Incontinence-Related Skin Damage: Essential Knowledge

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Incontinence-associated dermatitis, a clinical manifestation of moisture-associated skin damage, is a common consideration in patients with fecal and/or urinary incontinence. Among hospitalized patients, the prevalence rate has been found to be as high as 27%. Exposure to skin surface irritants may be a predictor and the condition, in turn, may be a factor in pressure ulcer risk because skin integrity is compromised. Differential diagnosis, usually based on visual examination, can help determine whether incontinence-associated dermatitis or a pressure ulcer is present. Prevention comprises following a structured skin care regimen that includes gentle cleansing, moisturization, and application of a skin protectant or moisture barrier. Treatment goals include protecting the skin from further exposure to irritants, establishing a healing environment, and eradicating any cutaneous infection. This concise review of relevant literature underscores the scant amount of evidence-based information available and highlights the need for further studies that involve comparing protocol and product efficacy to determine best practice for this oft-encountered condition.

KEYWORDS: incontinence-associated dermatitis, perineal dermatitis, moisture-associated skin damage, dermatitis, incontinence-associated dermatitis; its relationship to pressure ulceration and pressure ulcer risk; its distinctive characteristics; and its management.

What is Incontinence-Associated Dermatitis?

Moisture-associated skin damage (MASD) is a term frequently used by clinicians to describe the irritation, inflammation, and erosion associated with prolonged exposure of the skin to perspiration, urine, stool, or wound exudate. Clinically, MASD may manifest in several ways. Incontinence-associated dermatitis (IAD), sometimes referred to as perineal dermatitis, is characterized by irritation and inflammation of the skin from prolonged exposure to urine or stool. Incontinence-associated dermatitis also is a factor of

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regular use of an absorptive containment device such as an incontinence brief or pad, which raises the pH of the underlying skin and increases production of perspiration. Erosion of the skin occurs frequently — probably attributable to friction created by moving moist or saturated pads or clothing over irritated skin or to damage from digestive enzymes present in liquid or solid stool.

Moisture-associated skin damage also may appear as skin irritation that accompanies intertrigo (dermatitis and secondary infection occurring in the skin folds) or as periwound maceration caused by prolonged contact of healthy skin surrounding a suppurative wound with wound exudate and toxins created by bacteria within the wound bed.

This discussion focuses on IAD because it is most commonly encountered when managing patients with urinary and/or fecal incontinence.

How Prevalent is Incontinence-Associated Dermatitis?

Recent research and clinical experience demonstrate that IAD is prevalent, especially among patients managed in acute and long-term care settings. Junkin and Selekof studied the prevalence of incontinence-associated skin damage among hospitalized patients in the US and reported prevalence rates of 27% in one group (n = 976) and 20% in a second group (n = 607). Bliss et al’s analysis of information in the Minimum Data Set (MDS), linked to relevant variables in electronic medical records specific to perineal dermatitis, found a 6% prevalence among 10,215 nursing home residents; however, the authors believe this to be a conservative estimate because the MDS used to determine prevalence did not specifically direct staff to assess for IAD.

What Causes Incontinence-Associated Dermatitis?

Incontinence-associated dermatitis occurs when the skin is exposed to surface irritants. Although the pathophysiology of IAD is not completely understood, existing evidence suggests that its inflammatory response causes the release of inflammatory cytokines; increases the skin’s transepidermal water loss (TEWL), compromising its ability to act as a moisture barrier; and elevates the pH at the skin’s surface, compromising its acid mantle. Bliss et al’s MDS data analysis concluded that fecal incontinence or double urinary and fecal incontinence are predictors of IAD, while urinary incontinence alone did not predict an increased risk. Junkin and Selekof found an association between IAD and use of absorptive incontinence products.

Is Incontinence-Associated Dermatitis Related to Pressure Ulcer Risk?

Histopathologic analysis of patients with IAD and pressure ulceration reveals different patterns. Specifically, IAD is associated with inflammation and pressure ulceration with ischemia and characterized by erythema and inflammation. Typically, IAD is found in skin folds or underneath absorptive products in areas where the skin experiences prolonged exposure to urine, stool, or other moisture sources. In contrast, a deep tissue injury is characterized by darker red or purplish tones resembling a deep bruise found over bony prominences. Although IAD is associated with erosion of the skin owing to friction or irritant damage, lesions remain partial-thickness and free from necrosis. A full-thickness wound, with or without necrosis, reflects ischemic tissue damage and is classified as a pressure ulcer.

Urinary and fecal incontinence are associated with pressure ulcer risk and they are a component of multiple pressure ulcer risk assessment tools. Although an analysis of existing evidence does not support a conclusion that urinary or fecal incontinence causes pressure ulcers, their presence increases

KEY POINTS

• Moisture-associated skin damage is frequently observed in clinical practice and is a known risk factor for serious complications.
• Prevention and management protocols are often tradition-based but there is some evidence that a structured skin and patient care regimen will help prevent skin damage and resultant complications.
the vulnerability of skin integrity and they are frequently associated with pressure ulcers affecting the sacral area or the buttocks.\textsuperscript{10}

