End-of-life skin care: what every clinician should know

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Changes to skin integrity and damage to the skin can occur at the end of life (EOL), despite appropriate interventions that meet or exceed standards of care. It can also be difficult to determine which wounds can be prevented and which ones are unavoidable (Sibbald et al, 2010; Beldon 2011). It is therefore the role of the nurse and carer to consistently deliver the best end-of-life (EOL) care, support palliation of symptoms, and maintain optimal skin integrity. Best practice for EOL skin care is about maintaining skin integrity for as long as is possible, followed by a goal of a dignified death (Kennedy, 2016) in line with patient/family wishes. This article discusses factors associated with maintaining skin integrity, and how skin damage can be prevented and a skincare regimen managed in EOL patients.

KEYWORDS: End-of-life MASD MARSI Skin care

aring for dying patients, wherever the setting, presents varied challenges, with a key one being the maintenance of skin integrity. Despite receiving multifaceted and necessary interventions, palliative patients are often likely to still develop skin damage (Beldon, 2011).

SKIN CHANGES DUE TO AGEING

There are changes that occur with ageing, all of which are significant in maintaining skin integrity during end of life (EOL), namely (Sherrell, 2021):

- Blood vessels become more fragile, reducing blood supply to the skin
- Dermal cells are replaced more slowly, which can delay the healing process
- The elasticity and tensile strength of the skin is reduced due to loss of collagen
- Sensory perception is reduced, the response to stimuli is therefore slower

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- Activity of the sebaceous glands is reduced, and the skin becomes
 dry and scaly
- Sensitivity of the skin is altered, increasing the potential for allergic contact dermatitis
- The subcutaneous layer thins, reducing the protection of deeper structures, and making the skin more prone to injury.

END OF LIFE AND WHAT HAPPENS TO THE SKIN

End of life is defined as'a phase of life when a person is living with an illness that will often worsen and eventually cause death' (Qaseem et al, 2008). This is not restricted to the short period just before death, but may begin some weeks or months before that (Qaseem et al, 2008).

During this time, vital organs begin to be compromised to varying degrees, with the skin, the largest organ of the body, also deteriorating (Watson et al, 2021). Blood circulation decreases as we age, and this process is accelerated during the final months. The body begins to lose its ability to regulate temperature, manage fluid composition, blood gas concentrations and blood pressure – functions known as homeostasis (Beldon, 2011). Loss of homeostasis mechanisms causes vital organs to suffer. The body concentrates its perfusion to vital organ systems, such as the cardiac, pulmonary, renal, and central nervous system to prolong life, leaving the skin vulnerable. This hypoperfusion to the skin can cause skin mottling, necrosis and skin breakdown. End-of-life patients with limited mobility, reduced nutritional intake, as well as with incontinence, are at a higher risk of skin breakdown and therefore susceptible to skin damage, such as moisture-associated skin damage (MASD), pressure ulcers, skin tears, bacterial and fungal skin infections and medical adhesiverelated skin injury (MARSI), along with increased pain and discomfort.

In a study where 271 palliative patients were enrolled, 1267 dermatological conditions were recorded, of which 18.3% were dermatitis (Neloska et al, 2017). In another study of 574 terminally ill patients admitted to a palliative home care service, the prevalence and incidence rates of pressure ulcers was 13.1% and 13% respectively (Artico et al, 2018).

SKIN CARE DURING END OF LIFE

Caring for individuals approaching EOL is based on regular assessment and the provision of optimal care. The main function of EOL skin care is to protect and maintain skin integrity and reduce EOL skin complications, such as MASD, pressure damage, etc (Health, 2020), all with the goal of achieving patient comfort.

Implementation of preventative and treatment interventions are

important for pressure damage and MASD and should be done in accordance with the patient's wishes and consideration of their overall health status (National Institute for Health and Care Excellence [NICE], 2014).

