

CHANGES THAT OCCUR IN OLDER PEOPLE'S SKIN

With the UK population living longer, and with people over the age of 70 presenting with at least one skin condition, there is an increasing need to improve knowledge and management of skin conditions affecting the older person. Assessment of the older person's skin should be included in any nurse/patient consultation. Clinicians are arguably best-placed to assess and plan appropriate skin care for older patients and should consider the skin in assessment or treatment, regardless of the referred condition (Associate Parliamentary Group on Skin [APPGS], 2000; Norman, 2003; Courtenay and Carey, 2006; Wounds UK, 2007).

'Lifestyle, comorbidities and family history play a substantial role in how the skin behaves in the older person'

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Homeostasis refers to the body's ability to maintain 'normal' functioning, adjusting to external and internal changes to maintain 'normal life' (Clancy and Smith, 2010). The skin is integral to homeostatic functioning, however, the aging process takes its toll and reduces homeostatic ability, putting the skin under threat (Madhulika et al, 2005) (*Table 1*). An understanding of the changes that occur in aging skin and the importance of this organ in maintaining homeostasis of the body is crucial when nursing the older person.

Lifestyle, comorbidities and family history play a substantial role in how the skin behaves in the older person, such as:

- ▶▶ Chronic skin disease (eczema, varicose eczema)
- ▶▶ Incontinence
- ▶▶ Decreased mobility
- ▶▶ Immunosuppression
- ▶▶ Diabetes
- ▶▶ Renal disease
- ▶▶ Thyroid disease
- ▶▶ Iron deficiency
- ▶▶ Changes in mental health

- ▶▶ Poor dietary intake/poor hygiene as a consequence of other impairments.

Assessment of the older person's skin

In acknowledgement of the reduced capacity of the skin's homeostatic ability, clinicians must look to their assessment of the skin as being fundamentally important. They must also consider prevention and preservation when conducting any skin assessment, old or young, while approaching the examination sensitively with the aim of preserving patient dignity at all times.

Clinicians must look for potential failure of the skin barrier where symptoms may include:

- ▶▶ Scaling
- ▶▶ Red sore skin (factors — incontinence, reduced mobility, obesity)
- ▶▶ Dryness
- ▶▶ Maceration
- ▶▶ Itching, scratch marks (excoriation)
- ▶▶ Infection
- ▶▶ Pressure areas, skin breaks and ulceration

- ▶ Skin folds — redness, weeping
- ▶ Low mood
- ▶ Poor sleep patterns.

Clinicians also need to be aware of suspicious lesions by ensuring that they have an understanding of common benign skin lesions that appear on the older person's skin. The rationale is that the clinician is then better placed to recognise suspicious lesions that are not skin tags or seborrhoeic keratoses.

Check sun-exposed sites, such as:

- ▶ Scalp
- ▶ Ears
- ▶ Dorsum of hands
- ▶ Nose
- ▶ Temples
- ▶ Back.

One of the major accelerating factors in aging skin is where lifestyle has caused excessive photo damage/sun damage, so in their assessment, clinicians must ask: 'What lifestyle has this person had?' Occupations such as builders, farmers, postmen and women, and the military, as well as those living abroad, are all common groups where lifelong exposure to the sun may have a consequence. This can present with skin changes, such as xerosis (dry skin — *Figure 1*); thickened leathery skin, increased wrinkles (solar elastosis — *Figure 2*); and irregular and increased pigmentation (freckles, lentigines). Also, a wide variation of pre-cancerous skin lesions can appear including: actinic keratosis and Bowen's disease (*Figures 3, 4, 5*) (Bhawan and Anderson, 1995). Cancerous lesions are also more prevalent, presenting as basal and squamous cell carcinomas (BCC and SCC) (*Figures 6, 7, 8*).

Actinic keratoses (AK) are lesions that appear on chronic sun-exposed adult skin sites. The most common sites are the face, scalp, ears and dorsum of hands (*Figure 9*). Early presentation can be felt on the skin as an area of rough, sandpaper texture; in most cases the lesions are asymptomatic. Between 15–25% of AKs spontaneously regress over a one-year period (Harvey et al,

1996). There is a low rate of conversion to SCC, with less than one in 1,000 per annum.

