Facilitating an Effective Change to Short Stretch Bandaging in an Integrated Acute and Primary Care Trust

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Background

- The first nurse led community leg ulcer clinic in UCHT was September 1996.
- The bandage of choice for venous hypertension was the long stretch bandage, because availability on Drug Tariff.
- These were later replaced in the clinics with 4 layer bandaging
- 4 layer bandaging was not always acceptable to patients because of the bulk
- The Tissue Viability Nurses were first introduced to the cohesive short stretch bandage (SSB) in 2002 as part of a multi-centre trial (Franks et al, 2004a; 2004b).
- Nurses in hospital infrequently used compression bandaging and often reported difficulty in remembering which layer to put on spiral and which layer figure of 8.
- Patients in community reported a preference for SSB finding them more cosmetically acceptable.
- A literature review found no significant difference in healing rates between SSB and long stretch bandaging and 4 layer bandaging and SSB (Scriven et al, 1998; Partsch et al, 1999; Partsch et al, 2001).

Communicating change

- Consultation took place between the Chief Pharmacist in UCHT and the Tissue Viability Team.
- It was agreed to gradually withdraw the 4 layer system from the hospital pharmacy and to stock Actico SSB (Activa Healthcare) for high compression and Elastocrepe bandages (BSN) for reduced compression (figures 1 & 2)

Figure 1

Figure 2

- Both bandages are applied at full stretch and spiral toe to knee therefore reducing confusion as to mode of application

Format of workshops

- Nurses Trust-wide were made aware of the change over and invited to attend a series of bandaging workshops
- Nurses were released for 1 hour usually over a lunch time
- The pathophysiology of venous ulceration was outlined
- The theory of compression bandaging using Laplace's law as a safe means to apply graduated compression was explained (figure 3)
- A bandaging demonstration was given
- Nurses were invited to apply the bandages using each other as models

Assessing Competency

- Nurses' competence was assessed by experienced bandagers until the bandage was applied with consistent proficiency (table 1)
- Community nurses were encouraged to attend the clinics and to bandage patients as there they would experience a greater variation in leg shape and circumference, factors that would influence sub-bandage pressure (figure 4)

Laplace's Law
P = T x N divided by C x W
P = sub-bandage pressure
T = tension
N = number of layers
C = circumference of limb
W = width of bandage

Figure 3

Figure 4

Table 1

- Patient positioned at correct height for ease of application
- Foot at right angles to leg (90^0)
- Wool applied 50% overlap toe to knee and spiral (can use fig of 8 at ankle)
- SSB anchored around foot beginning base of toes
- Some tension can be applied at final anchor turn to avoid foot oedema
- When taking bandage around the ankle crease do not apply full tension to avoid undue pressure on ligaments in ankle crease
- Apply full stretch and spiral from just above malleoli to 2 cm below knee bend
- Ease off at final turn to avoid restricting popliteal vessels

Discussion

The safe application of graduated compression bandaging in patients with venous hypertension and an adequate peripheral blood flow cannot be over emphasised. Graduated compression bandaging is underpinned by a scientific principle, a modified version of Laplace's law designed to predict sub-bandage pressure.

Though these observations were made on a solid object with curved surfaces and cannot easily be extrapolated to the soft tissue and contours of the human leg (Melhusih et al, 2000), the basic principles judiciously applied following confirmation of an adequate arterial blood flow should ensure that the bandage achieves it's objectives, a reduction in venous hypertension without compromising arterial flow.

It is essential then that those applying the bandage have a good understanding of the theory of graduated compression and know how to apply a bandage according to the manufacturer's recommendations.

Training therefore is a pre-requisite to safe bandaging though studies show that improvements in bandaging skills are not always maintained in the longer term (Reynolds, 1999) and that nurses who consider themselves experienced bandagers do not always consistently achieve the expected sub-bandage pressures (Feben, 2003)

The training programme in UCHT facilitated a smooth transition from one bandage system to another. However, further workshops have been held when poor or sub-optimal sub-bandage pressures have been observed. Furthermore in such a large Trust there are staff changes staff move on therefore a rolling programme of training must be maintained.

The decision to change from the 4 layer system to SSB has been confirmed through the findings of the largest study comparing cohesive SSB with a 4 layer system which showed no significant advantage of one system over another in terms of healing or quality of life (Franks et al, 2004a; 2004b).

The Tissue Viability team at UCHT will continue through the promotion of training programmes to ensure that all patients with venous hypertension and subsequent ulceration have access to skilled bandaging in order to optimise outcomes and improve quality of life.

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