The main function of barrier products is to protect and prevent skin damage from shear and/ or friction and irritants. These are available as creams, films and ointments, which are designed to be applied thinly, and contain silicone (an effective water repellent). They provide a transparent waterproof barrier, with some products being indicated for:

- MASD or for those at high risk: overhydration of the skin from urine, faeces, sweat, or saliva disrupts the barrier properties of the stratum corneum and allows irritants to penetrate the epidermis. Once the skin is overhydrated, it is more prone to physical damage, including friction and shear (Beeckman et al, 2015)
- Pressure ulcers: these are caused by ongoing pressure to the skin due to immobility or friction. When someone is at EOL, they are at greater risk. They often have a sudden onset and can appear when death is imminent (within seven days). They can be pear- or butterfly-shaped and are located predominantly on the coccyx or sacrum (Sibbald et al, 2010; Brennan, 2021). The term'Kennedy Terminal Ulcer' should no longer be used to describe this type of skin damage (NHS Improvement, 2018). If someone has a pressure ulcer towards the EOL, focus of treatment will be more about making sure that the patient is comfortable, rather than healing the ulcer (Hotaling and Black, 2018)
- MARSI: this is often not recognised and thus underreported (Kelly-O'Flynn et al, 2020). MARSI is defined as 'skin damage related to the use of medical adhesive products or devices such as tapes, wound dressings, stoma products, electrodes, medication patches and wound-closure strips' (Fumarola et al, 2020). These injuries can occur when the

epidermal layers separate or if the epidermis completely detaches from the dermis.

FACTORS FOR APPROPRIATE INTERVENTION

When making decisions about skin care at the EOL, it is important to consider a variety of factors to ensure the most appropriate interventions. These include:

- Pathological changes to the body as part of the dying process consider key risk factors such as incontinence, mobility, nutritional status, and level of consciousness (Langemo et al, 2015)
- Regular skin assessment noticing any skin changes at an early stage can help prevent deterioration of skin damage. Regularly assess colour, temperature, swelling and surrounding skin
- How close the patient is to EOL
- Patient comfort ensure that any care that is delivered to protect the skin does not cause pain or result in distress for the patient (Burt, 2013; Langemo et al, 2015)
- Respecting the wishes of the family — establishing the patient's and family's priorities for EOL care is also important, as they may wish to opt out due to religious reasons (Langemo and Brown, 2006; White, 2017)
- Educating the patient, carers, or family members on these skin changes can be instrumental in making a difference. It is important that family members/ carers are aware that skin damage and pressure ulcers at EOL cannot always be prevented (Langemo and Brown, 2006; Langemo et al, 2015; Hotaling and Black, 2018).

CLINICAL CASE REPORTS

Case report one

Mr Smith, a 60-year-old male with a diagnosis of carcinoma of the lung, laryngeal squamous cell carcinoma and multiple comorbidities due to the carcinoma, had a tracheostomy site formation. Seladi-Schulman (2022) discusses that patients with lung cancer are at higher risk of developing Covid-19, especially as the lung function is already reduced. During

Practice points

Common skin changes to expect during EOL, include:

- Discoloured and mottled skin: as the body enters the final stages during EOL, it loses its ability to regulate its blood pressure, the skin on patients' arms and legs can appear bluish/purple, resembling a marble effect, and patients' extremities often feel cold. This condition is known as skin mottling
- Skin breakdown, such as pressure ulcers, leg ulcers, fungating wounds, MASD (White-Chu and Langemo, 2012).

Mr Smith's last acute admission, he developed Covid-19 and was given a terminal prognosis. In a research study, Passaro et al (2021) found that mortality rates were higher in patients with lung cancer and Covid-19. As Mr Smith's preferred place of care and death was home, a discharge plan was started and he was discharged home for EOL care and had a syringe driver in place — syringe drivers are used for the management of a single or multiple symptoms that coexist and tend to increase during the last days/ weeks of life (Dickman and Schneider, 2016), with the pharmacological interventions being essential for adequate alleviation (Lichter and Hunt, 1990).

At initial holistic assessment, it was identified that Mr Smith had extensive MASD to his neck from copious respiratory tract secretions. His respiratory system/airways were too weak to enable him to cough and clear them effectively, and the tracheostomy site was draining the secretions onto his neck.

