**Prevention and Management of Incontinence-associated Dermatitis.**

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**Introduction.**

Incontinence associated dermatitis (IAD) is a specific form of moisture associated skin damage, affecting up to 50% of adults who are incontinent of urine or faeces. Typically, IAD presents as inflammation of the skin surface characterised by redness, and in extreme cases, swelling and blister formation (Figure 1). This occurs in areas of the skin exposed to urine or faeces, generally affecting the labia in women, and the scrotum in men, as well as the inner thighs and buttocks in both sexes (Borchert et al, 2010). It is generally agreed that urinary incontinence on its own does not necessarily lead to IAD, but the combination of urinary and faecal incontinence, or the passage of liquid stool, significantly increases the risk (Campbell et al, 2014). There is also the possibility that medications the patient might be taking also contributes, either by a direct action of drug metabolites being excreted in the urine or faeces on the skin, or by drugs causing the passage of liquid stools as a side effect, such as some antibiotics (Shiu et al, 2013). The exact mechanisms that lead to IAD are not fully understood. However, the main factors are thought to be overhydration of the epidermis, leading to a breakdown of the normal skin barrier and triggering of an inflammatory response (Ichikawa-Shiegeta et al, 2014; Mugita et al, 2015). In addition, the presence of urine and faeces increases the skin pH away from the protective acidic range, further disrupting the normal skin barrier; with the presence of proteolytic enzymes in faeces further compounding skin damage (Beeckman 2016, Voegeli, 2016).

**Complications of IAD**

IAD is often accompanied by discomfort, burning, tingling, itching and pain in the affected areas, due to the inflammatory nature of the condition. Thus, having a significant effect on overall quality of life (Minassian et al, 2013). If untreated, IAD can rapidly lead to excoriation and skin breakdown, which may subsequently become infected by the skin flora (particularly fungal infection), leading to a viscous cycle of increased inflammation and skin breakdown.

Doubt often exists as to whether the skin damage is IAD, pressure damage or a reaction to something that has come into contact with the skin. Often the obvious is missed, in that if the patient is not incontinent then it is not IAD. However as those with incontinence are often at increased risk of pressure ulcers, it can be difficult to distinguish between the two (Mahoney et al, 2013). The main differences centre on the cause, location, and appearance of the skin damage (Table 1). Pressure ulcers usually form over a bony prominence as a result of unrelieved pressure or friction, whilst moisture lesions are often more widespread and the skin usually looks shiny due to presence of moisture. The edges of a pressure ulcer are generally distinct, producing a wound with a regular or circular shape, as opposed to the widespread and diffuse appearance of a moisture lesion. However, it is important to remember that although distinctions can be made between the two, they can co-exist and are closely related. A systematic review and meta-analysis by Beeckman et al (2014) concluded that there was a probable association between IAD and pressure ulcer development, partly due to the susceptibility of overhydrated skin to damage by friction and pressure loading.

**Identifying IAD and Patient Assessment**

Numerous risk factors for the development of IAD have been identified (Table 2), the main ones being incontinence of urine, faeces (or both), frequency of incontinence episodes, use of occlusive containment products, pre-existing skin condition poor mobility / dexterity, and inability to maintain personal hygiene (Kottner et al, 2014). Interestingly, although many of these risk factors are more common with ageing, age itself does not appear to be an independent risk factor for the development of IAD (Kottner et al, 2014).

 Patients at risk of developing IAD should have their skin assessed at least daily, or more frequently if they are considered to be at very high risk. This should form part of a general skin assessment and can easily be incorporated into routine skin inspection for pressure ulcer risk (Beeckman et al, 2015). Although tools exist for assessing IAD risk they have not gained popularity in clinical practice, and there is the danger that they can become confused with Pressure Ulcer risk assessment tools, and vice versa. Similarly, several tools have been developed to guide skin assessment and IAD severity, but again their use in practice is limited. Current recommendations advise using a simple 3-stage IAD categorisation tool (Beeckman et al, 2017) to assess, guide interventions and importantly, evaluate whether these are working.

**Prevention and Management of IAD**

Identification of urinary or faecal incontinence during the nursing assessment should lead to the implementation of appropriate protocols aimed at preventing IAD or promoting healing if skin damage is already present, and link to those for preventing pressure ulcers. Protocols for the prevention or management of IAD should address two key aspects together:

1. Assessing and managing the incontinence,

2. Using a structured skin care regime.

The simple purpose of assessing and managing incontinence is to reduce exposure of the patient’s skin to the main causative agents of IAD. It also provides an ideal opportunity to identify reversible causes of incontinence, such as medication (e.g. diuretic therapy in someone with impaired mobility), urinary tract infection, and constipation (Gray 2010). Simple incontinence management interventions should be tried first, such as optimising nutritional and fluid intake, urinary sheaths for men, and ‘toileting’ techniques. Combined with the use of appropriate absorbent products, that are designed to wick moisture away from the skin, avoid overhydration and occlusion of the skin, these initial steps are often effective (Langemo et al, 2011). In patients with severe IAD and excoriated skin, more complex interventions may be needed to ensure the skin does not come into contact with irritants and promote healing, such as urinary catheters and faecal management systems (Black et al, 2011, Morris 2011). However in the case of urinary catheters, these should always be regarded as the last resort due to the substantial risk of infection. It is recommended that if there is no improvement in the condition of the patient’s skin after 3 to 5 days of initiating a continence management plan, then a reassessment is made and specialist advice sought (Beeckman et al, 2015).

