

The use of pressure wraps in treating lymphoedema in care

Pressure wraps are a modern alternative to the traditional compression hosiery. Jeanne Everett discusses the various pressure wraps that are on the market, and how they can be used in the treatment of lymphoedema in a residential setting

Traditionally, compression for the management of lymphoedema has been in the form of bandaging and compression hosiery. However, a move away from these traditional forms towards pressure wrapping is ever-increasing. This article will explore why clinicians are moving towards pressure wraps and the evidence for using them, while providing a comparison of the different products on the market.

Background

Lymphoedema is described as persistent tissue swelling due to failure of the lymphatic system (British Lymphology Society, 2016). More generally, it is also the failure of the lymphatic drainage in areas such as the lower limbs. It is a progressive condition that leads to an accumulation of protein-rich oedema. Prevalence of lymphoedema increases with age. It is estimated that 5.4 people in every 1000 over the age of 65 have lymphoedema (Welsh Assembly Government, 2009); people living in a care home setting are at high risk of developing symptoms of lymphoedema. Prevalence rates will differ through the country, as identified in the West Midlands by Cooper (2013). If lymphoedema is not managed with compression, the condition will deteriorate and the patient will develop secondary complications, such as skin changes, cellulitis, and reduced mobility, which are detrimental to patients' quality of life and costly to the NHS (McIntosh and Green, 2009; UK Government, 2014).

Patients who are in care homes may struggle with the application of compression hosiery, and therefore rely on district nurses to apply compression bandaging each week. Not only is this process costly and time-consuming, bandages often slip, causing discomfort. Bandage shoes are also required, which can hinder mobility, and concordance with bandages is often poor, with 51% of patients reported to be non-concordant (Miller et al, 2011). This is a high number of patients, and further research would be beneficial in this area—perhaps identifying what is concordant and why lack of concordance happens. These problems with hosiery and bandaging can result in poor outcomes for patients with lymphoedema.

Bandaging requires strict competencies to be achieved and maintained by clinicians. This may cause problems in the residential and home care setting, due to a lack of resources for the level of compression bandaging required. With a high turnover of staff often seen in district nursing teams, having a competent workforce can be hard to achieve and maintain. The nervousness associated with bandage application and the risk of under- or over-compressing a patient can lead to clinicians being wary of this process, which may result in patients not having optimum compression therapy to reduce and maintain their lymphoedema.

It is therefore likely that a combination of an ever-increasing workload within the NHS, the competency of staff to complete bandaging, poor concordance and the drive to compress patients more effectively and efficiently has led to the rapidly expanding market of pressure wraps for the management of lymphoedema.

Pressure wraps

Compression for the management of lymphoedema is one of the mainstays of treatment. A pressure wrap, also known commonly as an adjustable velcro compression device (AVCD), is an inelastic compression device (Lymphoedema Framework, 2006) that applies graduated compression to the limb.

Recent studies have demonstrated that AVCDs for the management of lymphoedema are clinically and cost effective

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Table 1. Lymphoedema category—treating lower leg and foot

Company	Brand name	Main pack contents	Warranty (months)	Measurable compression?	Instantly re-adjustable?	Sizing		Component costs below knee and foot	Total cost for treating lower leg	Cost per day of life
medi UK Ltd	juxtafit lower legging	calf wrap, liner and foot wrap	12	✓	✓	8	2	£129.51	£129.51	£0.35
Sigvaris	CompreFit	wrap and liner	6	x	x	5	2	£90.00 +£35.00	£125.00	£0.68
	CompreFLEX	wrap and liner	6	x	✓	5	2	£110.00 +£35.00	£145.00	£0.79
BSN	FarrowWrap Lite	wrap and liner	6 (change every 4-6 months)	x	x	5	2	£129.38 +£36.22	£165.60	£0.91
	FarrowWrap Classic	wrap and liner		x	x	5	2	£129.38 +£36.22	£165.60	£0.91
	FarrowWrap Strong	wrap and liner		x	x	5	2	£128.38 +£35.92	£164.30	£0.90
Juzo	Compression Wrap	wrap and liner	6	x	x	5	2	£85.00 +£35.00	£120.00	£0.66
Activa	ReadyWrap	wrap and liner	6	x	x	4	2	£85.00 +£35.44	£120.00	£0.66

Source: NHS Business Service Authority, 2016

(Elvin, 2015; Wickes, 2015). Studies by Mosti et al (2015) and Damstra and Partsch (2013) identify that consistent and constant compression of 40 mmHg is more clinically effective than inelastic bandages in reducing oedema.