Bowen's disease presents mostly in sun-exposed areas, but in some cases, is not caused by ultraviolet radiation hence it can appear on the genitals, under nails, palms, and in subungual and perianal areas. Causes of Bowen's disease include sun damage, arsenic tonic, immunosuppression, viral infection (human papillomavirus [HPV]), chronic skin injury and dermatoses. The majority of studies report a risk of progression to invasive SCC at 3–5%.

Pre-cancerous skin lesions are often numerous, as well as common, with approximately 23% of the population aged 60 and older presenting with AKs. The incidence of Bowen's disease is 15 per 100,000 people, although the data are limited and unsubstantiated (Cox

et al, 2007). The National Institute for Health and Clinical Excellence (NICE) 2010 guidance on skin cancer services recommends that the treatment of Bowen's disease and actinic keratosis (pre-cancerous lesions) should be carried out by the patient's GP, unless there is diagnostic doubt.

Bearing in mind that patients will be passing through the hands of primary care nurses, as well as GPs, it is important that surgeries establish a pathway of management for the assessment of these conditions to ensure timely treatment. Immunosuppressed and transplant patients may warrant regular attendance in a dermatology department for their management.

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Table 1

Homeostatic function of the skin (adapted from Clancy and Smith, 2010; Wounds UK, 2007)

<i>Homeostatic function of the skin</i>	<i>Alteration of function in older skin</i>
Protect against:	
<i>Trauma — internal tissue damage, ultraviolet light, temperature, bacteria and toxins</i>	<i>Reduction in elastin/collagen increases the risk of tears and trauma</i>
<i>Maintenance of body temperature — to warm and cool the body by vasoconstriction and vasodilation</i>	<i>Thinning of the dermis; decrease in sensation; temperature control; decrease moisture retention; dryness. Loss of subcutaneous fat, feeling of coldness</i>
<i>Barrier to infection — production of sebum, sweat creating antibacterial PH level of skin</i>	<i>Reduction of sweat glands in the dermis reducing sebum production. Increased washing, for example, incontinence adds to the effect of increasing PH alkaline, which, in turn, increases dryness, itching and impairs skin barrier, leading to risk of infections</i>
<i>Production of vitamin D — regulating calcium and phosphate supplies in body fluids</i>	<i>Lower vitamin D production, more time spent indoors, more clothing covering up</i>
<i>Production of melanin</i>	<i>Melanin reduces — hair turns grey, can also increase causing hyperpigmentation to skin</i>
<i>Psychological function</i>	<i>Loss of confidence, appearance change, can cause social anxiety</i>

The Primary Care Dermatology Society (PCDS) guidelines recommend that patients should be offered the choice as to whether they treat their pre-cancerous lesions or not (PCDS, 2010). If the clinical and patient decision is to actively treat, there are a variety of modalities to choose from (*Table 2*).

BCC is described as the most common cancer in Europe, Australia and the USA (Gilbody et al, 1994; Miller et al, 1994). It is sometimes referred to as a rodent ulcer or basalioma. They rarely metastasise and morbidity is low and mostly associated with neglected long-term lesions (Ting et al, 2005). BCCs present as slow growing lesions predominantly on the head and neck but are also seen on limbs and trunk. Aetiology is mostly connected to sun exposure and in some cases genetic predisposition.

Clinical presentation varies and includes the following:

- ▶▶ Nodular
- ▶▶ Cystic
- ▶▶ Superficial
- ▶▶ Morphoeic (sclerosing)
- ▶▶ Pigmented.

SCC

In suspected SCC, referral to secondary care is appropriate using the two-week wait cancer route. This refers to national guidelines issued in April 2000 by the Department of Health (DH). The aim was to encourage urgent referral by a GP of suspected cancer cases, across a wide range of specialities.

Considerations for suspecting SCC are:

- ▶▶ Rapid recent growth
- ▶▶ Elevated lesion, on removal of scale
- ▶▶ Bleeding/ulceration
- ▶▶ Unresolving lesions on the lips.

SCCs have the potential to metastasise and are locally invasive — again, most incidence is related to chronic sun exposure. Immunosuppressive and transplant patients are more at risk. Previous chronic wounds, burns and leg ulcers can also develop into SCCs, termed as Marjolin's ulcers (Esther et al,

1999) (*Figure 10*). This type of SCC is aggressive and spreads locally (Chong and Klein, 2005).