MASD was severe with inflammation of the skin and extensive damage, including erosion of the subcutaneous tissue. A treatment plan was developed not only to protect the skin from further damage, but also to treat the MASD present. Mr Smith was unable to communicate verbally, however the grimacing facial expressions when cleansing the area indicated his severe pain. Initial treatment plan consisted of Medi Derma-*PRO* Foam & Spray Incontinence Cleanser to cleanse the area and remove any debris, followed by application of Medi Derma-*PRO* Skin Protectant Ointment. Mr Smith's two young sons who provided care for their father in between the care agency visits, were shown how to cleanse the area from the secretions.

Over the next three days, the excoriation on the skin as well as the non-verbal grimacing reduced due to improvement in the MASD level from severe to moderate, initiating a review and re-categorisation of the damage to moderate MASD, and the treatment plan was stepped-down to Medi Derma-S Barrier Film. The location of the damage was such that barrier film applicators were a more suitable format to apply.

Sadly, Mr Smith passed away before treatment could be further stepped down to Medi Derma-S Barrier Cream. Importantly, the treatment that was used enabled Mr Smith to have less visible pain/ discomfort to the area and, with this skin protection, the damage did not deteriorate.

Case report two

Mr Jones was a 79-year-old gentleman with a diagnosis of carcinoma of the bowel and multiple comorbidities. He had copious loose bowel movements due to his cancer and had bleeding MASD.

At initial assessment, Mr Jones' increased pain required regular and increasing breakthrough doses of opioids, which also influenced his mood — with his mood being low, he had no wish to engage with family members either. Due to the extent of the damage, the initial treatment plan consisted of Medi Derma-PRO Foam & Spray Incontinence Cleanser to cleanse the area and remove any debris, followed by application of Medi Derma-PRO Skin Protectant Ointment. Four days later, he was a completely different person; he had not required increased analgesia during the previous two days, his mood was brighter and he engaged with his grandchildren too.

On reviewing, the first author noted a significant improvement to the damaged area. It was no longer bleeding and the superficial skin loss was starting to resolve. Mr Jones was amazed at how the treatment regimen (in his words, a 'miracle cream') had helped him. As the damage was still categorised as severe, Medi Derma-PRO range was continued for a further three days and upon further review, his treatment plan was changed to Medi Derma-S Barrier Film. This was used for another week, which resolved the damage further and subsequently he was stepped down to the Medi Derma-S Barrier Cream. After a further two weeks, the MASD had completely resolved and Medi Derma-S Barrier Cream was used as a preventative measure to prevent the MASD developing again.

Due to the bowel carcinoma, the loose bowel movements continued. However, Mr Jones' quality of life was better due to a preventative plan being put in place following the MASD treatment. Mr Jones has since passed away, although when he died his skin remained MASD-free due to the preventative plan.

Case report three

Mrs Peters was a 56-year-old lady with carcinoma of the rectum with liver and pulmonary metastasis. She rapidly deteriorated and was only able to mobilise short distances, having increasing episodes of incontinence and general fatigue. Due to complications, Mrs Peters had a stoma formation and her increased bowel movements were causing the stoma bag to leak due to the copious loose bowel movements. This led to the involvement of the palliative care clinical lead (first author), who noted at the initial assessment that she had moderate damage to the periwound skin of her stoma site, along with maceration.

Mrs Peters' mood was also low, following the bereavement of her husband three months ago, which had led to self-neglect. On engaging with her, the first author found that she had no interest in living anymore and was not bothered about the consequences to her life. After various discussions,



Figure 1. MASD to the buttocks (case report two). Courtesy of Stefanie Mahan.

she expressed that she was in pain from the stoma site and was at the 'end of her tether', as she was struggling to get the stoma bag to stay in place and did not know what to do.

In view of the clinical findings, it was determined that the skin around Mrs Peters' stoma site had moderate MASD with skin stripping (MARSI) from the removal/application of the stoma bag. A treatment plan was developed with application of Medi Derma-S Barrier Film to the affected and peristomal area, both to treat the MASD and prevent further MASD developing, while preventing further skin stripping from removal of the stoma bags. The first author liaised with the stoma specialists to discuss introduction of Brava® elastic tape (Coloplast) to prevent lifting/ movement of the stoma bag and keep the base plate of the bag in place.

