

JUXTA CURES™: WHEN IS IT APPROPRIATE?

Compression therapy is the optimum treatment for venous leg ulcers (Nelson, 2011). Through case study evidence, this article challenges the view that the current 'gold standard' bandaging technique is the most clinically or cost-effective treatment and suggests that Juxta CURES™ (medi UK) could be used as a first-line approach for compression therapy. The application of therapeutic compression bandaging is difficult and requires specialist knowledge and skill. Many practitioners fail to apply bandages in an effective, competent manner. Using an innovative compression therapy system could eliminate the difficulties experienced with traditional compression methods due to its ease of application and ability to apply and sustain accurate compression at the desired level.

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Between 1% and 2% of the UK population are said to be affected by leg ulcers (Graham et al, 2003). Posnett and Franks (2007) equated this to mean that at any given time between 70,000 and 190,000 individuals have an open ulcer. More women than men are affected and prevalence increases with age. Not only do patients suffer pain and restricted mobility, they are psychologically affected by altered body image. Many patients live in social isolation because of the embarrassment and discomfort of wearing wet, malodorous bandages, with frequency of dressing change at the behest of a health professional.

It is well documented that compression therapy of one type or another is generally the optimum treatment for the vast majority of legs ulcers, most of which are venous in origin. Research demonstrates that 80% of leg ulcers have a venous component and that more ulcers heal with compression than without

(Nelson, 2011). However, sometimes patients with leg ulcers are found to have both venous and arterial disease; these are mixed aetiology ulcers and quite often compression therapy at a reduced level can be safely used to treat these (Royal College of Nursing, 2006).

It is simply a matter of initially establishing the cause and type of the ulcer. There are numerous excellent journal articles that, along with clinical experience, will enable the novice to become proficient in the assessment of both the patient and the ulcer (Morison and Moffatt, 2004; Anderson, 2013).

Once the aetiology of the ulcer has been diagnosed, the next factor is to decide upon the most appropriate level of compression to use and then, finally, choosing the most suitable system for applying the compression, of which there are several. Examples include long- and short-stretch

bandages, two-layer bandage systems, compression stockings and ulcer hosiery kits, intermittent pneumatic compression.

There are of course exceptions, where compression therapy is not appropriate, such as arterial insufficiency. This is when the arterial blood supply is so reduced that any form of compression therapy could result in tissue damage, sometimes severe enough even to lead to amputation. Therefore, patients with arterial ulcers should not have compression therapy irrespective of the choice of system used. Contraindications to compression also apply when patients have acute cellulitis, unstable cardiac failure and acute deep-vein thrombosis.

This article will focus on one innovative system used to apply compression therapy, which is called Juxta CURES.

Juxta CURES

Juxta CURES™ (medi UK) is a compression system that is suitable for almost all patients for whom compression is considered beneficial. Additionally, due to its simplicity of application, it allows patients the opportunity to be directly involved in their clinical treatment and care, should they wish to be. Unlike compression stocking ulcer systems, which only allow for compression at a set level, Juxta CURES is adjustable and can provide an accurate range of compression from 20–40mmHg. Simply expressed, it can provide full or reduced compression therapy in keeping with patient requirement.

Juxta CURES is suitable for use on most patients who require compression therapy, although recent literature would suggest it should be considered when encountering particular problems and mainly aimed at complex cases (Lawrence, 2014). It was also suggested in an article by Bianchi et al (2013) that

Juxta CURES can be considered a solution when patients have been non-compliant with compression bandages.

Juxta CURES is adaptable and could be considered for any patient requiring 'full' or 'reduced' compression when, routinely, compression bandages may be considered the first-line choice. This article aims to provide insight into a much more routine use of JuxtaCURES — simply using it as an alternative to the more traditional original Charing Cross four-layer bandaging regimen, often considered the 'gold standard' compression system, but not necessarily the most clinically or cost effective (Ashby et al, 2014).

The VenUS IV study by Ashby et al (2014) focused on using compression at a level of 40 mmHg, which general consensus recommends as the required level of compression at the ankle to reduce venous hypertension (Clark, 2003). However, bandages are difficult to apply and to maintain compression at an exact level. Application of compression bandaging requires specialist skill.

Vowden (2010) stated: "A number of factors, such as practitioner's knowledge and skill, the limb shape and the materials used, as well as patient acceptance influence the application of effective compression." A literature review estimated that many practitioners are failing to apply bandages in an effective, competent manner (Todd, 2011). This has the potential to result in non-therapeutic compression which, at best, is ineffective with ulcers failing to heal and, at worst, has the potential for causing harm. It may be possible that Juxta CURES could eliminate this problem as it is simple and relatively quick to apply accurate compression at the desired level, whether it is at 40 mmHg, 30 mmHg or 20 mmHg. But first a brief outline

of why compression therapy helps to heal ulcers.

