The Role of New Foam Dressing Technology in Protection from Skin Breakdown

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A wide range of dressings is available for the management of pressure ulcers. The practitioner will make dressing choices based on many factors, including ability to absorb exudate, barrier properties, adhesiveness, and patient comfort. Hydrocolloid and film dressings are indicated for Stage I pressure ulcers where the skin is still intact; their function is to protect the vascular area from shear force, friction, and moisture. The type of adhesive should be selected carefully to avoid causing additional skin damage or irritation to the area. Products such as emollients and film-forming barriers are used to protect the skin in areas at risk for pressure ulcer formation to provide a barrier to excess moisture or urinary/fecal incontinence and to keep the skin hydrated (dry skin is an important independent risk factor for pressure ulcer development).1

This article discusses the external factors that influence the formation of pressure ulcers and the potential role for AQUACEL® Foam dressing as part of a comprehensive protocol of care to protect against skin breakdown.

Pressure Ulcer Factors

The primary cause of pressure ulcers is static pressure applied to the skin and underlying tissue. Pressure ulcers typically occur over bony prominences; however, they also can occur in areas of soft tissue due to the effects of a foreign object, such as a medical device.

Shear force, produced when surfaces slide across one another, is another example of how pressure is exerted. Shear force is a factor when the angle of a bed or chair is changed or when a person slides up or down in bed. These movements can result in pulling and stretching of the underlying tissue and blood vessels, which may lead to tissue breakdown.

Friction is created when the patient moves across surfaces, such as clothes or bed linen. Repeated movements result in the superficial loss of epidermis and the outer layers of the stratum corneum. Once the skin is broken or damaged, these abrasion-type wounds can produce considerable amounts of exudate. The contents of this exude can contribute to adhesion of skin to a surface and thus can further increase shear forces.

If skin is exposed to excess moisture, it may become macerated, denuded, or broken. Perspiration, feces, and urine are all common sources of excess moisture, plus, the corrosive nature of urinary and fecal incontinence potentially leads to chemical damage and skin breakdown. Although moisture on the skin does not directly cause pressure ulcers, it softens or macerates the skin, making it more susceptible to damage from friction or shearing.2 Alternatively, when skin loses moisture, it becomes dry, flaky, chapped, and less pliable.

Dressing Options

Practitioners have a plethora of product choices, including petrolatum-based and film-forming barrier creams, that can increase the hydration of at-risk skin. Wound dressings with low-friction, waterproof barriers protect the skin from fecal and urinary incontinence. Dressings can be indicated for up to 7 days wear time; as such, the practitioner does not need to regularly reapply barrier products, such as emollients that may rub off on bed linen or clothing. Furthermore, when fecal or urinary incontinence is present, the dressing backing may be wiped clean, negating the need for cleaning products that may damage skin.

AQUACEL® Foam dressing is designed to protect against skin breakdown caused by shear forces, friction, or excess moisture and may be used as a part of a comprehensive protocol of care to protect at-risk areas and help protect against skin breakdown.

AQUACEL® Foam Dressing in Practice

A 79-year-old man presented to the Emergency Department with black, tarry stools; he became critically ill and was intubated on day 2. His condition deteriorated, with multi-organ failure, long-term ventilator use and dialysis. Although he had a deep tissue injury in the sacral area, it did not progress to full-thickness; only a small partial-thickness wound opened. AQUACEL® Foam dressing allowed for effective and easy management of compromised skin on this high-risk patient. The outcomes indicated the dressing may be used as part of an overall management program to protect against skin breakdown, especially in the sacral area (see Figure 1).

Consequently, a six-patient case study was initiated to evaluate the performance of AQUACEL® Foam dressing on patients or individuals at risk for sacral ulcer development and/or with altered sacral area skin integrity and concern
for deterioration. The dressing conformed well to the sacrum and was resistant to minor fecal and urinary incontinence. Patients with existing altered skin integrity around the sacral area showed improvement. Nurse response was positive for dressing application and removal, and patients noted decreased pain with application and removal as well as wear time comfort.

A prospective evaluation of 42 patients (mean Braden score 13.8) was conducted to assess the impact of AQUACEL® Foam dressing on pressure ulcer incidence on a medical-surgical unit. All patients with a Braden Scale of 18 or less had AQUACEL® Foam dressing placed on the sacral area at time of identified risk. No other changes in usual care (eg, support surfaces, nutrition, repositioning, and incontinence management) were implemented during this time. Real-time incidence data of pressure ulcer development and location were collected over 3.5 weeks. Pre-implementation incidence rates ranged from 0% to 17.2% with an average of 4.3%. Post-implementation rates ranged from 0% to 5.2% with an average of 1.8%.

**Summary**

The primary cause of pressure ulcer formation is static pressure. The caregiver’s priority is to remove pressure from at-risk areas. Additional factors that play a role in pressure ulcer formation include shear forces and excess moisture. These factors alone do not directly cause pressure ulcers; they soften and damage the skin, making it more susceptible to further damage.

Hydrocolloid dressings and skin care products have helped prevent pressure ulcers by protecting the skin from friction and excess moisture, either by forming a barrier or helping skin maintain a barrier that ensures a wound environment conducive to healing. Newer adhesives feature technology designed to avoid trauma upon removal. These new technologies allow the caregiver multiple product choices to help reduce skin damage caused by shear forces, friction, and excess moisture.

AQUACEL® Foam dressing has been designed to protect against skin breakdown caused by shear forces, friction, or excess moisture and may be used as a part of a comprehensive protocol of care to protect at-risk areas.

**References**