Are we fully implementing guidelines and working within a multidisciplinary team when managing venous leg ulceration?

Compression therapy is the accepted treatment for lower limb venous leg ulceration, but reviews of leg ulcer therapy have shown patients do not receive adequate compression. In the UK, current guidelines recognise the importance of a multidisciplinary approach to care, addressing both issues relating to the wound and the treatment of the underlying venous insufficiency. Managing underlying disease is vital in the long-term care of patients with venous leg ulceration. Despite this, many people with venous leg ulceration have not undergone full venous assessment or been referred for consideration of venous disease therapy.

KEY WORDS
- Chronic venous insufficiency
- Compression therapy
- Ulceration
- Venous leg ulcer

High compression therapy, whether with bandage systems or hosiery, is the accepted treatment of lower limb venous ulceration. Compression has not only been shown to improve healing, it has been demonstrated to reduce oedema and improve tissue oxygen levels (Stacey et al, 1990), reversing some of the changes associated with chronic venous insufficiency (Vandongen and Stacey, 2000).

The introduction of multilayer high compression bandage systems in the late 1980s, and subsequent improvements in bandage textiles and design, have undoubtedly improved outcomes for many patients. However, compression alone does not address the underlying pathology of venous ulceration, chronic venous insufficiency (CVI), and without treatment CVI continues to cause skin damage and increases the risk of recurrent ulceration. In 1999, Nelzen emphasised that compression treatment has been used since the days of Hippocrates and yet has not solved the problem of leg ulceration (Nelzen, 1999).

When reviewing venous leg ulcer therapy in a hospital-based clinic in the USA, Fife et al (2010) found that only 17% of patients received adequate compression, citing lack of familiarity with clinical guidelines, increased cognitive effort by healthcare professionals, and reimbursement policy as barriers to "correct" care.

In a recently published paper, Petherick et al (2013) found similar low rates of Doppler assessment and provision of compression therapy, with less than 16% of patients having a database record of receiving these recommended diagnostic and treatment options.

Once healed, prevention is the key to reducing ulcer numbers. Reviewing data from many of the clinical trials of venous leg ulcer therapy shows that recurrent leg ulceration is common and may account for up to 60% of patients undergoing treatment at any one time (Vowden and Vowden, 2006); managing venous disease is the key to effective recurrence prevention.

WHAT CAUSES CHRONIC VENOUS INSUFFICIENCY?

In a normal resting subject, the pressure in the veins at the ankle is largely controlled by gravity. Lying, with the ankle at the same level as the heart, venous pressure approaches zero, while when standing the pressure rises to levels in excess of 100 mmHg simply due to hydrostatic pressure. When a normal subject exercises (walks), venous pressure falls (ambulatory venous pressure) due to the action of the foot pump, the calf muscle pump and the non-return action of venous valves. Pressure slowly returns to the higher level when the standing subject rests again.

PETER VOWDEN
Consultant Vascular Surgeon, Bradford Teaching Hospitals NHS Foundation Trust Visiting Professor Wound Healing Research, University of Bradford; Clinical Director, NIHR Healthcare Technology Cooperative for the Prevention and Treatment of Wounds, Bradford

KATH VOWDEN
Nurse Consultant, Bradford Teaching Hospitals NHS Foundation Trust and University of Bradford, Bradford

"Chronic venous insufficiency is a progressive condition both in terms of deteriorating venous function and in the development of secondary skin changes"

Three basic conditions reduce the effectiveness of this system for venous return:

1. Abnormalities in the venous valves resulting in venous reflux – junctional and perforator incompetence, varicose veins, deep vein reflux.
2. Occlusion of the deep veins – deep vein thrombosis.
3. Abnormalities in gait, ankle mobility and calf muscle function – limb paralysis, musculoskeletal problems in ankle and foot. If this is the sole cause of venous dysfunction, that is there is no venous valvular abnormality or venous obstruction, these patients have been referred to as having hydrostatic leg ulceration (Bjellerup, 1997).

