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Improving patient concordance in lymphoedema management with SoftFit technology

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ABSTRACT

Lymphoedema and chronic oedema patients are cared for by all members of the community nursing team. Without knowledge and understanding of how to improve the condition, nurses feel under immense pressure in caring for their patients. Compression garments are the mainstay of treatment in the 'maintenance phase' (long-term management phase) of lymphoedema and chronic oedema (Lymphoedema Framework, 2006). Choosing the most appropriate garment for the patient, providing adequate compression and controlling the oedema, is challenging. Patient concordance and wear time will be improved if a comfortable fit is provided and the oedema is well controlled. This article includes four case studies in which lymphoedema patients were prescribed custom-fit, flat-knit graduated compression garments with the addition of SoftFit from BSN medical, which proved to provide greater comfort to the patient. SoftFit technology is a unique system of silicone yarns, knitted into the inner welt (knitted top-band area of a compression garment) of selected JOBST® Elvarex® and JOBST® Elvarex® Soft custom-fit, flat-knit compression garments. All four case studies indicate that wear time and concordance is improved by the addition of this technology.

KEY WORDS

• chronic oedema • lymphoedema • compression garment
• cellulitis • skin care

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Lymphoedema and chronic oedema are progressive conditions that can be painful, impair mobility and cause physical and psychological distress to the individual (Lymphoedema Framework, 2006). Caring for patients with lymphoedema and chronic oedema is physically demanding, time consuming for practitioners and costly to the NHS. Many patients may see several healthcare professionals before being correctly diagnosed due to low levels of awareness and understanding (Keast et al, 2015).

Aetiology

Lymphoedema and chronic oedema is a growing concern among healthcare professionals with prevalence rates having increased in the last decade, now estimated to be 3.93 per 1000 (Moffatt et al, 2016), compared with previous evidence where this figure was suggested to be 1.33 per 1000 (Moffatt et al, 2003).

Oedema (or swelling) is only a symptom and understanding the cause will help the practitioner treat the patient. Oedema results from an imbalance between capillary filtration into and lymphatic drainage from the interstitial space (Cooper, 2013). Swelling of the legs and chronic oedema is a result of impairment of lymphatic drainage. 'Lymphatic failure' develops when the system simply becomes overloaded and the excess fluid, known as lymph, collects in the tissues, causing a swelling (Lymphoedema Framework, 2006).

Chronic oedema is often used interchangeably with the term lymphoedema. Chronic oedema can be caused by heart disease, chronic venous disease, chronic kidney failure, immobility or obesity (Wigg and Jones, 2006). Chronic oedema is defined by a swelling that has been present for 3 months or more and is not alleviated by diuretics or elevation (Lymphoedema Framework, 2006). Obesity-related lymphoedema/chronic oedema is caused by excess fatty tissue obstructing lymphatic drainage and further complicated by the patient's poor mobility (Newton, 2011). The term lymphoedema is used when the lymphatic system has been impaired, such as the result of damage to the system caused by trauma, burns, chronic skin disorders and cancer treatments. Surgery, chemotherapy and radiotherapy all affect lymphatic drainage—this is known as secondary lymphoedema. Primary lymphoedema is congenital and the patient is born with missing or inadequate lymphatic vessels (Lymphoedema Framework, 2006).

Decongestive lymphatic therapy

If left untreated, lymphoedema/chronic oedema will get progressively worse and can result in lymphorrhea (leaky legs), risk of infection, wounds and discomfort (Atkin, 2014; Elwell and Craven, 2015). In addition, the patient's quality of life is affected; the patient may have difficulty performing daily tasks, and be unable to work or look after children. This

causes emotional, social and psychological distress (Todd, 2014; Ridner, 2009).

Graduated compression garments are the mainstay of treatment in the 'maintenance phase' of caring for patients with lymphoedema or chronic oedema—also known as the long-term management phase (Lymphoedema Framework, 2006). In phase one of decongestive lymphatic therapy (DLT), the limb should first be reduced using compression bandaging or a wrap compression system as appropriate (Linnitt, 2011). By engaging the patient during all stages of caring for his or her swelling, the patient is encouraged towards independence and self-management. Educating the patient to understand the importance of skin care, exercise, weight loss and compression will assist the transition into the maintenance phase (Lymphoedema Framework, 2006).