**How is Incontinence-Associated Dermatitis Diagnosed and Differentiated from a Pressure Ulcer?**

The burning and itching of IAD-affected skin may distress many patients but these symptoms are not a determining factor in diagnosis. Diagnosis is primarily based on visual inspection of the skin.\textsuperscript{1} Diagnosis is confirmed when signs of inflammation occur in skin folds or areas of skin regularly exposed to fecal, urinary, or double urinary and fecal incontinence. Erythema tends to be bright red, especially in persons with lighter skin tones. Approximately one in five persons with IAD will have evidence of co-existing cutaneous candidiasis,\textsuperscript{4} which is characterized by a maculopapular red rash and satellite lesions. Erosion may occur, especially in the base of skin folds or when the skin is exposed to liquid stool containing digestive enzymes. A pressure ulcer always should be suspected in patients with other risk factors for pressure ulceration, including immobility and loss of cutaneous sensations. A pressure ulcer also should be suspected whenever the skin damage occurs over a bony prominence or extends in depth beyond the dermis of the skin. A wound care clinician should be consulted to resolve diagnostic uncertainty.

**Can Incontinence-Associated Dermatitis Be Prevented?**

Although clinical evidence about IAD remains sparse, some of the strongest available evidence is associated with prevention that involves a structured skin care regimen.\textsuperscript{2} The efficacy of this approach is supported by a quasi-experimental study\textsuperscript{11} comparing four skin damage prevention regimens in 1,918 nursing home residents with incontinence. Other quasi-experimental and pre- and post-implementation studies\textsuperscript{12-15} support the effectiveness of structured skin care regimens designed to prevent perineal skin injury; these studies focused on partial-thickness pressure ulcers or both IAD and pressure ulcers.

The principles of a structured skin care regimen comprise gentle cleansing, moisturization, and application of a skin protectant or moisture barrier.\textsuperscript{1,2} Limited evidence from a prospective, descriptive study of 32 skilled nursing facility residents with incontinence suggests that a cleanser that matches the pH of the skin and contains moisturizers or humectants may be preferable to soap and water, especially in aged skin.\textsuperscript{16} In addition, according to the results of a retrospective study of long-term care residents with incontinence, gentle cleansing with a disposable soft cloth may protect the moisture barrier of the skin more effectively than washing with a traditional hospital washcloth.\textsuperscript{13} Although the application of a skin protectant clearly is an essential component of preventive regimens, the most effective type of skin protectant has not yet been determined. In a comparative study\textsuperscript{11} involving a structured skin care regimen, researchers concluded that an acrylate terpolymer-based, alcohol-free barrier film provided more cost-effective protection than petrolatum, zinc oxide, or dimethicone-based ointment. Products that effectively combine these products into a single step are preferred because of the time-saving, cost-reducing potential associated with prevention.\textsuperscript{17}

**What is the Appropriate Treatment for Incontinence-Associated Dermatitis?**

Treatment for IAD should directly address skin inflammation and erosion and may be provided in conjunction with primary management of the underlying incontinence. The goals of treatment are to 1) protect the skin from further exposure to irritants, 2) establish a healing environment that allows eroded skin to repair itself, and 3) eradicate any cutaneous infection such as candidiasis. Very limited evidence exists to support the efficacy of most interventions but clinical experience supports beginning a structured skin care program based on the previously outlined principles.\textsuperscript{1,7,10} In a cross-over study\textsuperscript{18} of 81 long-term care residents, increasing the frequency of adult incontinence brief changes reduced the incidence of partial-thickness pressure ulcers, although it did not reduce the occurrence of erythema. For some patients, removing irritants and protecting the skin from additional exposure may be sufficient to facilitate skin repair. Nevertheless, more aggressive intervention is
needed for many patients with more compromised skin tolerance. Limited evidence from a randomized, controlled experimental study\(^{19}\) and a comparative study,\(^{20}\) along with extensive clinical experience, suggests that an aluminum-magnesium hydroxide stearate ointment, combined with ingredients that facilitate wound healing (balsam of Peru, castor oil, and trypsin — BCT) effectively manages IAD and partial-thickness pressure ulcers in patients with urinary or fecal incontinence. For patients with considerable skin erosion and significant discomfort, a skin paste comprising zinc oxide and an absorptive powder may be applied to the affected area; clinical experience suggests that this paste reduces exudate and soothes the burning often noted in extensive skin erosion.

Cutaneous candidiasis should be treated with an antifungal cream or powder. A review\(^{21}\) of available evidence supports use of multiple topical products containing an azole (eg, fluconazole) or an allylamine (eg, butenafine) in the treatment of cutaneous candidiasis. Ideally, a product is selected that incorporates a skin protectant. Alternatively, an antifungal powder can be applied as a thin layer that is covered by a skin protectant or BCT ointment to maximize healing.

**Conclusion**

Incontinence-associated dermatitis is a prevalent complication of incontinence that compromises skin integrity, predisposes to cutaneous infection, and increases pressure ulcer risk when other risk factors are present. While wound care specialists often are involved with the most severe cases involving full-thickness pressure ulcers, continence care specialists will encounter many persons with IAD who do not have concomitant pressure ulcer risk factors. Therefore, continence care clinicians must be aware of this common complication of incontinence, including its pathophysiology, diagnosis, prevention, and treatment. In addition, continence care clinicians should be aware of the close relationship between IAD and pressure ulcer risk and work closely with wound care clinicians to ensure that both conditions are prevented whenever possible and rapidly recognized and treated when they occur. To improve the evidence base upon which to build IAD protocols, additional research — including randomized, controlled comparison studies regarding the assessment and management of IAD — is warranted. - OWM

**Reference**