There are now a number of AVCDs available which may initially look very similar. However, this paper presents an overview of the AVCDs on the market and identifies some clear differences which should be considered when selecting an AVCD for your patient. There are five companies which manufacture and distribute AVCDs to the UK market, specifically for lymphoedema—medi UK, Sigvaris, BSN Medical, Juzo and Activa. An overview of the AVCDs delivered by each company is summarised in *Table 1* and *Table 2*.

Application of compression can be a daunting process. Care home staff are not often trained in compression. This drives the need for compression application to be as safe as possible. Unlike any other AVCD on the market, the juxtafit (medi UK) has a built-in pressure system (BPS), meaning that the level of compression being applied to a limb can be accurately and instantly measured through a calibrated card which is lined up against two lines on each strap (Smith, 2016). The amount of pressure (in mmHg)

can be determined from the tension of each strap (Medi, 2016). Staff qualified in compression can assess a patient and decide on the level of compression required clinically for a patient (20, 30, 40 or 50 mmHg), and care home staff can then apply the juxtafit and confidently measure the level of compression being applied, ensuring it meets the mmHg prescribed. This AVCD optimises patient safety in a way that no other AVCD can provide.

As oedema reduces, the mmHg being applied to the limb will reduce. This can be monitored by care home staff and the juxtafit re-adjusted to ensure it provides consistent and constant therapeutic compression.

Ease of adjustability

Studies show that AVCDs have been more effective in the management of lymphoedema than inelastic bandages over both 24 hours and one week, due to the ability to adjust the AVCD throughout the day and actively chase down oedema (Mosti et al, 2015; Damstra and Partsch, 2013). As oedema reduces, the AVCD can slip if not adjusted regularly. A garment that can be instantly adjusted is a key consideration, as this will aid the ability

Table 2. Lymphoedema category—treating whole leg and foot

Company	Brand Name	Main pack contents	Warranty (months)	Measurable compression?	Instantly readjustable?	Sizing		Component costs upper leg, below knee and foot	Total cost for treating whole leg	Cost per day of life
						Sizes	Lengths			
medi	juxtafit lower legging	calf wrap, liner & foot wrap	12	✓	✓	8	2	£129.51	£270.93	£0.35 +£0.78 =£1.13
	juxtafit essentials upper leg with knee piece	thigh & knee wrap, liner & cover up	6	✓	✓	5	2	£141.42		
Sigvaris	CompreFit	thigh, below knee wrap & liner	6	x	x	5	2	£90.00 +£90.00 +£35.00	£215.00	£1.18
	CompreFLEX	thigh, below knee wrap & liner	6	x	✓	5	2	£110.00 +£110.00 +£35.00	£255.00	£1.40
BSN	FarrowWrap Lite	thigh, below knee wrap & liner	6 (change 4-6 months)	x	x	5	2	£129.96 +£129.96 +£36.39	£296.31	£1.62
	FarrowWrap Classic	thigh, below knee wrap & liner		x	x	5	2	£129.96 +£129.96 +£36.39	296.31	£1.62
	FarrowWrap Strong	thigh, below knee wrap & liner		x	x	5	2	£128.82 +£128.82 +£36.07	£293.71	£1.61
Juzo	Compression Wrap	thigh, below knee wrap & liner	6	x	x	5	2	£95.00 +£85.00 +£35.00	£215.00	£1.18
Activa	ReadyWrap	thigh, below knee wrap & liner	6	x	x	4	2	£98.00 +£85.00 +£35.44	£215.44	£1.18

Source: NHS Business Service Authority, 2016

to chase down oedema. In order to adjust the AVCD, all the wraps (apart from the juxtafit) are applied by using an overlap system, meaning the whole garment has to be opened in order to reapply. The juxtafit has opposing straps (that sit in juxtaposition) enabling the wearer or carer to instantly readjust one strap, regardless of where it is situated along the garment. The BPS is also essential in supporting this process, as it will allow the care home staff to identify where oedema has reduced (as mmHg

will be low on the BPS card) and the relevant straps can be adjusted to achieve the desired and prescribed mmHg.

