Wound Care Product Primer for the Nurse Practitioner: Part II

Whether caring for children in acute or primary care settings, nurse practitioners (NPs) will be required to assess and treat many types of wounds and skin breakdown. In “Wound Care Product Primer for the Nurse Practitioner: Part I” (Bookout, 2008), I discussed the phases of wound healing and the rationale for product selection for various wound types. While not a comprehensive list, wound care dressing categories were discussed to include alginates, antimicrobials, collagens, foams, hydrocolloids, hydrogels, and transparent films. Part II of the Primer, will discuss products that may be utilized by the NP for skin breakdown that may be encountered in either acute or primary care settings.

Diaper Dermatitis

Diaper dermatitis (DD) is an inflammatory response of the skin in the area located within the diaper. Rusk (2006) reports that diaper dermatitis is “virtually unknown” in developing countries, but is common in industrialized nations. DD has been classified as the most common skin disorder in infancy in the United States. (Nield & Kamat, 2006; Noonan, Quigley & Curley, 2006). In a study by Akin and associates (2001), almost one third of 1500 infants examined in a 5-year period were diagnosed with DD in varying degrees of severity. Similarly, in studies of hospitalized children, a prevalence of DD is reported between 14% and 42% (Noonan et al, 2006). Therefore, it becomes necessary for NPs to be able to correctly diagnose DD and to be aware of products to effectively prevent and treat DD.

The use of oral antibiotics, gastrointestinal surgical procedures, and a change in usual urine or stool content or pattern are commonly identified as risk factors in children
with DD (Noonan, et al, 2006; Nield & Kamat, 2006). In addition, there has been some discussion regarding the role of formula versus breast milk in the contribution to development of DD. Rusk (2006) reports that a higher pH is noted in formula-fed babies, which therefore causes more enzyme activity and permeability of the perineal skin.

Prior to initiating treatment, it is necessary to review the differential diagnosis for DD. A common complication of DD is the development of candidiasis. *Candida albicans* has been isolated in up to 80% of infants with DD lasting greater than 3 days (Gupta & Skinner, 2004). Bullous impetigo, psoriasis, allergic contact dermatitis, and acrodermatitis enteropathica should also be included in the differential, but are less commonly identified (Rusk, 2006, Nield & Kamat, 2006).

Treatment for DD should begin with prevention. Education of caregivers (families as well as nursing staff) is key in the care of children with risk factors for DD. Frequent diaper changes, cleansing and drying the area with water and a soft cloth and the use of topical barriers such as zinc-oxide, petrolatum or dimethicone are three general measures to prevent severe breakdown. However, if DD is severe and/or has a candidiasis, additional measures such as the addition of topical antifungal cream or ointment, antibacterials and corticosteroids may be necessary to treat the underlying component. Corticosteroids, however, should be used with caution in the diaper area (Agrawal, 2006) (see Table).

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Atopic Dermatitis and Dry Skin

Atopic dermatitis (AD) and dry skin frequently are seen in the same child. Atopic dermatitis is characterized by pruritic, erythematous papules that may have crusting or drainage. It is the most common inflammatory skin disease of childhood (Lawton, 2004). Dry or chapped skin is seen in healthy children as well as those affected by other skin conditions. Widespread areas of dry, pruritic skin are a prominent clinical feature of AD (Lawton, 2004; Mack, 2004). In other words, children “itch” before they “scratch”. This scratching causes the development of the rash, which leads to an increase in pruritis and subsequent scratching. Treatment options for dry skin and AD include good skin care, avoiding potential triggers, and the use of emollients, antihistamines and topical corticosteroids (see Table).

Emollients

Emollients play an important role in the treatment of dry skin as well as the prevention of further outbreaks of atopic dermatitis. Emollients serve to moisturize the stratum corneum by producing an occlusive effect (Lawton, 2004). When choosing an emollient, the NP must consider its properties. A light emollient is considered to have high water content. The light emollient is more readily absorbed by the skin and requires more frequent application. Lotions and creams are considered to be light preparations, whereas a greasy emollient is one that is petrolatum-based. The greasy preparation is more effective when treating children with very dry, cracked skin (Lawton, 2004).

Cleansers

As one could expect, frequent washing with harsh soaps and cleansers only exacerbates the problem of dry skin and atopic dermatitis. There are many skin cleansers
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are on the market today that are focused toward relieving dry, itchy skin. Lipid based cleansers are routinely used in children with AD and dry skin. According to Lawton (2004) the frequency of bathing and time spent in the water is often more critical to drying the skin than the cleanser utilized. It is suggested that children spend between 10 and 20 minutes bathing. It is important to note that whether in the acute, specialty, or primary care environment, the NP will be asked to recommend appropriate cleansers for healthy infants and children as well as critically ill infants and children. One must consider that very little, if any; product testing has been conducted for children less than 2 years of age. Therefore, it is advisable that the NP or staff conduct patch testing on all products prior to adding to the skin care routine.

**Antihistamines & Corticosteroids**

Antihistamines such as diphenhydramine and hydroxyzine may be of benefit for children with sleep disturbance due to severe pruritis (Mack, 2004). However, because of the sedating effects, they are not used during waking hours. Topical corticosteroids are the most frequently utilized topical therapy in children with AD. Generally a 1% to 2.5% hydrocortisone or desonide 0.05% is utilized for mild flairs or for maintenance (Mack, 2004). For more severe outbreaks a mid to high-potency topical steroid may be used such as triamcinalone actinide 0.1% (Mack, 2004). Long term use of any corticosteroid is not recommended due to the potential for skin atrophy, striae, and folliculitis (Mack, 2004).

**Intertrigo**

While not encountered frequently in the pediatric primary care setting, intertrigo is considered to be a common disorder that can affect patients throughout life (Janniger, Shwartz, Szepietowski, & Reich, 2005). However, with the increased prevalence of
pediatric obesity, the NP may begin to see an increase of this skin disorder. Intertrigo describes the inflammation encountered with skin to skin contact and friction. In children this may present as “diaper dermatitis” or around the neck due to the shorter neck and natural flexion. However, in older patients intertrigo is noted in natural skin folds such as in the obese patient. When left untreated, intertrigenous areas often become colonized with secondary infection. *Staphylococcus aureus, Pseudomonas aeruginosa, Proteus mirabilis* and *Proteus vulgaris*, and Candida are commonly cultured from intertrigenous areas.

Treatment for intertrigo is minimal. Minimizing moisture and friction are the mainstays of therapy. For mild or simple intertrigo, treatment plans may include the use of powders (talc or antifungal), barrier creams, or topical mild steroid lotion. For intertrigo with bacterial infection a topical or oral antibiotic is recommended (see Table). If a candidal infection is present, a topical antifungal, either cream or powder, may be instituted. An oral antifungal may be utilized if topical therapy failed. Diligence in keeping the area clean and dry is key to the success of any of the treatment plans.

Conclusions

A myriad of skin care products is available both “over-the-counter” as well as by prescription giving caregivers overwhelming access to supplies. However, along with increased access comes an increased risk of misuse of products. Whether in the acute care, specialty, or primary care setting, the NP is often the clinician recommending and ordering skin care regimens. Therefore, it is imperative that the NP maintain product knowledge and facilitate education of caregivers as well as staff so that optimal clinical outcomes are achieved.
References


