

## PERINEAL DERMATITIS: A NEGLECTED PROBLEM IN PATIENTS AT CRITICAL CARE UNIT

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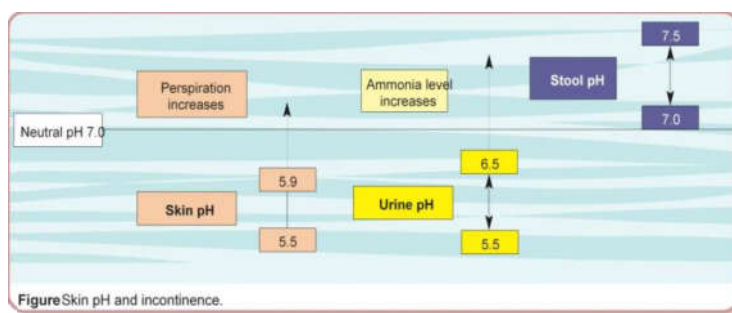
### Abstract:

*The literature reveals there has been limited critical discussion of the inter-relationship between urinary incontinence, the vulnerability of the skin and the clinical implications. This article critically re-examines the literature to identify and apply relevant scientific principles and evidence to inform effective intervention. It includes background on the structure, function and disruption to the skin's barrier. The implications for fundamental and largely taken-for-granted nursing practices, such as washing the skin, are examined. The current state of knowledge is analyzed, specifying the types of evidence available and its weaknesses, highlighting implications for a research agenda.*

**Keywords:** Critical Care Unit, Incontinence, Perineal Dermatitis.

## 1. INTRODUCTION:-

Skin problems due to the use of absorbent hygiene products, such as diapers, incontinence pads, and feminine sanitary articles, are mostly due to climate or chafing discomfort [1]. If these conditions are allowed to prevail, these may develop into an irritant contact dermatitis and eventually superficial skin infections. Skin humidity and aging skin are among the most significant predisposing and aggravating factors for dermatitis development. Improved product design features are believed to explain the decline in observed diaper dermatitis among infants [2]. Where adult incontinence-related skin problems are concerned, it is very important to apply a holistic perspective to understand the influences due to the individual's incontinence level and skin condition, as well as the hygiene and skin care measures provided. Individuals with frail, sensitive skin or with skin diseases may preferably have to use high-quality products, equipped with superabsorbent polymers and water vapor-permeable back sheets, to minimize the risk of skin complications [3]. Perineal dermatitis is an inflammatory condition of the skin in the perineal area, upper part of the thigh, and buttocks that is commonly associated with incontinence [4]. It is manifested by various degrees of skin injury, ranging from redness to areas of denuded skin. It may be asymptomatic or may be accompanied by itching or pain. Normal skin maintains its barrier function by means of an intact epithelium created by the individual skin cells. The normal pH of the skin varies from person to person, but in the normal state, the skin is acidic with a mean pH of 5.5 to 5.9[5]. Changes in the external pH of the skin affect the fatty acid content of the skin and impair the integrity of the barrier formed by the skin cells. The pH of normal urine varies from 5.5 to 6.5. With urinary incontinence, the skin is exposed to ammonia formed by the conversion of urea to ammonia, leading to an increase in local pH. Ammonia can have a pH of 11.0 or even greater, depending on the concentration and chemical form, so the greater the amount of ammonia in the urine, the higher is the pH of the urine [6]. The combination of perspiration (mildly alkaline) with urine can increase the skin pH to 8.0 or greater (see Figure) [2]. Normal stool is also alkaline, with a typical pH of 7.0 to 7.5, contributing to an abnormal local skin pH in patients with incontinence. Overgrowth of microorganisms from the skin or stool, leading to skin irritation or infection, can further weaken the skin defense. Mechanical damage of the skin from friction and pressure can lead to erosions and pressure ulcers, particularly in skin that is already compromised by prolonged exposure to stool and urine [7].



Moisture-related skin breakdown has been called many things-perineal dermatitis, irritant dermatitis, contact dermatitis, heat rash, and anything else caregivers could think of to describe the damage occurring when moisture from urine or stool is left on the skin[8]. At a 2005 consensus conference, attendees chose the term incontinence-associated dermatitis (IAD). IAD can be painful, hard to properly identify, complicated to treat, and costly. It's part of a larger group of moisture-associated skin damage that also includes intertrigo and peri-wound maceration. IAD prevalence and incidence vary widely with the care setting and study design. Appropriate diagnosis, prompt treatment, and management of the irritant source are crucial to long-term treatment [9].

## 2. Perineal Dermatitis Patient-Related Factors

Patient-related factors associated with perineal dermatitis include chronic exposure to moisture, fecal and urinary incontinence, an incontinence containment device, an alkaline pH of the skin, overgrowth or infection with microorganisms such as *Staphylococcus* and *Candida albicans*, and friction forces on the skin. Mechanical chafing, fecal and combined urinary-fecal incontinence, and the use of restraints are modifiable factors associated with increased risk for perineal dermatitis in patients in nursing homes. Although an effort has been made to create a risk assessment tool for perineal dermatitis, reliability and validity studies on this tool are yet to be published [10].