Treatment and management of BCC and SCC

BCCs are excluded from the national cancer waiting time targets (two weeks). Low-risk BCCs can be referred to GPs with suitable skin cancer training. Where this resource is not available, referral is to secondary care. Surgical excision or radiotherapy is advised for the majority of BCCs (Bath-Hextall et al, 2007).

The principle aim is to cure the lesion,

leaving a cosmetic result acceptable to the patient. Treatments such as cryotherapy, curetting or photodynamic therapy (PDT), and topical treatments, such as 5-fluoruracil, diclofenac sodium 5% and imiquimod are frequently used for pre-cancerous lesions, such as actinic keratosis, Bowen's disease and superficial BCCs. The disadvantage of these treatments is that they do not give the benefit of final histopathology results to confirm diagnosis or if the lesion has been completely cleared.

However, some patients may undergo a small biopsy prior to these treatment



Figure 1. Xerosis – dry skin (asteatotic eczema).

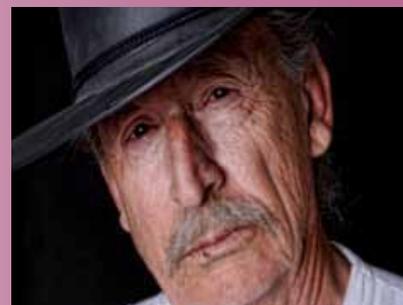


Figure 2. Solar elastosis.



Figure 3. Actinic keratosis ear.



Figure 4. Actinic keratosis scalp.



Figure 5. Bowen's disease.



Figure 6. Basal cell carcinoma.

options to confirm diagnosis. These types of treatments may be advocated where comorbidities may place the patient at risk of surgical excision or there is extensive presentation.

Potential anatomical sites, such as the lower leg, may increase the risk of delayed healing due to poor circulation and this risk may be minimised with a treatment such as PDT. These treatments would not be advocated for infiltrated or nodular BCCs, SCCs or melanoma

SCC diagnosis is usually made by histology either with full excision or with biopsy. Surgical margins are using taken wider than BCCs. If SCC is suspected in primary care, the two-week wait cancer target should be adhered to, and treatment should not be carried out in primary care (NICE, 2010).

For patients where surgery is not advocated, radiotherapy is a primary treatment option and is an adjuvant therapy for those with metastatic or high-risk cutaneous SCC, following surgery. When examining a patient with BCC, SCC or the potential for either, examination should include the whole body, looking for other lesions and palpable lymph nodes.

Pigmented lesions

Pigmented lesions should not be overlooked as their presence on older skin often causes confusion and differential diagnosis. The two most common pigment lesions are seborrhoeic keratoses (*Figure 11*) and solar lentigo and both are benign (*Figure 12*). Seborrhoeic keratoses are the most common benign tumor in older people and develop from the proliferation of epidermal cells. Solar lentigo is sometimes referred to as an age spot or liver spot and is caused by sun damage.

Other pigmented lesions include lentigo maligna (melanoma *in situ*), lentigo maligna melanoma and melanoma. Lentigo maligna (*Figure 13*) is a pre-cancerous lesion and not the same as lentigo malignant melanoma and the two should not be confused. It typically progresses very slowly and can remain in a non-invasive form for years.

The transition to true melanoma is noted as a 3–10% risk and because of this risk, if identified, surgical excision is often proposed. It is normally found in the elderly (peak incidence in the ninth decade), on skin areas with high levels of sun exposure, such as the face and forearms. It is also known as ‘Hutchinson’s melanotic freckle’

Malignant melanoma (MM) is the most life-threatening of all skin cancers (*Figures 14, 15*). Ultraviolet exposure is considered to be responsible in 65–95% of cases. Suspected melanomas in an existing or new pigmented lesion are referred via the two-week cancer pathway. Clinical diagnosis is preferably made with an elliptical excisional biopsy and sent for histology.

Obtaining a basic overview of the skin lesions mentioned here will assist clinicians in their general assessment of the older person’s skin but the more simple observations are just as important.

Assessment of older skin — where to start?

Start simple — this is the key. The clinician should focus primarily on the skin barrier function. Dry skin is a factor in homeostasis balance and a common factor in the aging skin, contributing to other secondary-associated conditions, such as eczema, nodular prurigo, infection, cellulitis, pruritus (itching) and ulceration. The decreased thickness and changing anatomy of the epidermis and dermis results in reduced sweat glands increasing dryness and breakdown of the skin barrier function. This potentially leads to cracks and fissuring, leaving opportunistic portals for bacterial colonisation, skin breakdown and further damage. One technique for managing this decrease in essential function is the use of emollient therapy. NICE (2004; 2007) supports the evidence that emollients should be considered as the first-line treatment for dry skin conditions, regardless of age group.

