Practical tips: Skin care for the lower limb affected by venous disease

KEY WORDS
- Hyperkeratosis
- Lipodermatosclerosis
- Skin care
- Varicose eczema

The key aspect of skin care for the lower limb affected by venous disease and associated oedema is for clinicians to recognise underlying skin conditions, such as varicose eczema, lipodermatosclerosis and hyperkeratosis, and treat appropriately and continuously. It is important to involve the patient and carers in skin management, product choices and skin care regimens. Involving the multidisciplinary team is also important. Specialist leg ulcer and dermatology services may also be involved, especially where conditions are unresolved or there is an acute flare up of a dermatological condition.

HILDEGARD CHARLES
Independent Tissue Viability Consultant, London

IRENE ANDERSON
Principal Lecturer in Tissue Viability and Reader in Learning and Teaching in Healthcare Practice, University of Hertfordshire, Hatfield

It is important for the clinician to be aware of the underlying causes of skin problems. A knowledge and understanding of skin conditions provides the healthcare professional with an opportunity for an accurate and enhanced diagnosis and a more effective treatment plan that can reduce further problems occurring.

In venous and lymphovenous oedema there are skin changes that take place. There is no clear cut-off point between venous and lymphovenous oedema, and if venous oedema is left untreated, lymphatic changes may led to lymphovenous oedema (Hofman, 2010). Therefore, it is of great importance to protect the skin against bacteria, as well as preventing infection and possible cellulitis.

SKIN CARE

Good skin care is essential in preventing deterioration and ulceration. Consequently, it is important to encourage patients to take an active role in their own care. In practice, this can be done by encouraging the patient or carer to monitor the skin and also to wash legs with appropriate products (i.e. soap substitutes or emollients).

Washing the leg

In preparing the leg for washing, it is advisable to have all items and products ready in order to prevent unnecessary delays and upset to the patient. Disposable cloths should be used, rather than reusable flannels to reduce the possibility of bacterial contamination (Wingfield, 2009).

Water-soluble soap substitutes should be used, but the clinician should be aware that if used in a bath or shower area because they can make these areas slippery. The prevention of a fall is paramount to prevent an even more serious condition.

At least once a week, the whole leg should be immersed in water and washed with a soap substitute. Soap substitutes can be mixed with water and also applied to the skin. This helps to loosen dry skin so it can be removed more easily (Wingfield, 2009). Both legs should be treated if they show signs of skin changes. If only one leg is affected, the patient should also be given advice about skin care for the unaffected leg.

Special attention has to be paid to broken skin areas, skin folds, and areas between toes by cleaning thoroughly in folds and creases, as well as checking for signs of skin damage (Linnit, 2000).

It is important to dry the leg gently and completely, especially between skin folds and toes. This will help to prevent tinea pedis that can develop in warm, moist areas.

The application of emollients will keep the skin supple. It is recommended that emollients be used from a pump dispenser to reduce contamination. This is especially important in a clinic setting, but a pump should also be used in a patient's home. Emollients should be applied in strokes following the hair follicles to avoid blocking and, thus, reducing any incidence of folliculitis (Ersser et al, 2007).

"The clinician should be aware of the various soap substitutes and emollients and the products' preservatives."

If petroleum products (liquid paraffin or soft paraffin) are used they can stain support hosiery or cloth and the patient must be made aware of this. Paraffin products can also be easily ignited when bandages or clothing are soaked and, therefore, close proximity to open flames must be avoided. Patients and carers must be advised of this danger and should be told to keep away from flames, and not to smoke when using the products (Joint Formulary Committee, 2013).

In order to secure the patients' help and concordance, patients and carers need to be given the opportunity to wash, dry, and apply emollient for themselves.

Adverse effects from soap substitutes and emollients are not common, but clinicians should be aware of some of the problems that may occur such as:

- Irritation.
- Discomfort.
- Stinging.
- Contact dermatitis.
- Folliculitis, if applied against hair follicles (Wingfield, 2009).

The clinician should be aware of the various soap substitutes and emollients that are available, as well as the product's preservatives. A readily available list will prove valuable when checking for known allergic substances. Such a list can be found in the *British National Formulary* (Joint Formulary Committee, 2013).

If the limb is not bandaged and the patient is wearing compression hosiery, then the patient and carer need to be advised to inspect the skin daily for the following:

Figure 1. Venous hypertension with signs of eczema. Courtesy: H. Charles

Figure 2. Varicose eczema. Courtesy: H. Charles

- Dry skin.
- Rashes, which can start as small spots that spread over a wider area.
- Skin cracks and any signs of infection, redness, warmth, an increased temperature, or tenderness (*Figure 1*).