Compression therapy

The venous system of the lower limbs consists of an interconnected network of superficial veins, perforator veins and deep veins. Venous leg ulcers occur, when the blood returning from the veins in the legs to the heart is slow or obstructed (O'Meara et al, 2009). The blood in the leg veins is pushed upwards partly by the action of the foot and by the calf muscle pump as the leg moves (Lindsay et al, 2003). One-way valves within the veins stop the blood flowing back down the veins again when the muscle relaxes (Tortora and Grabowski, 2000). However, damaged valves cannot prevent backflow of venous blood and reduced mobility and limited movement will add to the problem. It is this backflow of blood that results in extra blood volume, causing raised pressure known as venous hypertension, which is the main cause of venous ulceration.

Many patients have associated oedema and episodic ankle oedema is a common feature of superficial venous disease. Oedema that extends beyond the ankle suggests deep

$$P = \frac{T \times N \times K}{CM \times W}$$

T = Tension at which the bandage is applied (usually 50% stretch)

P = Pressure

N = Number of layers of bandage (two in a spiral application)

K = a mathematical formula; a constant value

CM = Circumference of the limb

W = Width of the bandage

(Thomas 2003)

Figure 1. Principles of Laplace's Law.



Figure 2. Juxta CURES (medi UK).



Figure 3. Week 1 — commencement of compression therapy.

venous disease. Compression therapy squeezes the veins making the valves more likely to close and this increases venous blood flow. Compression is usually graduated, such that the magnitude is greatest at the ankle and gaiter area and diminishes towards the knee (Scottish Intercollegiate Guidelines Network, 2010). The term 'graduated compression' refers to a 20–30% reduction in pressure from the ankle to below knee and is thought to aid venous return to the heart, and occurs naturally when compression is applied to a limb of normal proportions due to the principles of Laplace's Law (Figure 1) (Thomas, 2003; World Union of Wound Healing Societies, 2008). Graduated compression also reduces venous reflux and ankle oedema and increases venous blood flow, thus improving the microcirculation and encouraging the healing process (Rajendran et al, 2007).

With proven superficial venous disease and an absence of deep vein disease, once the ulcer has healed, surgical treatment of varicose veins is known to reduce subsequent ulcer recurrence and should be offered to

patients (Barwell et al 2004; Gohel et al, 2007).

JuxtaCURES – How does it work?

Juxta CURES consists of a legging, ankle band and liner and a Built-in Pressure System™ (BPS™; medi UK) guide card (Figure 2). These components are used in conjunction to form a bespoke system and provide a measurable level of compression. Juxta CURES will accommodate virtually any size leg as it comes in three lengths: short (28 cm), standard (33 cm) and long (38 cm). It can also fit limbs with a very wide circumference, although where chronic oedema/lymphoedema is the primary condition, an alternative system called Juxta-FIT™ (medi UK) may be more appropriate. This is because Juxta-FIT is made from an inelastic material specifically for high working pressure and works in a similar way to short-stretch bandages (Mullings, 2012).

Ankle circumference, in conjunction with the BPS guide card, is used to measure the amount of compression to apply. The BPS measures the amount of stretch in a compression garment wrapped around a limb of known circumference, the pressure applied to the limb can be predicted. The greater the tension applied to the garment, the further it stretches and greater compression is applied to the limb. To establish which Juxta

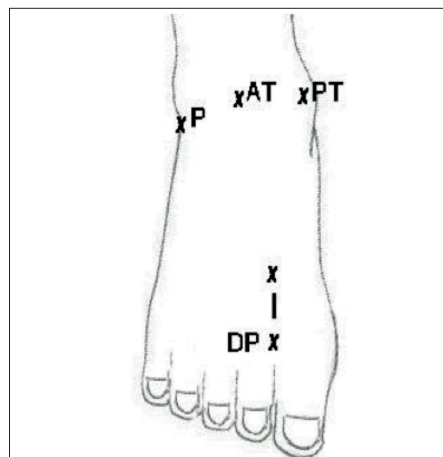


Figure 4. Locating pedal pulses.

CURES length is required, one simple measurement is taken from the ankle to just below the popliteal fossa, following the contour of the limb.

When first initiating the use of Juxta CURES, the healthcare professional will need to measure and adapt the garment to fit the patient's leg, but following instruction, many patients are able to apply the product for themselves.