Emollients as a therapeutic intervention

Emollients can have a dual role in either direct application to the skin or as a soap substitute, replacing detergent-based products (soap/shower gels). They are a useful therapeutic method in the preservation of the skin barrier function, although there is little evidence to suggest one brand is better than any

Table 2

Treatment options for actinic keratoses/Bowen’s disease (adapted from de Berker et al, 2007)

- ▶▶ If no therapy opted, simple emollients are acceptable for superficial AKs
- ▶▶ The use of a sun block should be advocated for seven months to reduce the development of AKs
- ▶▶ 5-Fluorouracil cream bd for 4–6 weeks to affected areas. Proven to be effective in the clearance of AKs and Bowen’s. Side effects of inflammatory response need to be discussed with patient
- ▶▶ Diclofenac gel (less aggressive than 5-Fluorouracil) suitable for mild AKs, poor follow up data for efficacy
- ▶▶ 0.5% 5-fluorouracil (5FU) cream and salicylic acid. Once-daily 90 days for AKs
- ▶▶ Cryosurgery for AKs and Bowen’s, used on its own or in combination with topical treatment. Beware thin elderly skin, especially on the lower leg, in terms of slow healing and potential of ulceration
- ▶▶ Photodynamic therapy (PDT) used with photosensitising cream (5-aminolaevulinc acid, 5-methylaminolaevulinate). Appropriate for extensive AKs and Bowenoid lesions via hospital dermatology department

other, in terms of efficacy (Rawlings et al, 2004). Discussing with the patient/carer emollient types and choice to find the most acceptable product can encourage regular and repeated use (Loden, 2003).

Clinicians may encounter resistance when changing an older person's daily skin care regimen, especially when they are asked to consider moisturising daily, together with changes in their bathing and washing practice. This resistance may come from the actual person or from their carers in terms of enacting change. The rationale behind changing a washing regimen to include emollient soap substitutes is that soap increases the pH levels in the skin, causing irritation and depletion of lipids from the skin surface, thereby increasing dryness. This

can increase itching, scratching and the formation of inflammatory dermatoses, such as eczema.

Pathogens will also increase, together with an alteration of the skin's normal bacterial flora, making the skin more susceptible to infection and delayed healing. The objective of implementing a change from soap to emollient substitutes is to reduce the negative effect of soap on skin barrier function (Cooper and Gray, 2001).

Emollients are not an attractive option for patient, carer or nurse. The decision to use them will require careful explanation, education and consideration of the person's personal hygiene regimen, in order to bring about

therapeutic change.

How to make the right emollient choice

Emollient therapy can be listed as having the following benefits:

- ▶ Occlusive — trapping water in the stratum corneum
- ▶ Active — moving water from the dermis to the epidermis
- ▶ Exfoliative
- ▶ Anti-inflammatory
- ▶ Antimitotic
- ▶ Antipruritic
- ▶ Accelerates regeneration of skin barrier.

There is a wide variety of emollient therapy available and prescribing practice varies from one person



Figure 7. Basal cell carcinoma.



Figure 8. Squamous cell carcinoma.



Figure 9. Actinic keratoses dorsum, hand.



Figure 10. Marjolin's ulcer, leg.



Figure 11. Seborrhoeic keratoses.



Figure 12. Solar lentigo (Plural lentigines).



Figure 13. Lentigo maligna (melanoma in situ).



Figure 14. Melanoma (malignant).



Figure 15. Amelanotic melanoma (malignant).

to another and can lead to patient confusion and poor concordance (Holden et al, 2002). It is worth knowing the components and functions of the different types to aid clinician and patient choice.

Types of emollient

Aqueous cream is a popular choice as a cost-effective emollient therapy. In the past, it has been advocated as both a soap substitute and direct skin application product. Being water-based, it requires a number of preservatives to prevent bacteria contamination – these preservatives can lead to skin sensitivity and stinging in some patients (Cork et al, 2003). Recent research into the use of aqueous cream by Tsang and Guy (2010) identified skin thinning and irritation over a period of four weeks connected to the sodium lauryl sulphate content – a detergent agent. This is acknowledged to be a small study and requires further research to support. However, clinicians have long discontinued the practice of using this product as a direct emollient. This was not the purpose of its original design, but it can still be recommended as a soap substitute.