 Ensuring optimal skin care is provided following each major incontinence episode, particularly if faeces are present, is one of the most important actions that can be taken to prevent IAD. The skin care provided should be based on a structured regime and involve the use of a skin cleanser and a protectant. The use of ordinary soap and water should be avoided, where possible, as in most cases the pH of the soap is too alkaline, and may contribute to the skin irritation (Voegeli 2008; Beeckman et al, 2016). Following cleansing the skin needs to be protected against subsequent contact with urine or faeces by using a skin protectant or barrier product. These are designed to repel moisture and protect the skin from the harmful effects of the incontinence. If assessment of the skin breakdown suggests that fungal infection is present, then the incorporation of an antifungal cream into the skin care regime will be needed as well. There is a bewildering choice of products for the prevention and treatment of IAD, ranging from cleansers alone to all-in-one no-rinse products (cleansers and protectants). Unfortunately, a recent Cochrane review concluded that there is limited evidence to guide product selection, but that avoiding using soap and using a leave-on product is probably best (Beeckman et al, 2016).

**Conclusion**

IAD is a common problem affecting as many as half of the patients with urinary or faecal incontinence that are managed with absorptive products. Confusion still exists in separating IAD from pressure damage, but careful assessment can help distinguish between the two and enable appropriate prevention and treatment. Key factors in the successful prevention and management are careful patient assessment, good continence care, and clear evidence-based skin care protocols.

**Key Points:**

* IAD is a very common inflammatory skin disorder seen in patients with urinary or faecal incontinence.
* Confusion exists in differentiating skin breakdown due to IAD from pressure ulcers.
* Prevention and management relies on careful patient assessment, good continence care, and adoption of structured evidence-based skin care protocols.

1393 words including key points.

2029 including references.

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**Figures and tables:**

**Figure 1 – Severe incontinence-associated dermatitis:**



Taken from McDonagh D. (2008) Moisture lesion or pressure ulcer? A review of the literature. Journal of wound Care. 17(11), p461-466 and previously used in: Voegeli D. (2012) Moisture-associated skin damage: aetiology, prevention and treatment. *Brit. Journ. Nurs.* 21(9), pp517-521.

**Table 1: Differences between Superficial Pressure Ulcers and Moisture Lesions (Adapted from Defloor et al 2005).**

|  |  |  |
| --- | --- | --- |
|  | **Pressure Ulcer** | **Moisture Lesion** |
| **Causes** | Pressure and/or shear must be present. | Moisture must be present (eg, shining wet skin caused by urinary incontinence or diarrhoea). |
| **Location**  | A wound not over a bony prominence is unlikely to be a pressure ulcer. | A moisture lesion may occur over abony prominence. However, pressureand shear should be excluded ascauses and moisture should bepresent.A combination of moisture and frictionmay cause moisture lesions in skinfolds.A lesion that is limited to the anal cleftonly and has a linear shape is not apressure ulcer and is likely to be amoisture lesion.Perianal redness/skin irritation is mostlikely to be a moisture lesionresulting from faeces. |
| **Shape** | Circular wounds or wounds with a regular shape are most likely pressure ulcers | Diffuse different superficial spots aremore likely to be moisture lesions. |
| **Depth** | Partial-thickness skin loss is present when only the top layer of the skin is damaged (Grade 2).In full-thickness skin loss, all skin layers are damaged (Grade 3 or 4). | Moisture lesions are superficial (partial thickness skin loss).In cases where the moisture lesion getsinfected, the depth and extent of thelesion can be enlarged/deepenedextensively. |
| **Edges** | If the edges are distinct, the lesion is most likely a pressure ulcer. | Moisture lesions often have diffuse orirregular edges. |
| **Colour** | If redness is nonblanchable, this is most likely a pressure ulcer Grade 1. | If the redness is not uniformly distributed, the lesion is likely to be a moisture lesion (exclude pressure and shear as causes). *Pink or white surrounding skin:*Maceration resulting from moisture. |

**Table 2: IAD risk factors.**

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| **Main risk factors for IAD:** |
| **Incontinence:** Faecal, Urinary, Double incontinence |
| **Frequent episodes of incontinence** |
| **Use of occlusive containment products** |
| **Poor existing skin condition** |
| **Reduced mobility** |
| **Diminished cognitive awareness** |
| **Inability to maintain personal hygiene** |
| **Pain** |
| **Increased body temperature** |
| **Medications** (steroids, antibiotics) |
| **Poor nutritional status** |
| **Critical illness** |

Adapted from Beeckman D, et al. (2015) Proceedings of the Global IAD Expert Panel. Incontinence-associated dermatitis: moving prevention forward. Wounds International available at: <http://www.woundsinternational.com/media/other-resources/_/1154/files/iad_web.pdf>