pressure time integral (PTI) as distribution of the pressure dose over time. PTI for SSB is more stated when the change of bandages is every 2–3 days. To maintain this PTI through 7 days, SSB and MSSB should be wrapped with an initial pressure greater than 50mmHg,⁵¹ then change the bandage when it is loose, or based on healing needs.⁵²

Combination with other types of bandages

Partsch described a useful and old procedure to treat large ulcers and heavily congestive legs, the Fischer technique, developed in 1910 by a pupil of Unna, Heinrich Fischer. This historical practice is an alternative among stiffness materials and mixes two IB, where an IB (zinc oxide paste bandage) is used plus a 100% cotton SSB to deliver compression >50mmHg at rest and greater compression during calf contraction⁵⁹ (Figure 7). It is indicated to treat LU and lymphoedema when ankle pressure is >60mmHg, but it must be applied with an appropriate padding in this area to protect the Achilles tendon from the high pressure.

Pain reduction

Pain is one of the most important issues related with compromised quality of life (QOL).⁴⁸ According to the expert

consensus of Ousey et al, CT has beneficial effects in addition to the healing of wounds/ulcers, such as improving lymph drainage, reducing oedema and pain.⁶⁰ A study by Mosti et al. included 180 participants with VLU and mixed LU to compare treatment with foam esclerotherapy and 1SSB applying in supine position >60mmHg in first group and 40mmHg in second group. The pain associated with a LU was able to be decreased with IB materials ($p \leq 0.001$) in 4 weeks in people with VLU without arterial involvement, and 8–12 weeks in a person with MU (ABPI 0.5–0.8).⁶¹ According to Albuquerque et al, in a systematic review of the benefits of IB materials in VLU treatment, a randomised control trial (RCT) showed that 4LB and 1SSB both improve QOL but, to reduce pain, 1SSB are more likely to have better results in QOL.⁴⁸ Paranhos et al, in a systematic review and meta-analysis, demonstrated all VLU treated with CT improved pain, although with no statistically

Table 2. Benefits of IB and SSB and practical recommendations

Benefit	Practical recommendation
Faster healing time	Selecting IB and SSB should be incorporated from the patient first visit, once vascular contraindications have been ruled out, with a goal of reducing wound area at 4 weeks.
Reduction of oedema and exudate	At the beginning of treatment, the bandage may experience slippage, requiring increased frequency of changes. Once depletion is achieved, the changes can be spaced out to every 7 days.
Use in PAD and improvement of capillary perfusion	Educating the patient about the safety of this type of bandage, since it does not cause interruption of the perfusion, could improve adherence to treatment.
Decrease in inflammatory process	To achieve modified compression, apply low and progressive level of compression. Controlling underlying pathology by a specialist, reinforcing the importance of compliance with pharmacological treatment.
Cost-effectiveness	To prioritise a cost-effective selection of IB and SSB, MSSB should be selected first, second IB (Unna boot) and third 2SSB. It is important to note that all of these options are considered effective.
Combination with other types of bandages	Installing a CT system involves technical skills and appropriate training, such as when to use the Fischer technique. The use of compression measuring devices during training (e.g. Picopress) is recommended to ensure accurate application of compression.
Pain reduction	Using pharmacological treatment based on patient necessities according to the WHO pain scale. Informing the patient about the expected decrease or resolution of pain within a specific timeframe. As pain decreases, the use of analgesics can be gradually reduced and eventually discontinued.
Better adherence to treatment and QOL	Correct application and patient compliance can maximise the probability of wound closure in LU. Additionally, to select CT, consider a bed preparation approach. Selecting a MSSB could have a better impact in QOL than another system.



Figure 7. Modified Fischer technique for the treatment of LU and lymphoedema.

A: Wound dressing. B: Synthetic pad bandage. C: Zinc paste Unna boot D: SSB 100% cotton. E: Cohesive bandage for slipping prevention

significant difference among groups including 4LB, elastic bandage and IB.⁴⁶

As part of LU treatment, pain must be part of assessment and interventions and a plan for analgesia should be included through all processes according to patient feedback⁴³. In addition, raising legs, avoiding prolonged periods of sitting and standing, and daily walking should be incorporated into the patient's routine.

Better adherence to treatment and QOL

The QOL of people with LU can be impaired by wound status, pain, oedema, job loss (including leisure and social activities), depression, co morbidities and overall treatment costs.^{44,48} Brambilla and colleagues mentioned patients may have better QOL if their treatment includes compression bandages that are capable of reducing wound exudate and oedema. Based on a systematic review by Shi et al that included four studies and 859 participants, it was found that the use of CT versus not using compression reduces pain and may improve disease-specific QOL in 12 weeks to 12 months¹¹.

