Top tips for managing venous leg ulcers

Venous leg ulceration is a significant and complex problem for clinicians to manage. This article provides some best practice management tips to ensure the patient, the wound, the environment, the resources and the clinician's skills are all taken into account when looking after patients with venous leg ulcers.

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A leg ulcer is defined as a loss of skin below the knee, which takes more than six weeks to heal (NHS Centre for Reviews and Dissemination, 1997) (*Figure 1*).

Venous leg ulcers are caused by sustained high pressure within the venous system of the leg. More than half are caused by progressive venous reflux, which begins as varicose veins, and the remainder develop after a deep vein thrombosis (Kistner, 2010). The key to effective management is accurate assessment of risk factors to enable the appropriate diagnosis to be made and the use of compression therapy to reduce the venous hypertension. In order to achieve this, there are a number of important factors to consider.

1 HOLISTIC MANAGEMENT

When managing venous leg ulcers, a holistic approach should be taken. This ensures that all relevant factors are taken into account. Vowden et al (2008) identified five key factors that should be considered in relation to the progression of healing:

- Wound-related factors
- Patient-related factors
- Skills and knowledge of the clinicians involved
- Resources and treatment-related factors
- Environmental factors.

2 ASSESSMENT OF RISK FACTORS

For any patient that presents with a new or recurring leg ulcer, the Royal College of Nursing (RCN) guidelines (RCN, 2006) suggest that a full clinical history, together with a physical examination be conducted. It is important to use a structured assessment tool based on the risk factors identified. Family history of venous disease or history of varicose veins or deep vein thrombosis can increase the risk of developing venous ulcers. Any history of phlebitis, trauma or surgery, which may have damaged the veins, also increases the risk as can prolonged standing, obesity and multiple pregnancies. Robust risk assessment can lead to a more accurate diagnosis, which, in turn, supports effective management.

3 SKIN ASSESSMENT

Skin changes are often found on the lower leg as a result of a rise in venous pressure over a prolonged period of time (*Figure 2*). These skin

Venous leg ulcers are caused by sustained high pressure within the venous system of the leg

Figure 1.

Deep venous leg ulcer.

changes aid diagnosis and lead to appropriate management. Brown/pink pigmentation can be caused by leakage of red blood cells and deposits of haemosiderin. The skin can become very dry and itchy and, as the pressure rises, more leakage of waste products from the veins occurs, resulting in an eczematous reaction known as gravitational eczema. The tissue around the gaitor area can become thickened as fibrous tissue is deposited in the dermis and fatty layers of the skin. The leg shape subsequently changes appearance and over time can take on the look of an inverted champagne bottle.

4 VASCULAR ASSESSMENT

A thorough patient and skin assessment can lead the practitioner to a venous ulcer diagnosis, however, it is important that a Doppler assessment or Duplex scan is performed prior to the application of compression bandaging or hosiery to exclude the presence of arterial disease. This involves measuring the blood flow in the arteries of the lower leg compared with that in the upper arm and is recorded as the ankle brachial pressure index (ABPI). In the absence of arterial disease, the systolic blood pressure should be equal to or exceed that in the arm, giving an ABPI of at least one (Stephen-Haynes, 2011). Anyone undertaking this procedure should be suitably trained in the technique as management regimens are often based on ABPI results, although not in isolation from risk and skin assessments

5 ULCER MANAGEMENT

There is no evidence to support the superiority of any dressing type over another when applied under compression bandaging (SIGN, 2010), therefore, it is recommended that, where possible, a simple non-adherent dressing should be used. Remember that it is the treatment of the underlying cause through the use of compression therapy that will ultimately heal the leg ulcer. If the ulcer is clinically infected then appropriate antimicrobial dressings may be of benefit in the short term and if the wound is highly exuding, more absorbent dressings or an increase in the frequency of dressing change would prevent the skin from becoming macerated. Attention should be given to the causes of the symptoms in the first instance.

6 ELASTIC COMPRESSION THERAPY

The mainstay of venous leg ulcer treatment is compression therapy,

which aims to reverse venous hypertension. This can be achieved through the application of compression bandages or hosiery. Elastic or long-stretch bandages, of which the four-layer system is an example, provide a pressure profile of between 35–40mmHg at the ankle. This pressure can be sustained for a week as the bandages have an ability to accommodate changes in limb shape and movement (World Union of Wound Healing Societies [WUWHS], 2008). It is important to measure the ankle circumference prior to bandage selection and most bandages are developed to apply the correct amount of pressure for an ankle circumference between 18–25cm (Beldon, 2009).