## 3. Incontinence

Incontinence is a common problem in hospitalized patients. Up to half of the institutionalized elderly population is incontinent of stool. Variable rates of 30%, 41%, and 50% for urinary incontinence have been reported for patients in nursing homes[3]. Incontinence is also common in the acute care setting, where 33% of patients are reported to have fecal incontinence. The role of urinary incontinence in the acute care setting has been reported at 13.8%, although this estimate may be low because the prevalence rate of urinary incontinence in the general population is reported to be up to 17%[9].

The morbidity rate associated with fecal incontinence is high. Perineal dermatitis develops in a third of patients with fecal incontinence. Perineal dermatitis not only can cause itching and pain but also increases the risk for urinary tract infection, microbial skin infection, and pressure ulcers[11]. In one study, 56.7% of patients with pressure ulcers also had fecal incontinence, making fecal incontinence one of the most common associated risk factors for pressure ulcers. The standard of care for hospitalized patients who are incontinent includes prevention of perineal dermatitis with regular skin care and

application of skin protectants. Patients at risk for perineal dermatitis should have routine perineal skin care that includes gentle cleaning, use of moisturizers, and the application of a moisture barrier to the skin. The clinical practice guidelines of the Wound, Ostomy, and Continence Nurses Society suggest keeping the skin clean and dry and applying an incontinence skin protectant after each episode of incontinence. A cleanser specifically designed for perineal skin care is preferable to soap and water because soap is drying and increases the pH of the skin[12]. Perineal skin cleansers typically include a surfactant and are pH balanced and are labeled for use as a perineal skin cleanser (eg, Aloe Vesta by ConvaTec, Princeton, New Jersey and Secura Personal Cleanser by Smith & Nephew, Largo, Florida). The use of skin protectants after cleaning is also important, because adding a protectant (a moisture barrier, such as zinc oxide) reduces the incidence of perineal dermatitis by half. Preventive cleansing and application of a protectant reduce the incidence of pressure ulcers by as much as 59%. Despite these benefits, the recommendations for prevention of perineal dermatitis are often overlooked, and skin protectants are underused in hospitalized patients. These circumstances prompted development of a project aimed at improving this aspect of care[1,9].

#### 4. Literature findings

The damage caused from incontinence is multifactorial. The skin is slightly acidic and urine is alkaline, so contact alters the skin's pH contributing to breakdown and decreased barrier function. Faecal incontinence leaves active enzymes on the skin which break down tissue, as well as exposing it to faecal bacteria. Wet skin is soft and prone to pressure and shear injuries, as well as being cooler than dry skin and therefore having impaired blood flow[13,14]. To care for and protect at risk skin, the evidence highlighted a focus on 3 stages of IAD care: cleansing, moisturizing, and application of a barrier product [2]. This recommendation is backed by multiple findings of benefits in large-scale clinical trials [3].

**1. Cleansing:** For cleaning the skin, pH balanced no-rinse and no-dry disposable wipes were most beneficial, and superior to water-and-lotion bed baths. Our ICU stocks Oasis™ Bed Bath Wipes, which also contain moisturisers. If a moisturiser is present in the cleansing wipes, separate moisturising is not required unless the skin appears dry and flaky after cleansing.

**2. Moisturising:** If cleansing wipes do not contain a moisturiser, or for especially dry skin, a separate moisturising agent with a high lipid content is recommended. This includes products containing lanolin, dimethicone, and oils such as olive or coconut oil. Products from this category stocked by our ICU included Alpha Keri Bath and Body Oil, a lanolin based oil used as a soap alternative or as a moisturiser after cleaning. Another option is 5% dimethicone cream, which also has some barrier protection properties. Petrolatum based moisturisers should be avoided as they easily transfer from the skin onto linen and absorbent liners, decreasing their ability to wick fluid from the skin. Any moisturiser should be applied sparingly so barrier application can have sufficient adherence.

**3. Protective barrier:** The final step in IAD prevention was the application of a protective barrier layer. Trials overwhelmingly favoured polymer based sprays, such as 3M Cavilon No Sting Barrier Film, when compared to other barriers such as zinc or dimethicone cream. Spray products are a clean application method, whereas tubs of cream easily become contaminated by dirty gloves. Polymer sprays act as a semi-permeable shield and remains intact for up to 72 hours on the skin, providing long lasting effective skin protection despite frequent cleansing. Although more expensive than creams, trials showed barrier spray is cost efficient, as it requires less product per application and takes less time to apply versus creams.

#### 5. Conclusion

Any skin breakdown should be monitored closely, with wound care charts established to monitor changes, and referrals made to specialist wound and incontinence services as appropriate. Regular pressure area cares should be maintained, including pressure relieving mattresses and regular turning. IAD can become complicated, and is easily infected by bacterial or fungal infections, in which case antibiotic or antifungal medication may be necessary. For extreme, ongoing faecal contamination a bowel management system may be indicated.

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