Chronic venous insufficiency is a progressive condition both in terms of deteriorating venous function (Kostas et al, 2010), and in the development of secondary skin changes such as skin pigmentation, varicose eczema, lipodermatosclerosis, atrophie blanche and finally venous ulceration. The progressive nature of this disease is recognised in the CEAP classification system (Antignani, 2009), which is now the internationally recognised descriptive grading system for classifying patients with lower limb venous disease (*Figure 1*).

MANAGEMENT OF CVI

Duplex ultrasound studies indicate that in over 50% of patients with lower limb venous ulceration, the primary, and likely sole cause of their venous insufficiency, is superficial venous disease (varicose veins), a condition eminently treatable by venous surgery, endovenous ablation therapy or foam sclerotherapy.

Furthermore, many other patients with a mixed picture of deep and superficial reflux may well benefit from treatment of the superficial component of their venous disease. The ESCHAR study (Barwell et al, 2002; Gohel et al, 2005) confirmed the value of venous intervention in reducing venous ulcer recurrence and the conclusions from this study have become even more relevant with the expanding use of minimally

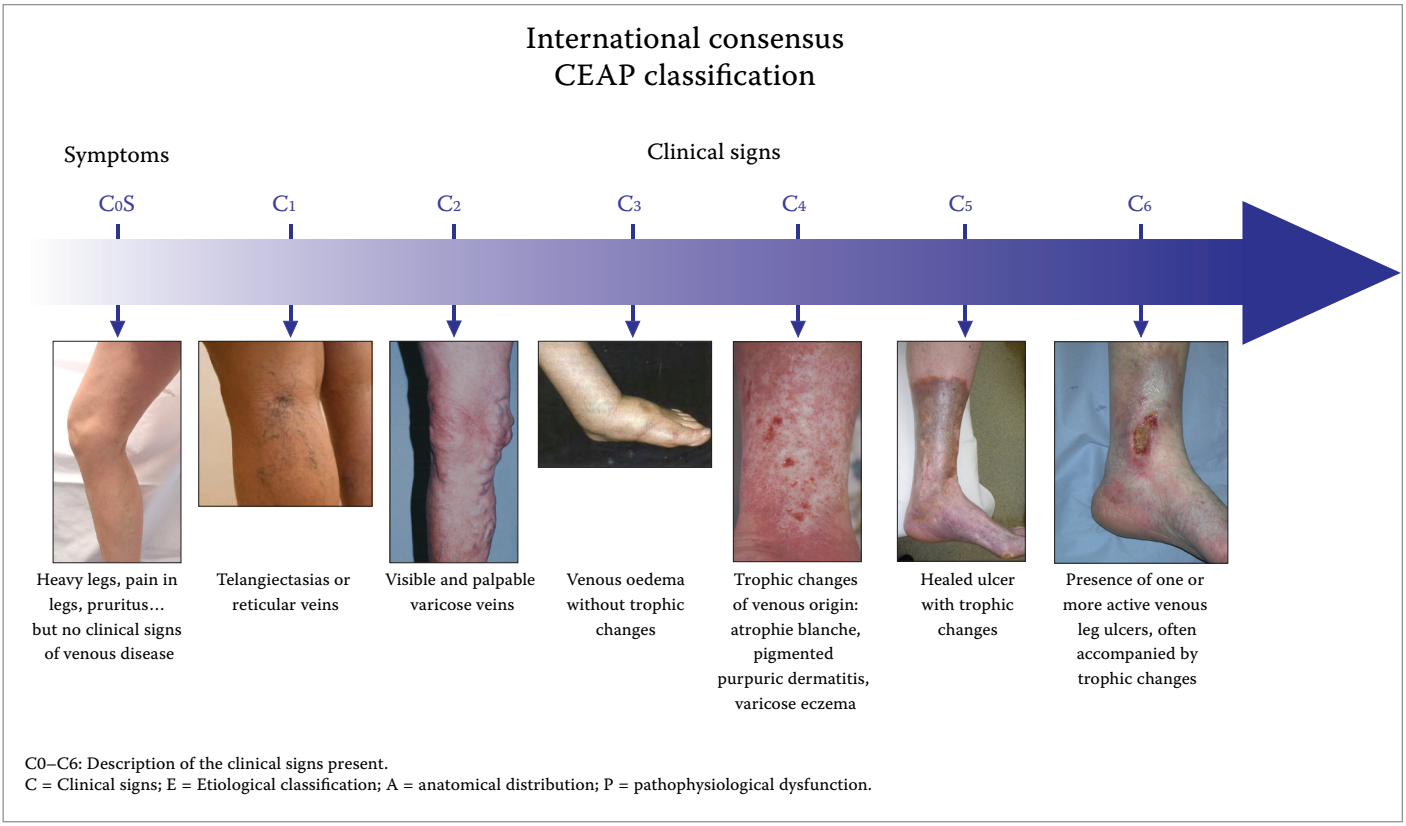

Figure 1. The CEAP system classifies venous disease on several levels, which include clinical signs (C), aetiology (E) of the venous disease, anatomical distribution (A) and the pathophysiological dysfunction (P).

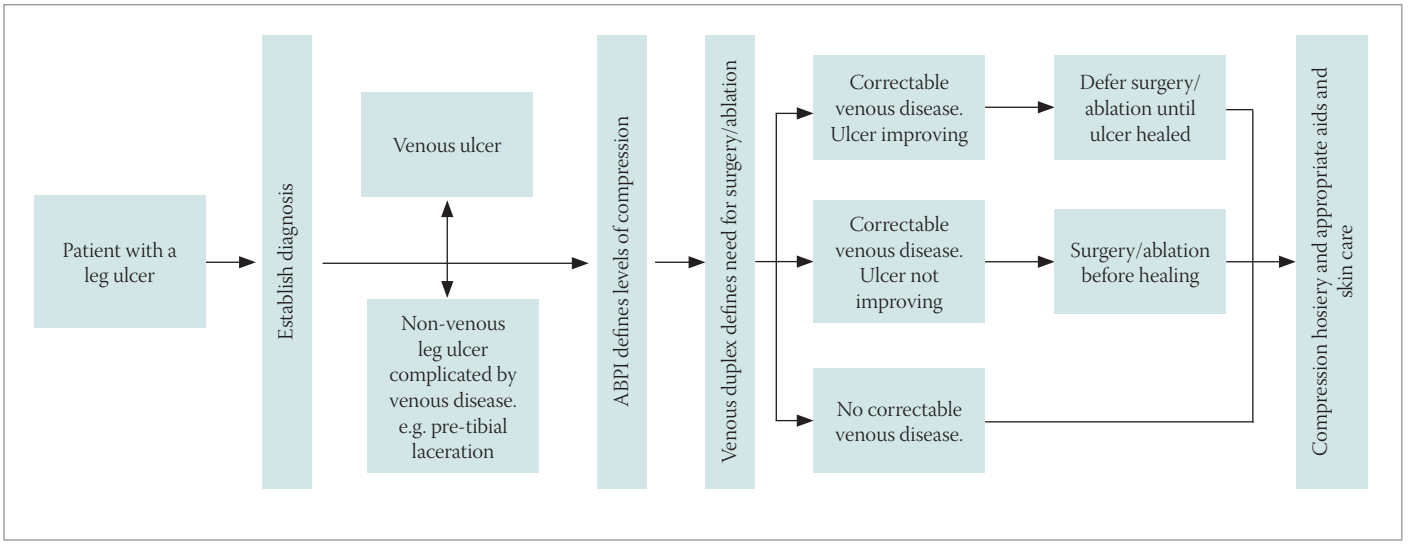

Figure 2. The authors' preferred management pathway.

invasive therapies for treating superficial venous disease (Gloviczki and Gloviczki, 2009). The debate continues, however, about the timing of interventions in relation to ulcer healing.

