

An Audit on the use of Adjustable Velcro Wrapping Devices as an Alternative to Compression Bandaging in the treatment of venous leg ulcers.

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Introduction:

The burden of leg ulcers in the UK costs the NHS somewhere in the region of £400 million and is thought to affect approximately 130,000 people (Ritchie, 2017), However other estimates set prevalence as high as 1,950,000 (Lee & Lawrence, 2017). Compression therapy forms one of the cornerstones of effective leg ulcer treatment, with bandaging being an appropriate treatment modality (Sign, 2010). In the chronic wound and oedema management this can put significant pressure on clinician's time and budget resources, especially when patients require multiple visits per week (Wigg & Lee, 2014). Many patients struggle with standard compression therapy options given associated challenges to hygiene and potential pain levels, (Todd, 2011) especially when this therapy needs to continue over an extended period of time or demands increased visits to a clinic. In order to improve patient quality of life, concordance and involvement, in an attempt to reduce wound recurrence rates and improve healing rates, alternative methods of compression therapy, such as adjustable Velcro wrapping devices, have been considered in local clinics. The adjustable Velcro compression wrap used for the evaluation was a short stretch garment made with overlapping straps, with hook and loop fasteners on one side, which is designed to mimic the standard 50% overlap of a more traditional bandage with a weave which is designed to reduce risk of kinking. Due to its high static stiffness, it aims to be easy to apply, with an engineered consistent graduated compression.

Aim:

To investigate if an adjustable Velcro compression wrap, currently used to treat lymphoedema, is a cost-effective alternative to traditional compression bandaging in patients with chronic oedema and static wounds, whilst considering whether concordance with ongoing care was improved to avoid recurrence.

Method:

Five patients presenting with lymphoedema, lymphovenous changes and a chronic wound to the lower limb were allocated a Velcro wrap based on leg size, instead of traditional bandaging. Criteria for patient selection were, lymphovenous wounds requiring frequent dressing changes, patients unable to tolerate bandages or where a wound is suspected to take longer than 12 weeks to heal. Dressing regimens were selected based on clinical appearance of the wound and wound care objectives as per local formulary. Patients were reviewed at each dressing change with wounds being measured and evaluated every 4 weeks, or if their condition changed. The patients were encouraged to wear their wrap system continuously, but were allowed to remove them for hygiene purposes.

(Image 1 & 2, Velcro wrapping device in situ)



Results / Discussion:

All patients appointment times and number of clinic visits reduced during the treatment with the adjustable Velcro wrapping device. All wounds improved considerably or healed completely. Improvement in concordance and self-care was demonstrated.

Improvements in Skin Care:

Case Study 1: The ACWD allows for the wound to be dressed while the rest of the leg skin was cleansed and moisturised daily, significantly improving the surrounding skin integrity.

In images 3, 4, 5 and 6, the surrounding tissue improved in a short space of time with a combination of skin care at appointments and daily moisturising with ointment based emollients. The surrounding hyperkeratosis desquamated and over the course of the treatment appearing less fibrosed, reducing risk of ulcer recurrence or infection. This wound had compression therapy applied solely by using the ACWD; within one month the wounds had epithelialised, within 6 weeks they were fully intact. The patient was discharged and maintains in the wrap garments with daily moisturising.

The improvement in skin was a consistent finding throughout all patients using the garment but was particularly significant in this case as his skin was in poor state due to the length of time he had been in bandage even with an emollient applied at each appointment.



Flexibility:

Anecdotal evidence from practice highlights that many patients find compression bandaging uncomfortable or struggle to keep up with hygiene, especially if they have bilateral wounds or a higher BMI. Where a patient has high levels of wound pain this is a challenge for both patient and clinician to agree on a plan of care that is comfortable whilst remaining therapeutic.