Sizes

All AVCDs discussed are available in five sizes, except for the Activa ready wrap (four sizes) and the juxtafit (eight sizes). The wide range of sizes available in the juxtafit allows more patients to be managed with off-the-shelf AVCDs, reducing the need for either a made-to-measure AVCD or inelastic

bandaging—both of which would prove more costly to the NHS (Elvin, 2015; Wickes, 2015).

Materials and caring for the garments

All AVCDs come with a liner which is essential for hygiene purposes. All devices are machine washable, except for the BSN farrow wrap, which should be hand washed. In the instructions available in the packs, it is stated that all devices are machine-washable, except for the BSN farrow wrap and Activa Readywrap, which should be hand washed. The instructions in the juxtafit pack also mention breathability, due to the material being made of 'breathoprene'; consequently this will mean the garment dries very quickly when washed, and will feel cool when on the limb.

None of the AVCDs mentioned contain latex, which is important to acknowledge as this eliminates the risk to both patients and staff who may have a latex allergy, coming into contact with the AVCD. Although CompreFit and CompreFLEX (Sigvaris) state the garments do not contain latex, the actual materials are not identified in either the garment or within the accompanying literature.

Guarantee

Most of the AVCDs have a 6 month guarantee. Interestingly, the BSN farrow wrap states it has a 6 month guarantee, but the garment literature recommends that the wrap should be changed every 4–6 months.

Depending upon the juxtafit selected, the guarantee is either 6 or 12 months. The difference in the guarantee can be justified as the lower leg piece has landing strips for the Velcro straps, rather than sticking directly to the wall of the garment, therefore making the garment more durable and extending the guarantee of the garment to 12 months.

Price

When calculating the cost of an AVCD it, is very easy to consider just the initial outlay for the compression garment, which can vary from £85.00–£141.42 for below knee (at time of writing). However it is important to acknowledge the additional costs required with some garments, for example foot compression, and how long garments are guaranteed to last for. *Table 1* identifies the fact that all garments (except juxtafit) require additional

compression to be purchased for the foot.

When the additional foot piece cost and the guarantee of the AVCD is taken into consideration, the cost of each AVCD per day, for the life of the garment, varies quite significantly; garments that initially appear cheap may become less cost effective over the life of the garment. In treating both the full leg and below the knee, the garments that are most cost effective over their lifetime are the juxtafit, with a below knee daily cost of £0.35, and a full leg daily cost of £1.13. *Table 1* shows that this below knee daily cost for juxtafit is almost half the price (and in some cases over half the price cheaper) than all other AVCDs available on the market.

Conclusion

From reviewing the AVCDs on the market, it is suggestive that the use of AVCDs could transform the management of lymphoedema within the care home setting, delivering a technique to ensure clinically effective management of patients with lymphoedema in this particular setting.

Although there are a number of AVCDs on the market, from reviewing the wraps it is evident that the juxtafit is the only one with measurability, making its use safe for carers and unqualified staff. Measurable, accurate compression can be applied to chase down oedema effectively and patient safety can be protected through ensuring the prescribed level of mmHg is delivered and maintained, through using the BPS. The juxtafit AVCD can support care home staff to manage lymphoedema patients' needs, and reduce the burden on community nurses through the ability to apply safely, prescribed and measurable compression.

Declaration of interest: Medi UK supported the author in producing this piece

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Key points

- Compression wraps can relieve the burden of care for patients requiring bandaging in care homes
- Compression wraps offering measurability ensure safe delivery of care
- Compression wraps offer the potential to improve concordance to treatment for patients
- The ease of adjustability prevents slippage and trauma that can be associated with bandaging