Skin care

Skin care problems are common in patients with chronic oedema and skin trauma caused by the application or removal of garments can quickly develop into cellulitis, requiring costly antibiotics or possible hospitalisation (Elwell and Craven, 2015). Maintenance of skin integrity is essential to reduce the risk of cellulitis in patients with lymphoedema and chronic oedema and a daily skin-care regimen should be taught, including washing of the limb and use of an appropriate emollient (Todd, 2014).

Graduated compression garments

Graduated compression garments play a key role in controlling oedema in the maintenance phase by providing support to the tissues to prevent fluid build-up and assist in moving excess fluid out of the limb (Lymphoedema Framework, 2006). The multitude of different styles, fabrics and compression classes now available to the practitioner can make it difficult to decide on the most suitable garment for the patient. Finding a comfortable fit 'off the shelf' can be difficult and therefore a custom-fit, flat knit compression garment may better meet the individual needs of the patient. Good clinical outcomes are reliant on having easy access to garments that are available in a wide range of types and styles, that also include the male perspective (Cooper, 2015).

Allowing the patient to have some choice in style and colour will aid patient concordance but it is the practitioner who should have the understanding and the knowledge to make the correct garment decision (Linnitt and Jones, 2012). The aesthetic appearance, comfort and fit are important factors that influence patient concordance but it is important that the garments offer the appropriate amount of pressure to effectively control the oedema. Circular-knit garments are knitted continuously on a round knitting cylinder and do not have a seam. The fabric tends to be finer and is ideal for regular-shaped limbs. Flat-knit garments are made on an industrial knitting machine with a thicker yarn and therefore have a greater 'stiffness factor'. Stitches can be added and dropped to accommodate all levels of limb shape distortion. Firmer fabric offers greater resistance, which is especially useful following oedema reduction—as pointed out by Linnit (2011):

> ***'The stiffer the fabric, the more useful it is for improving the venous and lymphatic return. Very soft sheer elastic allows the limb to swell. This is in contrast to a stiffer fabric, which is therefore better at controlling chronic oedema.'***

Flat-knit garments sit flat against the tissues and provide a massaging effect. They do not pinch, roll or cut into skin folds, making them especially suitable for limbs with shape distortion. When custom-fit, the patient is provided with a bespoke garment made to fit their limb measurements exactly. This promotes concordance and self-management by increasing wearing comfort. In addition, a flat-knit garment can be customised for each patient by adding in specialised options that are knitted into the garment.

Silicone bands are recommended to secure the garment in place for active patients or larger limbs to prevent sliding down due to gravity or shape distortion. Securing the garment with a silicone band ensures it stays in place and fits well and therefore the appropriate level of compression is evenly distributed throughout the limb. A garment that fits the patient's limb shape and is secured in place is likely to increase patient concordance and be worn more often to provide optimum treatment outcomes (Lymphoedema Framework, 2006).

Always consider the need for an applicator and demonstrate its use to the patient, as many garments are simply not worn because the patient cannot get them on or off independently.

SoftFit technology

SoftFit technology from BSN medical is a unique system of silicone yarns knitted into the inner welt (knitted top band area of a compression garment) of selected JOBST® Elvarex® and JOBST® Elvarex® Soft custom-fit, flat knit compression garments. SoftFit offers an alternative to the current knitted welt or silicone band option for patients with mild to moderate lymphoedema or chronic oedema. It provides more gentle, seamless friction on the skin, which means there is no 'cutting in' and less slipping down, even when the patient is moving about. The high gripping properties are designed to keep the garment in place comfortably, without tightness, reducing the need for the garment to be readjusted throughout the day. The silicone yarn is used in the knitting process, therefore removing the need for an additional circumferential seam at the top of the garment. This seamless, smoother construction is less bulky compared with a silicone band and more aesthetically pleasing. The benefits of SoftFit aim to improve a patient's quality of life by allowing the patient to concentrate more on the activities of daily living and less on their compression garment. This offers the potential for more consistent wear times and increased patient concordance. For the practitioner, higher levels of patient concordance and garment wear time help to make management of lymphoedema or chronic oedema significantly more successful. SoftFit is an option available on FP10/GP10 for JOBST Elvarex and JOBST Elvarex

Soft knee-high and armsleeve compression garments, ensuring availability in the community.