VARICOSE ECZEMA

Varicose eczema is associated with chronic venous disease. This is a result of an abnormality of venous return due to faulty venous valves that may be less efficient due to deep venous thrombosis, immobility, age, or trauma (Muldoon, 2013). Skin conditions change due to an increase in venous pressure in the limbs.

Changes that may appear are red, scaly, or flaky skin. The scaling may have blisters and crusts on the surface. These may be itchy, uncomfortable and, if not treated, may become more severe (*Figure 2*).

Treatment

Compression therapy should be continued if the patient is able to tolerate it. Treatment usually consists of topical corticosteroids and/or emollient therapy.

It has been shown to be more effective to use a potent steroid ointment for a shorter period, rather than one with a milder potency for a longer period of time (Davis, 2001). A potent corticosteroid would be acceptable for a period of 7 days. It is then recommended to reduce it to a milder potency steroid (Cameron, 1998; Wingfield, 2009). Emollients are recommended for non-affected areas of skin to keep them supple. Referral to a dermatologist is also recommended if the condition is not responding or if a differential diagnosis should be considered (Barron et al, 2007; Middleton, 2007).

LIPODERMATOSCLEROSIS

Lipodermatosclerosis is a condition of chronic venous insufficiency (CVI) and it is known to adversely affect ulcer healing (Moffatt et al, 2010). The condition presents as induration and hyperpigmentation of the skin. As the condition deteriorates, the leg begins to change shape and texture and is commonly referred to as having an inverted champagne bottle shape (*Figure 3*). Sometimes, and especially in the acute phase, the condition presents with pain and redness in the leg, which can be mistaken for infection, leading to the unnecessary use of antibiotics (Romanelli and Romanelli, 2007).

In CVI, subcutaneous fat becomes fibrosed and hardened. This is partly due to leakage of fibrin from overstretched capillaries in chronic venous hypertension. The fibrin hardens and causes inflammation and scarring in the tissues. The overstretched capillaries also leak red blood cells into the tissues. The haem component of the cell breaks down and discolours the tissue, known as hyperpigmentation (Caggiati et al, 2010). This collection of events is apparent clinically by a loss of skin smoothness and elasticity. It appears uneven (indurated) and the skin becomes dry and flaky. The skin is hard and tight, and is unable to stretch due to the fibrosis. This means that swelling tends to occur further up the leg in the upper calf area which changes the overall shape of the leg.

In early, acute phases, the skin can appear red and inflamed. As the condition becomes more chronic, the skin becomes harder and drier, the skin shape changes, and the staining of the skin becomes more apparent (Miteva et al, 2010).

Treatment

Treatment of lipodermatosclerosis centres on compression therapy and skin care. There is some evidence to support the use of antifibrinolytic therapy to reduce the condition (Miteva et al, 2010).

The hyperpigmentation will always remain, but skin condition can be improved through washing and moisturising. Compression therapy can restore some of the shape of the leg, but needs to be applied expertly and continuously – for instance, by using a bandage and technique that takes account of the large calf relative to the gaiter size. The St Charles technique for short-stretch bandaging for instance is useful in this type of limb (Charles 1999; Charles et al, 2003).

Figure 3. Lipodermatosclerosis. Courtesy: H Charles.

HYPERKERATOSIS

Hyperkeratosis (from the ancient Greek meaning "over") is the build-up of keratin and thickening of the stratum corneum (the outermost layer of the epidermis). This causes the skin to become dry and scaly (*Figure 4*). Cracks may appear and can become the entry point for infections like cellulitis.

Treatment

It is recommended that the leg(s) are washed using a soap substitute at each bandage change. Dry, scaly hyperkeratosis can be easily removed with newly developed products, such as a monofilament fibre (Ousey and Cook, 2012) and, thus, treatment time can be greatly reduced (Bahr et al, 2011; Whitaker, 2012). Emollients need to be applied to allow the skin to rehydrate, prevent skin cracks, and protect against infection.

In severe cases when there is greater build-up of dry, scaly skin, hydrocolloids can be applied to soften the hyperkeratotic areas so they can be gently removed. Hydrocolloids will rehydrate the skin and can be left on affected areas for a few days, and have been successfully used in psoriatic plaque (Hallel-Halevy et al, 2004) and hyperkeratosis (Linnit, 2007).

When removing the dressing, the skin will be softened and can be more easily removed. Once again, any cracks or fragile skin need to be protected. In the authors' clinical practice, sterile dressings often prove to be adequate in these circumstances.

"One of the key aspects of skin care for the lower limb affected by venous disease and associated oedema is to recognise the skin condition and treat appropriately."

Once the skin has been repaired, it is important to continue monitoring. Compression bandages or hosiery can be used to prevent oedema reoccurring and to prevent inevitable skin changes that will take place without compression due to the underlying pathology of venous hypertension.