Our preferred management pathway is outlined in *Figure 2*. We select patients for early venous intervention based on their response to compression therapy. Experience has shown us that even with endovenous ablation therapy there is a higher risk of complications due to phlebitis, cellulitis or overt infection if venous therapy is undertaken in the presence of active ulceration, particularly in patients with non-healing and potentially infected ulcers.

GUIDELINES

Van Hecke et al (2008) recommend that leg ulcer guidelines should incorporate a multidisciplinary approach and include an implementation guide that addresses barriers to adoption. In the UK, published guidelines on the management of lower limb venous ulceration have recognised the importance of a multidisciplinary approach to care, addressing both issues relating to the wound and the treatment of the underlying venous insufficiency. In the UK, early Royal College of Nursing (RCN) and SIGN guidance published in 1998 focused largely on the assessment process and the safe application of compression (RCN, 1998; SIGN 1998). Subsequent revisions of these publications (RCN, 2006; SIGN, 2010) and the international guidelines for leg ulcer care (Marston and Vowden, 2003) have all highlighted the importance of underlying disease management in the long-term care of patients with venous leg ulceration. Despite this, many patients with venous leg ulceration have not undergone full venous assessment or been referred for consideration of venous disease therapy.

In an attempt to address these issues, the Royal Society of Medicine (Venous Forum) published recommendations for the referral and treatment of patients with lower limb chronic venous insufficiency (Venous Forum of the Royal Society of Medicine, 2011). This document makes two recommendations for the treatment of complicated CVI (i.e. those patients with skin changes or healed or active venous ulceration), both based on the CEAP classification of patients and their venous disease:

1. All C4 patients and all patients with a history of suspected CVU (C5 patients) should be referred to a vascular surgeon for a full clinical and duplex ultrasound assessment supported by other diagnostic tests as deemed appropriate.
2. All patients with a break in the skin below the knee that has failed to heal within 2 weeks (potential C6) should be referred urgently (within 2 weeks) to a vascular surgeon.

NICE draft guidelines for the treatment of venous disease are currently being developed and it is likely that they will follow the Royal Society of Medicine's recommendations, specifically the requirement for referring all patients with

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CEAP C4 venous disease and above. Current available evidence would suggest that this should be common clinical practice, but is it? The RCN guidelines (1998; 2006) do not specifically comment on the multidisciplinary role of vascular surgeon and tissue viability nurse in the management of venous leg ulceration, commenting that: "The effectiveness of venous surgery and other specialist medical interventions is beyond the scope of this guideline". The evidence review does, however, note that referral to a surgeon was uncommon:

"There is some research that shows that patients are not always referred appropriately for specialist assessment. One study of district nurse records indicated that only 35% of leg ulcer patients were referred at any stage for a specialist assessment and only 7% had been examined by a vascular surgeon (Lees and Lambert, 1992). However, most of the nurses in this study felt that further investigation of the patients was necessary."

The more recently published SIGN (2010) guidelines do, however, identify the role of venous surgery in preventing leg ulcer recurrence commenting:

"Patients with chronic venous leg ulcer and superficial venous reflux should be considered for superficial venous surgery to prevent recurrence."

CONCLUSION

Early involvement of a multidisciplinary team offering diagnostic, wound care and surgical skills is important if patients with leg ulceration are to receive optimised care. Delayed referral and increasing wound duration is a well-defined variable that has a profound negative effect on subsequent venous ulcer healing (Lantis et al, 2013) as well as impacting on the patient's quality of life. Venous surgery has a proven role in reducing ulcer recurrence and may have a role in ulcer therapy in selected patients. Ideally, leg ulcer patients should receive early confirmatory diagnostic assessment, including Doppler ankle-brachial pressure measurement and duplex venous ultrasound, multidisciplinary treatment planning, community-based high quality compression therapy and targeted venous surgery or ablation therapy. Existing guidelines suggest this but do we provide this level of support to our patients? WUK

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