Case study 2, was a patient who could not tolerate any form of compression therapy prior to her referral to the service. Whenever a bandage or kit was applied she was only able to tolerate for up to 24 hours before removing, she would often try to reapply the compression herself, increasing the risk of bandage related injury. The patient had developed a wound 7 months prior to attending clinic, after managing primarily at home with occasional check-ups with the practice nurse to enable dressings to be ordered. During her assessment, it was suggested to use an ACWD, at which the patient was enthusiastic. While the patient did not wear the ACWD consistently, she was able to don and doff as required in response to her level of pain; there was no additional cost for this removal and reapplication of compression as she was able to do this at home without a nurse present. This plan of care enabled the turning point to achieve slow but visible healing in this 8 month old ulcer. On assessment after one month of using the ACWD the necrosis lifted (**Images 7 & 8**) and malodour significantly reduced, improving her quality of life and alleviating her anxiety. Three months into treatment the patient is still only able to tolerate compression intermittently but the wound continues to heal slowly, there are growing formations of epithelial islands in the medial aspect of the wound which the clinical team and patient are hopeful will continue to proliferate.

Images 7 & 8 Case Study 2: Demonstrating lifting of necrosis and progression of wound healing with three months intermittent toleration of compression wraps.

Case Study 2



Gaining Concordance in new wounds.

Case study 3 is a patient whose wound had previously healed in bandages and chose to maintain in wrap garments, however he had a recurrence of his ulcer due to suspected trauma on the dorsum of his left foot. During his first course of treatment he had some challenges regarding compression due to anxiety and some compulsive behavioural disorders which delayed healing. When it came to garment provision, the ACWD garment was selected to give him some control and empower him to provide his own care. On his return to the clinic with the new wound we discussed options and agreed to utilise the ACWD he already had, as his compression therapy needed to facilitate the wound healing rather than restart the bandaging. He finds this very comfortable and does not cause him anxiety

References:
 Ritchie, G. (2017) Chronic leg ulcers. Nurse Prescribing, 15(9), pp. 430-431
 Lee, N. Lawrence, S (2017) Haddenham easywrap: the latest innovation in the management of lymphoedema. British Journal of Community Nursing. Supplement 5: 22 S14-S21
 Lee, N (2018) An evaluation on the use of adjustable compression wrapping devices as an alternative to compression bandaging in lower leg wounds. Wounds International. 9(4) pp 12-19
 Todd, M. (2011) Venous leg ulcers and the impact of compression bandaging. Br J Nurs 20(21): 1360-4
 Scottish Intercollegiate Guidelines Network (2010) Management of chronic venous leg ulcers SIGN 120. SIGN, Edinburgh

as he is very used to the garments. Images 9 & 10 show the wound at initial presentation and after 3 weeks of treatment, note the peri wound area in image 10 is mildly macerated following a 15 minute PHMB soak as part of the care plan. While the wound measurements have remained fairly stable, all the slough and devitalised tissue has been removed and the wound bed is now granulating, is level with surrounding tissues and has begun to contract, reducing by 0.2cm on the right hand