The petroleum-based emollients can reduce loss of water from the skin by 98% when compared with other emollient products, with only 20–30% retention (Rawlings et al, 2004). The downside is the greasy component that can encourage poor patient concordance. They can be very useful under bandages for treatment of varicose eczema and some benefit the patient by being both soap substitute and direct application.

Lotions, creams and gels are more fluid in nature and are lighter products, lending themselves to pump dispensers and reducing the risk of cross-bacterial contamination. They can double as soap substitutes and direct application in hair-bearing areas can reduce the risk of folliculitis (infected hair follicles). They can also contain antimicrobials, useful in reducing bacterial colonisation, such as *Staphylococcus aureus* in skin

conditions such as eczema.

Emollients should always be considered as a first-line therapy in the treatment of inflammatory dermatoses — the two most commonly presenting are eczema and varicose eczema. Often, these conditions are accompanied by itching and this symptom alone can influence treatment and differential diagnosis of the skin condition.

Common dry skin conditions and itching in the older person

Common skin diseases in the older person that are accompanied by itching include:

- ▶▶ Eczema
- ▶▶ Scabies
- ▶▶ Psoriasis
- ▶▶ Drug reactions
- ▶▶ Lichen planus/sclerosus
- ▶▶ Immune-bullous disorders (pemphigoid).

Where there is no presenting rash, systemic disorders need to be investigated, the most common being:

- ▶▶ Iron deficiency
- ▶▶ Renal failure
- ▶▶ Biliary obstruction
- ▶▶ Malignancy
- ▶▶ Lymphoma (Ersser, 2000).

Biochemistry investigations are essential to eliminate conditions such as anaemia, kidney and liver function impairment, hypothyroidism, and diabetes. If no underlying cause can be found and dry skin or rashes are evident, diagnosis of the rash and topical treatments will take priority. Conditions such as eczema and tinea (fungal) infections, particularly on the lower limbs, should be adequately treated with the correct topical preparations, mainly topical corticosteroids and emollients. Fungal conditions require anti-fungal topicals, such as terbinafine. Both conditions in this anatomical area can predispose the patient to bacterial infection, which can lead to cellulitis and chronic oedema (Wingfield, 2009; Wingfield, 2011). Venous stasis eczema (varicose eczema) is a common inflammatory condition

and is often seen to coexist with varicose veins. Clinical signs include inflamed, red, eczematous skin; itching; scaling; pigmentation (haemosiderin deposit); hardened, tight, red/brown skin/tissues (lipodermatosclerosis, which is vulnerable to ulceration); and atrophy blanching. Treatment usually consists of topical corticosteroids and emollient therapy. The efficacy of topical corticosteroids is helped by correct diagnosis, and an understanding of mode of action and potential side-effects. It can sometimes be more effective to use a potent steroid for a short amount of time, rather than a milder potency for a longer period of time (Davis, 2001).

Treatment requires a common-sense approach, as a poor response will be achieved if topical corticosteroids are not applied frequently enough or if they are not potent enough. Effective use of emollients and the use of paste bandages to aid occlusion and encourage skin barrier repair are also relevant therapies

Conclusion

The older person's skin is susceptible to homeostatic imbalance and requires timely diagnosis and access to therapeutic agents to reduce the risk of uncomfortable symptoms, disease and infection. Both community and secondary care nurses can play a major role in ensuring adequate assessment of the older person's skin through recommendations for dry skin management and identification of changes leading to treatment, shorter care pathways and improved quality of life.

The use of emollient therapy can accelerate the regeneration of the skin barrier function (Held et al, 2001) and should not be underestimated as a first-line treatment. Improving clinician's knowledge of skin lesion recognition will ultimately benefit the patient through correct diagnosis and referral for treatment of suspected skin cancers.

This article has provided a basic overview of some of the issues seen in

the older person's skin by highlighting the pathophysiological changes that can impact on homeostasis and quality of life. Some recommendations are easier than others to include in nursing assessments. The skin ultimately requires respect, diligence and care, arguably at the same level as any other crucial organ.

If clinicians deprioritise assessment and management of older people, this will potentially put them at risk of skin barrier malfunction, which will ultimately impact on NHS resources, as well as patients' quality of life. **WE**

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