Case study 1

A 56-year-old female had a history of breast cancer in 2012. Her treatment included lumpectomy, total axillary clearance, chemotherapy and radiotherapy. She was referred to the lymphoedema clinic in 2014 with a 10% lymphoedema in the right upper arm compared with the left, and swelling in the affected breast. The breast lymphoedema was relieved with a course of manual lymphatic drainage (MLD) therapy. For the arm swelling the patient was given a JOBST® Bella™ Lite compression class 2 (20–30 mmHg) circular-knit armsleeve with silicone band, but due to her active lifestyle this was not successful in maintaining her upper arm lymphoedema. The patient is a slim, active lady who enjoys daily horse riding and she noticed a 2–4 cm increase around her upper arm following riding. Her armsleeve was changed to a JOBST Elvarex Soft custom-fit, flat-knit, RAL compression class 2 (23–32 mmHg) armsleeve with bias cut (shaping at the top of the arm) from wrist to axilla, with a silicone band to keep it in position. The patient was also encouraged to perform lymph mobilising exercises after horse riding. The new armsleeve was successful in reducing the limb volume to 0% lymphoedema and the patient commented that it was comfortable to wear and did not slip due to the silicone band. The same armsleeve was then ordered but the silicone band was replaced with SoftFit and the patient was delighted (*Figure 1*). The armsleeve remained in place equally as well as the silicone band but was far more comfortable. It did not leave an indentation on her skin and was less bulky under clothing (*Figure 2*). The bulkiness is reduced as the silicone yarn is knitted in during the knitting process compared to a silicone band being sewn on after the garment is knitted. The patient found it:

> ***'More comfortable than the silicone band garment but just as effective at holding up my sleeve.'***

Figure 1 and 2. Case study 1: JOBST Elvarex Soft custom-fit, flat-knit RAL compression class 2 (23-32 mmHg) armsleeve with SoftFit

Case study 2

A 55-year-old female nurse had a history of breast cancer in 2006. Her treatment included mastectomy with total axillary clearance and chemotherapy. She presented to the lymphoedema clinic with a 16.3% swelling to her right arm compared with the left arm. She was initially treated with a course of DLT (a combination of MLD and multi-layer lymphoedema bandaging), achieving a reduction to 7.5%. The patient was then fitted with a JOBST Elvarex custom-fit, flat knit, RAL compression class 2 (23–32 mmHg) armsleeve from wrist to axilla with a silicone band due to an active lifestyle. The armsleeve prescribed had a bias cut to ensure a better fit at the top of the arm. The patient was delighted as the armsleeve maintained her reduced limb volume and was a good fit. The patient was then provided with the same armsleeve but the silicone band was replaced with SoftFit *(Figures 3 and 4)*. She was impressed with the increased comfort of the armsleeve while maintaining control of her lymphoedema. She described it as:

Figures 3 and 4. Case study 2: JOBST Elvarex custom-fit, flat-knit RAL compression class 2 (23-32mmHg) armsleeve from wrist to axilla with SoftFit

> ***'Comfortable fit, doesn't roll down—more comfortable***


Figures 5 and 6. Case study 3: JOBST Elvarex Soft custom-fit, flat-knit, RAL CCL 2 (23-32 mmHg) knee high with SoftFit


Figures 7 and 8. Case study 4: JOBST Elvarex custom-fit, flat knit RAL compression class 1 (18-21 mmHg) knee high with SoftFit

than my usual silicone band, which sometimes left redness and often made me sore on the delicate area on the inner aspect of my upper arm'.

Breast cancer patients often experience sensitivity in the axilla and surrounding tissues due to surgical scars and radiotherapy.

Case study 3

A 67-year-old female had longstanding chronic below-knee bilateral oedema due to being overweight and having a low level of mobility/exercise. She had a history of chronic venous disease and a leg ulcer, successfully healed with compression bandaging in 2015. The patient was previously supplied by her practice nurse with a circular-knit garment, which she did not wear regularly as she found it to be uncomfortable, a poor fit and difficult to get on. She was subsequently referred to the lymphoedema clinic for a suitable compression garment. The patient was measured and fitted for JOBST Elvarex Soft custom-fit, flat-knit RAL compression class 2 (23–32 mmHg) knee-high compression garments with open toes and T-heel. A suitable applicator was supplied with the garments. Although initially the patient wanted 'finer looking hosiery' she quickly reported back that these were 'the most comfortable socks I've ever worn'. Her distal limb volumes reduced by 500 ml in each leg and shoes not worn for many years now fitted comfortably due to the softening of the fibrosis in the feet and limb volume reduction.