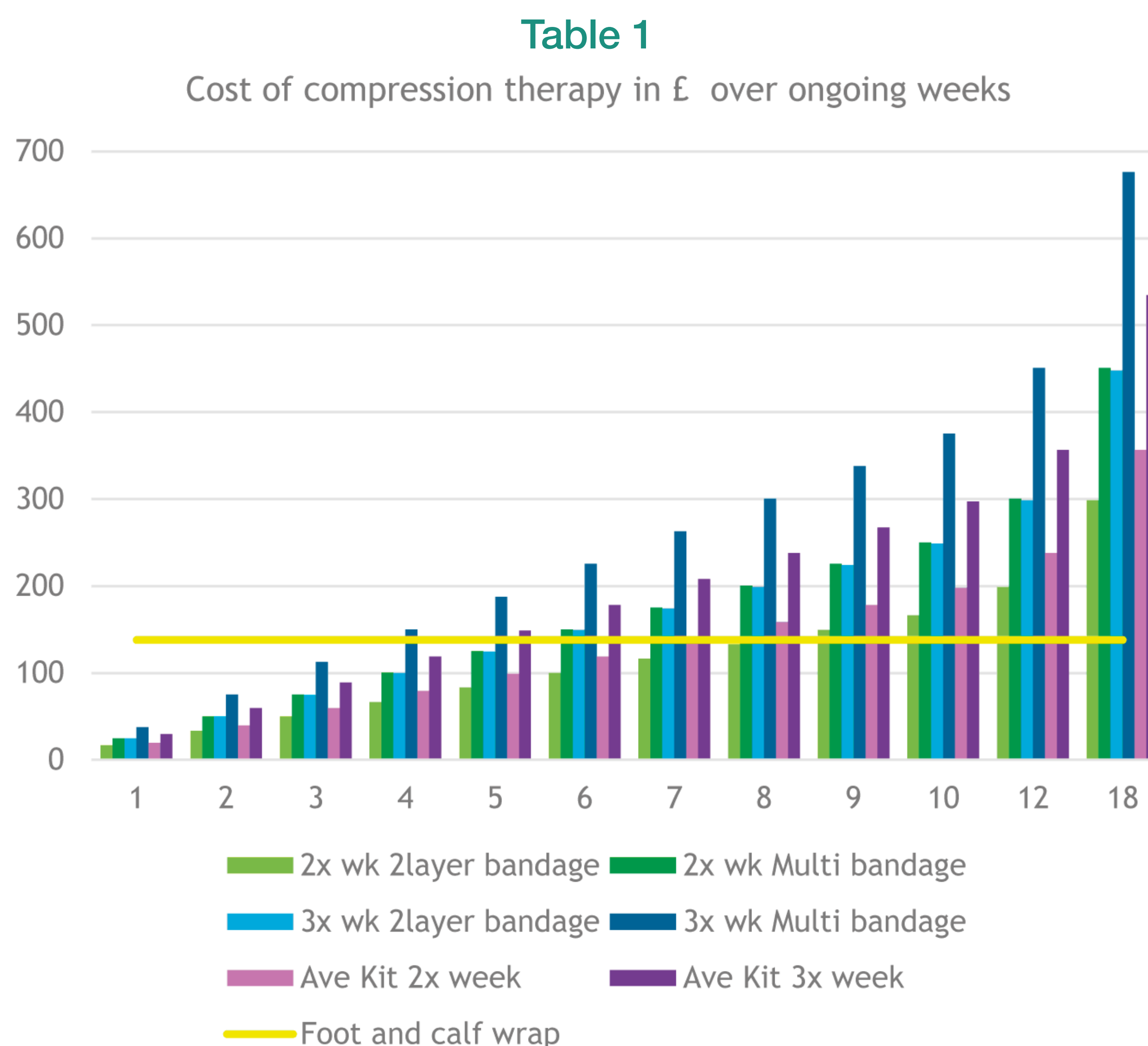
Case Study 3: Images 9 & 10 showing devitalised tissue and slough removed with increased granulation after 3 weeks treatment using the wrap.



Case Study 3

Cost Effectiveness

Cost effectiveness demonstrated with the cost of wraps of wraps being comparable to compression bandaging after a 6 week treatment period. Initially the cost of an ACWD seems more expensive than a short stretch bandage, foam or combination bandage kit. It is clear from **Table 1** that this cost is met generally within 1 month for kits applied 3x weekly and by 6 weeks if in 2 layer short stretch bandage system. If the patient is bandaged 2x weekly only, then an additional 3-4 weeks were needed to match the cost of bandaging. Furthermore risks associated with bandaging such as trauma or slippage were reduced as the ACWD could be adjusted as required.



Conclusion:

Adjustable Velcro Wrapping devices are a suitable alternative to bandaging when treating the patient with lymphoedema who presents with a static wound. This offers a cost effective method of treatment which improves patient concordance and effective management of resources.