

BARRIER PRODUCTS AND THEIR PURPOSE

Barrier products have become a staple part of skin care regimens and, consequently, there are a wide range available. This article aims to provide an understanding of various barrier products, explaining the need for barrier protection, when to use these products, and how to select and apply the most appropriate barrier products.

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Good skin care is an important aspect of general patient care. Skin damage following exposure to excessive moisture, including urine, faeces, and wound exudate, is not an uncommon problem. Using appropriate measures to protect vulnerable skin and prevent skin breakdown is an essential element of patient care (Best Practice Statement [BPS], 2012). For many years, barrier products have been used in an attempt to protect the skin from moisture damage (Voegeli, 2013).

At present, several types of barrier product are available. However, such a wide selection of products can prove confusing for the user, which can lead to inappropriate use and poor skin care.

Protecting the skin's integrity from the harmful effects of excessive moisture is a common challenge faced by clinicians (Voegeli, 2007). There are several factors, such as incontinence, excessive perspiration, and wound exudate, that can put the patient at increased risk of skin damage from prolonged exposure to moisture.

Gray et al (2011) used the term “moisture-associated skin damage”

(MASD) to describe the damage caused by prolonged exposure to moisture. They also explained that MASD is characterised by inflammation of the skin, occurring with or without erosion, or secondary cutaneous infection.

Some of the most common forms of MASD include incontinence-associated dermatitis, periwound moisture-associated dermatitis, and peristomal moisture-associated dermatitis (Gray et al, 2011).

Barrier function of the skin

The skin is the largest organ of the body covering approximately 2m² or 3000² inches and constitutes almost one-sixth of total body weight. The skin receives around one-third of the body's circulating blood volume (Tortora and Anagnostakos, 1990). It is made up of two main layers: The epidermis and the dermis. Lying beneath the dermis is the subcutaneous layer (also called the superficial fascia or hypodermis; Timmons, 2006). The skin has a pH of between 4 and 5.5 creating an acidic mantle that protects the body from certain bacteria and fungi (Newton and Cameron, 2003).

The epidermis is the thin, outermost layer of the skin and has a thickness

of between 0.5 mm and 4.0 mm (BPS, 2012). It is made up of cells called keratinocytes, which are formed in the lower layer of the epidermis (the stratum basale), and gradually migrate through the layers to the epidermis (the stratum corneum). The stratum corneum is made up of tightly packed, flattened cells called corneocytes, which are held together by a lipid-rich matrix (Voegeli, 2013).

The epidermis acts as a physical barrier between the external environment and the body's internal environment. When intact, it prevents the entry of pathogenic

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organisms, minimises the absorption of harmful substances, contains a mix of substances that actively attract and hold water in the corneocytes, and prevents excessive water loss from the body (Voegeli, 2010; 2013).

Persistent exposure to moisture from, for example urine, faeces, and exudate, can cause over hydration of the skin. Over-hydration, particularly of the stratum corneum, can precipitate inflammation by facilitating the passage of irritants into the skin, resulting in dermatitis.

The role of barrier products

Barrier products are used as part of routine skin care regimens to protect the skin from damage caused by excessive contact with moisture. However, in clinical practice there is often confusion

between barrier products and emollients, with the terms “barrier” and “emollients” often being used interchangeably (Voegeli, 2007).

Barrier products – as the name suggests – are designed to protect the skin by minimising its exposure to excessive moisture. Emollients are lipid emulsions used to soothe and hydrate the skin. They work by occluding the skin surface and reducing the amount of water loss through the stratum corneum (Voegeli, 2010). Although some barrier products may have a mild hydrating properties, they are not emollients and should not be used as such. Similarly, emollients should not be used to protect the skin from damage by excessive moisture.

Barrier products were traditionally creams consisting of a lipid–water emulsion base with the addition of metal oxides, such as zinc or titanium (Voegeli, 2010). The product was applied as a thin layer on the skin. Disadvantages of these barrier creams were their propensity to “clog” continence products and prevent dressing adherence (Voegeli, 2007). However, the clogging of incontinence products was probably due to the excessive use of cream and not the cream *per se*, according to the manufacturer's instructions (Bolton, 2004). Another issue arising from traditional barrier products is the potential of some of the ingredients to cause an allergic reaction in some individuals (e.g. zinc, castor oil containing arachis [peanut] oil).