The same garments were prescribed for the patient but instead of just a knitted welt, SoftFit was added (*Figure 5*). The patient was thrilled as the garments stayed in place all day without the need for readjustment (*Figure 6*). She said they were:

'More comfortable, no slipping down and controlled my swelling.'

Not having to readjust the garment throughout the day is important for patients in terms of comfort and allowing them to continue with their lives without constantly thinking of their lymphoedema. When the garment is in position correctly, the appropriate level of compression is evenly distributed throughout the limb ensuring it is clinically effective. The patient also commented:

'The stockings have been washed numerous times and it did not affect the gripping effects of the SoftFit.'

Case study 4

A 73-year-old female with primary lymphoedema of both legs below the knee, was diagnosed in 2001 by lymphoscintigraphy. She had a history of hypertension and underactive thyroid. First seen in 2010 following an episode of cellulitis after a holiday abroad, she was subsequently referred to the lymphoedema clinic for treatment. The patient had an excess of approximately 1.5 litres in each leg distally from below the knee, with fibrosis in feet and ankles. Initially she was treated with a course of DLT, which resulted in all the excess fluid volume being removed. Following this, the patient was placed in JOBST Elvarex custom-fit, flat-knit RAL compression class 2 (23–32 mmHg) foot caps with JOBST Elvarex custom-fit, flat knit RAL compression class 2 (23–32mmHg) knee-high, open-toe garments over the top. At that time, the patient had previously been given only circular-knit garments by other practitioners, which were never a good fit, cutting in at the ankles and not controlling the swelling in her toes or feet. The patient continued to see the author regularly for maintenance therapy and was eventually able to reduce the compression level of the compression garments; the excess swelling had resolved and the patient better

understood how to self-care for her lymphoedema. The patient remained stable in JOBST Elvarex custom-fit, flat-knit, RAL compression class 1 (18–21mmHg) knee-high garments and no longer required the foot caps. However, the knee-high garments were changed from open toe to closed toe to ensure the oedema reduction was maintained in the foot. She was very happy in the flat-knit garments as she knew these were controlling her lymphoedema while providing a comfortable fit.

The same compression garments were then prescribed for the patient but with the addition of SoftFit instead of a knitted welt (*Figure 7*). The patient's limb volumes remained stable and she was extremely happy with the addition of the SoftFit technology. She said:

'The garments stay in position, I find these better and I never have to pull them up during the day.'

The addition of SoftFit was providing a more comfortable fit for the patient and secured the garments in place (*Figure 8*) therefore, providing optimum treatment outcomes without the addition of a traditional bulky silicone band.

Conclusions

Graduated compression garments are the mainstay of treatment in the long-term management phase of lymphoedema or chronic oedema. Selection of the appropriate garment style, fabric and options are critical in ensuring treatment outcomes are as successful as possible for each individual patient. Comfort, fit and aesthetics impact on wear times, patient concordance and the patient's quality of life. The practitioner needs to understand the clinical aetiology of the patient's swelling to better understand its management and have a good understanding of the choices available in compression garments.

The benefits of SoftFit technology added to a JOBST Elvarex or JOBST Elvarex Soft custom-fit, flat-knit knee-high or armsleeve compression garment were evident in the case studies in terms of securing the garment in place, providing a more comfortable fit and improved aesthetics. Oedema levels were maintained for all patients and their limb shape remained the same. Preventing the progression of lymphoedema or chronic oedema is vital, along with the need to promote patient independence in managing their swelling, without discomfort or restrictions from their compression garment. The availability of SoftFit as an additional garment option for JOBST Elvarex or JOBST Elvarex Soft on FP10/GP10 ensures this is more widely available to patients with lymphoedema or chronic oedema patients. In addition, the benefits of SoftFit may increase garment wear times and concordance for those patients with mild to moderate lymphoedema/chronic oedema. **BJCN**

KEY POINTS

- Chronic oedema is a swelling present for 3 months or longer that does not resolve with diuretics or elevation. Managing this group of patients is challenging for community nurses.
- Lymphoedema is classed as primary or secondary and although cared for in specialist lymphoedema clinics, in many areas patients also fall under the care of community nurses.
- Compression garments are the mainstay of treatment in the maintenance phase of lymphoedema or chronic oedema management. It can be a challenge for community nurses to select the most appropriate garment that is comfortable for the patient while controlling the swelling.

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