A recent meta-review compared different types of CT, including elastic, IB materials and number of layers, and their results showed that it was not possible to conclude which CT systems represent the most effective for healing VLU. What they do highlight is the importance of correct application and patient compliance to maximise the probability of wound closure, because it is known that CT leads LU to wound healing⁶². Nevertheless, IB and SSB are more comfortable and tolerable for patients because IB materials lose pressure immediately after installing them, without losing their effectiveness, and are tolerable during night wear.⁴⁹ This comfort and tolerance to the bandages may generate greater adherence to the treatment of CT.

In this context, the more rigid the CT system, the lower the dose of compression that can be indicated and specially delivered by IB, thereby enhancing patient comfort.⁸ However, AVS can contribute to patient QOL, related to skin care and easily donning, improving their self-autonomy,^{63,64} but not all clinical contexts and patients can afford this type of device. In this context, IB and SSB still remain a good option for patients, although CT should be discussed with patients to consider their choices to improve concordance with the treatment plan.⁴³ According to a systematic review that explored evidence for multicomponent systems in the treatment of VLU, it was reported that MSSB, combining a first layer pad and SSB cohesive second layer, are more comfortable and tolerable than other systems. MSSB were capable of improving the ability to carry out daily activities and wear usual footwear, and showed a better aesthetic aspect.⁶⁵ A study that determined a holistic treatment strategy with 2SSB, DCSS and moist wound healing in VLU reported a positive impact in patient QOL. After this treatment, there was a shift from high to low impairment during the period study and from low to no impairment in tasks such as lifting objects, walking, standing and household and gardening chores.⁴⁴

Limitations of review

It is acknowledged that most of articles included in this narrative review focused on VLU, necessitating the inclusion of expert consensus guidelines of LU from other etiologies. Furthermore, if the review were to be conducted again, it would be advisable to utilize an alternative database to broaden the scope of results related to the treatment of ILU.

CONCLUSION

IB and SSB have different benefits to patients with LU, specially in initial phase of LU. MSSB can achieve healing rates faster than other types of CT. In people with PAD, it is possible to use stiff CT systems, with modified compression, avoiding ABPI <0.5. If there are no contraindications, CT should be incorporated in the treatment plan from the patient's first visit. LU and a diagnosis of diabetes, rheumatoid arthritis/vasculitis, pyoderma gangrenosum and presentation of atypical distribution can be benefit with CT with similar level of compression as people with PAD. Additionally, in large ulcer and heavily congestive legs, a combination of different types of IB and SSB can be recommended.

It is emphasised that health professionals should be appropriately trained to perform the application adequately in both special cases and the general population with LU to achieve the expected level of compression. When clinicians select a type of IC and SSB, costs should be considered as MSSB are more cost-effective than other types of elastic and IB materials.

In terms of QOL, pain stands out as one of the most significant concerns. It can be alleviated through CT, with superior outcomes observed when using 1SSB within a specific timeframe. It is essential to incorporate a plan for analgesia. Additionally, patients find IB, SSB, and MSSB more comfortable and tolerable. As the rigidity of the CT increases, a lower dose of compression can be recommended and administered through IB materials, thereby enhancing patient QOL. Finally, an holistic approach that includes wound bed preparation and considers the benefits of SSB can enhance QOL and improve wound healing in LU.

IMPLICATION FOR CLINICAL PRACTICE

- IB and SSB are capable of giving benefit to LU, regardless of their aetiology.
- MSSB can improve wound healing cost effectiveness, pain and QOL in people with LU.
- Patients with inflammatory diseases, including PAD, can heal their LU with modified compression through IB and SSB.
- Healthcare professionals must be trained to achieve expected levels of compression to treat LU of different aetiologies.

FURTHER RESEARCH

We believe that additional research is necessary concerning the effectiveness of a MSSB with visual indicators. This research can aid healthcare professionals in enhancing the application of this type of CT for the treatment of LU without venous etiology. This recommendation stems from the observation that most of the research in this field has been conducted with 4LB in the context of VLU.

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ETHICAL CONSIDERATIONS

All of the images included in this article have informed consent of each patient.

CONFLICT OF INTEREST

The authors declare that one of them works for a laboratory that markets compression therapy products (Maria Fernanda Morales-Labarca), however, there are no conflicts of interest on the part of Claudia Ramirez Castro, who did not receive any funding during the writing of this scientific text

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