Case study

Peter (not the patient's real name) is a 48-year-old man who suffered a burn to his left foot as a 15-year-old. In May 2014, he developed a non-healing wound over the site of the original burn. Initially, his GP referred him to a Consultant Dermatologist who saw him in September. Following clinical examination, the ulcer was described as 'very painful' and measuring 2.5 cm x 2 cm within an area of atrophie blanche and obvious visible varicosities. Venous stasis was diagnosed and compression therapy recommended following doppler assessment (Figure 3). Before applying compression therapy it is important to assess arterial supply ensure it is safe practice. Pedal pulses can be palpated using the finger tips, but palpation of pulses alone is not adequate to rule out peripheral arterial disease (Figure 4).

Measurement of the ankle brachial pressure index (ABPI) of both lower limbs by handheld Doppler device is the most reliable way to detect arterial insufficiency (Scottish Intercollegiate Guidelines Network, 2010). Interestingly, Doppler assessment proved unhelpful as the patient had an elevated ABPI of 1.5, higher than the widely considered normal range of 0.91–1.3.

It is generally accepted that an ABPI higher than 1.3 may be associated with arterial incompressibility at the ankle and calcification of the arterial wall (Al-Qaisi et al, 2009). Therefore,



Figure 5. Patient wearing Juxta CURES.

Peter was referred to a Vascular Consultant for further assessment. A duplex scan was arranged and it demonstrated all arteries were widely patent, but confirmed the presence of calcification in the popliteal, posterior tibial and anterior tibial arteries. These results meant it would be safe to use compression therapy.

Standard four-layer compression would usually be suitable, but Peter is driver by profession and he was not permitted to drive if his leg and foot were bandaged. Therefore, Juxta CURES was considered a suitable alternative. Of course a compression hosiery ulcer kit could have been considered, but Peter is 6ft 2in, has long legs and wears size 12 shoes, and compression hosiery ulcer kits will not accommodate his foot and leg size or shape. Juxta CURES was ideal because of its wide size range. He was fitted with a size large and instructed how to apply and adjust it, when to wear it and also how and when to change his dressing (Figure 5).

The dressing used was UrgoTul Absorb Border (Urgo Medical), 13 x 13 cm, because the dressing needed to be secured for ease of ankle application (Figure 6). Dressing removal had already proved painful for Peter so a dressing with a silicone adhesive was ideal to try and make removal as painless and atraumatic as possible. The dressing also has the benefit of being composed of a lipidocolloid soft contact layer next to the ulcer and a foam layer attached to aid exudate absorbency.

Peter was reviewed in clinic 1 week after commencement of compression therapy with Juxta CURES. This was primarily to check that the Juxta CURES was fitting correctly and that he was managing his dressings and application, which he was. Peter had very little associated oedema in his leg at the start of his treatment and, therefore, the Juxta CURES only needed a slight adjustment. One month after starting treatment, Peter was pleased to see the ulcer responding to treatment and healing well (Figure 7).

At the time of writing the ulcer has not yet completely healed, but once it has, Peter should be measured and provided with class 2 RAL standard compression hosiery to reduce the risk of recurrence. He should also be considered as a candidate for surgery. Following full vascular assessment, NICE guidance (2013) recommends

surgical intervention for varicose veins if appropriate following the healing of a venous ulcer.

Conclusion

JuxtaCURES is already considered an alternative system for applying compression. It has been well documented as an ideal compression system to help with issues such as misshapen limbs or those who find it difficult to adhere to compression bandages (Lawrence, 2014). However, Juxta CURES is suitable for any patient requiring compression therapy including those with associated oedema, who often find compression bandages painful.

When oedema is an associated issue, the Juxta CURES will need regular adjustment in the first few days as it quickly and efficiently reduces the oedema level. Patients can be as involved as much or as little as they



Figure 6. Ulcer dressed with UrgoTul Absorb Border (Urgo Medical).



Figure 7. Ulcer at week four of treatment.

choose and Juxta CURES is quick to apply, reduces dressing time and has the potential to reduce the overall cost of compression therapy for almost all patients.

Lastly, Juxta CURES can overcome the disadvantage of using bulky bandages that prevent many patients from wearing their usual footwear and restrict ankle movement. Presumably, most patients would rather wear regular shoes and healthcare professionals should encourage patients to maintain as much mobility as possible because this is essential for the foot and calf muscle pump to work efficiently (Anderson, 2006). To quote the World Union of Wound Healing Societies (2009), there is a myth that “compression therapy for venous ulceration has to be delivered using a bandage”. Perhaps now is the time to challenge this myth and consider Juxta CURES a viable first-line alternative. WE

Declaration of interest

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