A variety of new, synthetic, silicone-based, non-irritant barrier products are now available. These products provide a thin, protective polymer film and are available as creams, films, and wipes (Voegeli, 2008). The advantages of silicone products is that they dry without leaving a residue, and are not petroleum-based and should, therefore, not

Glossary

Excoriation: *Inflammation of the epidermis as a result of chemical disruption of the stratum corneum due to an irritant for example bodily fluids (Hampton and Stephen-Haynes 2005). Excoriation often occurs in the presence of maceration and again results in skin trauma (Collins et al, 2002).*

Maceration: *Occurs when the tissue becomes white and soggy in appearance and is less resilient (Collins et al, 2002).*

Peristomal skin: *The skin surrounding a stoma.*

Periwound skin: *The skin surrounding a wound.*

interfere with the adhesion of dressings (Cutting, 2006). Also, they do not sting on application.

The ideal barrier product should be suitable for use on both intact and broken skin. It should also be hypoallergenic, transparent, easy to apply, breathable, have protective properties, and be pain free to the user (Voegeli, 2008; Flynn and Williams, 2011).

Using barrier products in clinical practice

The fundamental care of any patient with MASD is based on keeping the skin clean and using a barrier product (Voegeli, 2013). Prior to applying any product to the skin, it is important to assess the patient and ensure the product selected is appropriate for their needs. It is important to read the product information and follow the manufacturer's instructions (Beldon, 2008).

The clinician should explain the procedure to the patient, gain their consent, and ensure they are made

as comfortable and safe as possible during treatment (Penzer, 2009).

When undertaking skin care, all equipment required should be gathered and prepared. This may include any cleansing products, gloves and aprons, dressings, continence products, clean linen, and the appropriate barrier product (Penzer, 2009).

Barrier products should always be applied to clean skin. Therefore, prior to application, the skin should be cleansed using a non-soap foam cleanser as soap and water can change the pH of the skin from acidic to alkaline which, in turn, can lead to dryness and cracking (BPS, 2012).

Barrier products and the incontinent patient

The optimal skincare regimen for the person with incontinence is to cleanse the skin following each episode of incontinence, using a non-soap cleanser as mentioned above. Following cleansing, a suitable barrier product should be applied to protect the skin from further damage. If incontinence products are used, the clinician should ensure the barrier product selected is compatible with the incontinence products (Voegeli, 2013).

Barrier creams are designed for use on intact skin and should not be applied to broken skin unless specified in the manufacturer's instructions. Barrier films are suitable for use on both broken and unbroken skin (Voegeli, 2007; Beldon, 2008).

If there is severe excoriation of the skin then active measures to contain urine and/or faeces, and protect the skin may also be required (BPS, 2012; Voegeli, 2013). The clinician should bear in mind that incontinence is a symptom and

not a diagnosis, and full assessment is required to ascertain the cause of the incontinence so that preventative measures can be put in place (BPS, 2012).

Barrier products for wound exudate

Exudate is a necessary component in the wound healing process. However, excessive exudate can damage the periwound skin and cause the wound to deteriorate. Application of an appropriate

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barrier product can help protect the periwound skin. However, it is also vital to identify and address the cause of the excessive exudate (World Union of Wound Healing Societies, 2007). The type of barrier product selected is again dependent on

the findings of the initial patient assessment, which should include the condition of the surrounding skin and wound size. Barrier film applicators may aid the application of the film to small-to-medium-sized wounds. For large wounds, film spray is available. Always allow the product to dry completely before applying any pads or clothing as they may stick. Clinicians must check the manufacturer's instructions to determine the frequency of reapplication; some barrier films only require reapplication after 72 hours.

Barrier products for peristomal skin

Barrier products are not always appropriate in the care of peristomal or broken skin (Figure 1). However, when they are required silicone-based barrier wipes are usually the most appropriate modality. These wipes are designed to be used under adhesive stoma products. Patients often manage their own stoma and they report that barrier wipes are easier to use and make adhesion of the appliance easier than traditional barrier creams (Voegeli, 2008; Burch, 2011).



Figure 1. An example of the inappropriate use of a traditional barrier cream on broken skin.

Conclusion

Protecting the skin from excessive moisture is a common challenge faced by clinicians today. There are a range silicone-based products available that are easy to apply and skin-friendly, and are available as creams, films, and wipes.

Barrier products should be used as part of a holistic skin care regimen designed to protect against excess moisture exposure. A barrier product should be selected following a holistic assessment of the patient. The manufacturers' instructions should be read and followed.

Further assessment of the patient will be required to determine the cause of the excessive moisture and other interventions may be needed to treat the problem. **WE**

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