CONCLUSION

One of the key aspects of skin care for the lower limb affected by venous disease and associated oedema is to recognise the skin condition and treat appropriately and continuously. It is also important to involve the patient and carers in skin management, choices about skin care products and regimens.

The multidisciplinary team is also important. This team may include the healthcare assistant, who can be trained to wash and dry legs and toes carefully and to be aware of signs of deterioration that must be reported to the registered practitioner. Specialist leg ulcer and dermatology services may also be involved, especially where problems are unresolved or there is an acute flare up of a dermatological condition necessitating steroid therapy.

Any products used on the patient's skin should contain as few ingredients as possible and known allergens should be avoided. The Royal College of Nursing (2006) leg ulcer guidelines contain a useful list of common allergens. The *Wounds UK* Best Practice Statement is also a useful resource (Wounds UK, 2012).

Patients with vascular disease, oedema and skin changes are already suffering and it is therefore important that treatment plans are aimed at preventing deterioration of the skin to avoid skin breakdown, infection, and pain. WUK

Figure 4. Hyperkeratosis. Courtesy: H. Charles

REFERENCES

Bahr S, Mustafi N, Hätting P et al (2011) Clinical efficacy of a new monofilament fibre-containing wound debridement product. *J Wound Care* 20(5): 242–8

Barron GS, Jacob SE, Kirsner RS (2007) Dermatologic complications of venous disease: medical management and beyond. *Ann Vasc Surg* 21(5): 652–62

Caggiati A, Rosi C, Casini A et al (2010) Skin iron deposition characterises lipodermatosclerosis and leg ulcer. *Eur J Vasc Endovasc Surg* 40(6): 777–82

Cameron J (1998) Skin care for patients with chronic leg ulcers. *J Wound Care* 7(9): 459–62

Charles H (1999) Short-stretch bandaging in the treatment of venous leg ulcers. *J Wound Care* 8(6): 303–4

Charles H, Moore C, Varrow S (2003) Cohesive short-stretch bandages in the treatment of venous leg ulceration. *Br J Community Nurs* 8(3 Suppl 1): 17–22

Davis R (2001) Treatment issues relating to dermatology. In: Hughes E, Van Onselen J (eds). *Dermatology Nursing. A Practical Guide.* Harcourt Health Sciences, Philadelphia, PA

Ersser S, Maguire S, Nicol N et al (2007) Best practice in emollient therapy. A statement for healthcare professionals. *Dermatological Nursing* 8(3): 1–22

Hallel-Halevy D, Finkelstein E, Grunwald MH, Halevy S (2004) Lichen amyloidosus treated by hydrocolloid dressings. *J Eur Acad Dermatol Venereol* 18(6): 691–2

Hofman D (2010) Managing ulceration caused by oedema. *Wound Essentials* 5: 80–6

Joint Formulary Committee (2013) *British National Formulary 65.* British Medical Association and Royal Pharmaceutical Society of Great Britain, London

Linnit N (2000) skin management in lymphoedema. In: Twycross R, Jenns K, Todd J (eds). *Lymphoedema.* Radcliffe Medical Press, Oxford

Linnitt N (2007) Complex skin changes in chronic oedemas. *Br J Community Nurs* 12(4): S10–15

Middleton H (2007) Exploring the aetiology and management of venous eczema. *Br J Community Nurs* 12(9): S16–23

Miteva M, Romanelli P, Kirsner RS (2010) Lipodermatosclerosis. *Dermatol Ther* 23(4): 375–88

Moffatt CJ, Doherty DC, Smithdale R, Franks PJ (2010) Clinical predictors of leg ulcer healing. *Br J Dermatol* 162(1): 51–8

Muldoon J (2013) Chronic ulcers of the lower limb. In: Flanagan M, ed. *Wound Healing and Skin Integrity. Principles and Practice.* Wiley-Blackwell, Chichester

Ousey K, Cook L (2012) Wound assessment: made easy. *Wounds UK* 8(2)

Romanelli M, Romanelli P (2007) Dermatological aspects of leg ulcers. In: Morison MJ, Moffatt CJ, Franks PJ (eds) *Leg Ulcers: A Problem-Based Learning Approach.* Mosby, London: 453–60

Royal College of Nursing (2006) *Clinical Practice Guidelines: The Nursing Management of Patients with Venous Leg Ulcers.* RCN, London. Available at: http://bit.ly/Umsm84 (accessed 28.05.2013)

Whitaker J (2012) Self-management in combating chronic skin disorders *Journal of Lymphoedema* 7(1): 46–50

Wingfield C (2009) Chronic oedema: The importance of skin care. *Wound Essentials* 4: 26–34

Wounds UK (2012) *Best Practice Statement. Care of the Older Person's Skin* (2nd edn). Wounds UK, London