Training is required before applying multi-layered compression bandages, both in the theory of compression therapy and its practical application. The shape and size of the limb are important factors in achieving the appropriate compression levels to heal venous ulcers. Bandages that are inappropriately applied can lead to pressure necrosis, skin breakdown and increased pain if too tight, and slow ulcer healing if the pressure is too light. Competence can be improved and maintained through practising the technique repeatedly on willing subjects. Some patients find that applying four-layers of bandages is not practical because they cannot wear their normal shoes, therefore, staff should be mindful of this when making a bandage selection.

7 INELASTIC COMPRESSION THERAPY

These type of bandages are known as short-stretch and, as such, have little extensibility, forming a tube around the leg rather than a graduated compression from the ankle to the knee. Pressure is exerted against the bandage when the leg or foot is exercised through movement of the calf muscle and the pressures can range between 30–60mmHg. Low resting pressures and high working pressures are achieved using this system and, therefore, are suitable for patients with mixed aetiology ulceration and chronic oedema, under supervision. Many staff find short-stretch bandages easier to apply than the four-layer system and they are generally less bulky for patients.

The bandage should be applied by rolling it around the leg and 'tugging' as it passes around the back of the leg to ensure full stretch. It is important to remember that when used on oedematous legs, the fluid can reduce rapidly and, therefore, the bandages should initially be renewed more frequently to control the oedema

8 COMPRESSION HOSIERY

The range of compression hosiery has significantly increased over the past 10 years, with stockings, socks and tights now available in both standard and made-to-measure sizes. Compression hosiery can be used for primary prevention of venous complications following deep vein thrombosis or in patients with varicose veins, to prevent recurrence of leg ulcers following healing (and more recently to heal venous ulcers).

When used for healing ulcers, it is important to ensure that the correct pressure is applied using a combination of single, multiple layer or specifically designed two-layer hosiery kits to ensure the pressure is sufficient to achieve healing. Hosiery is available with UK and European/RAL classification with the European/RAL stockings providing a higher pressure profile that those from the UK. Evidence suggests that healing rates improve and recurrence rates reduce when RAL hosiery has been introduced as part of a comprehensive leg ulcer service (Dowsett, 2011). Clinicians need to assess the ability of patients/carers to apply their hosiery to ensure effective management.

9 VENOUS SURGERY

As previously described, underlying superficial venous reflux is often the primary cause of leg ulceration. If venous ulcers recur, patients should be

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Any history of phlebitis, trauma or surgery, which may have damaged the veins, also increases the risk as can prolonged standing, obesity and multiple pregnancies

Figure 2.

Ankle flare and venous skin changes.

assessed for the degree of venous reflux and should be considered for superficial venous surgery to prevent recurrence (SIGN, 2010). The SIGN guidelines show that surgery does not improve ulcer healing rates but does significantly reduce 12-month recurrence rates after healing. The ability of patients to wear compression hosiery greatly affects recurrence rates, therefore, surgery may be an alternative for this patient group.

10 QUALITY OF LIFE

Many patients with venous leg ulceration go through a cycle of ulcer healing and recurrence, which can influence their quality of life. When managing a patient with venous leg ulcers it is important to explore quality of life issues that may be influencing this cycle and introduce measures to improve and sustain changes where possible. Consideration should be given to pain, both at the dressing change and throughout the day.

The effects of leaking and odour from a leg ulcer should also not be underestimated and increasing dressing changes and treating infection can make a difference to quality of life. Social isolation can also have a major impact on a person's life and an important part of managing leg ulceration should focus on the psychosocial aspects of living with a venous leg ulcer (Lindsey, 2001).

CONCLUSION

Venous leg ulceration is a significant and complex problem for clinicians to manage, as well as having a potentially dramatic effect on patients' quality of life.

Managing all of the holistic factors detailed in section one will ensure the patient , the wound, the environment, the resources and the clinician's skills are all taken into account when managing patients with venous leg ulcers. WE

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