At review two weeks later, the MASD had completely resolved and the stoma bag was secured in place with the Brava elastic tape with no further leakage. Notably, the skin stripping had resolved, Mrs Peters was feeling better and her mood was brighter due to management of the stoma bag and skin integrity.

With the stoma bag and adhesive effectively adhering to the skin, this



Figure 2. Peristomal skin (case report three). Courtesy of Stefanie Mahan.

Changes to skin integrity and damage to the skin can occur at the end of life (EOL), despite appropriate interventions*

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Figure 3. Compassionate care at end of life. Courtesy of Stefanie Mahan.

prevented leakage. The first author continued with the Medi Derma-S treatment plan, but stepped down from the Barrier Film to Barrier Cream. The Medi Derma-S Barrier Cream is suitable for use under adhesive products (Medicareplus International, 2022) and Mrs Peters continued with the treatment plan as a preventative measure.

Case report four

Mrs Wise was a 70-year-old lady who had end-stage heart failure, with gross pitting oedema to her bilateral lower limbs and lower torso from fluid retention due to heart failure. She also had uncontrolled nausea and vomiting, and required a continuous subcutaneous infusion (syringe driver) to manage these symptoms. With the level of oedema to her skin, this reduced the areas suitable for the syringe driver catheter, and the sites were failing from disruption to the microcirculation system, thereby impairing the supply of nutrients to the skin (Chao et al, 2012). There was also extensive skin stripping, i.e. MARSI, from removal of the adhesive dressings. As said, there were limited sites for the syringe driver catheter and these were reducing due to the oedema extending as a result of the end-stage heart failure.

Therefore, a management plan consisting of Medi Derma-S Barrier Film was put in place, not only to treat the MARSI that had occurred, but also to protect the skin from further MARSI when removing the adhesive dressing from the syringe driver catheter site. Mrs Wise reported that this was beneficial, as she had less trauma and discomfort on removal of the adhesive dressings.

DISCUSSION

Within the palliative care team where the first author works, there is an in-house palliative care homecare team who deliver all care needs to patients at EOL, and skin integrity is an important element of that care. Palliative patients are at greater risk of MASD due to hyperhidrosis (excessive sweating) or nocturnal diaphoresis (night sweats); this can be all over the body and not confined to specific areas (Palliative Pearls, 2019). This can be problematic throughout the day, but commonly worsens at night and can be difficult to treat effectively. It can also impact on patient quality of life and cause emotional distress and embarrassment (Palliative Pearls, 2019), which is something that should be prevented at any point of life, but particularly at EOL.

Risk of developing MASD is very high for EOL patients. The important message is to prevent skin breakdown, which can be achieved by ensuring that appropriate preventative plans are in place to meet individual patient needs (Fletcher et al, 2020).

While there are publications/aidememoires around the prevention of pressure damage developing, there are limited aide-memoires around MASD. However, with support from Medicareplus International, the first author and her team developed an aide-memoire that focuses on prevention of MASD. This includes areas which are at high risk of developing both MASD and pressure damage, as patients at EOL are susceptible to the latter due to the body not perfusing the skin effectively, as it is protecting vital organs (Young et al, 2020; Figure 4).



Figure 4.

Common sites of MASD and pressure ulcers (bodymap developed by Medicareplus International).

CONCLUSION

Overall, use of the Medi Derma-S and Medi Derma-PRO range is effective for treating skin damage, irrespective of whether the patient is at EOL or not (Copson and Freitas, 2021). There are benefits not only to the treatment of MASD, MARSI, and periwound skin, but also to the prevention of this damage developing. The first author used the range of products from both a treatment and prevention perspective (these products being on her trust formulary), while also ensuring a holistic patientcentred assessment and treatment plan. Prevention is better than cure (Department of Health [DH], 2018) when patients are in the terminal/end stage of life, it is vital to ensure that no unnecessary skin damage develops.

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