

Innovative Medical Products: Primer on Pressure Ulcers

Article II: Recognizing at-risk groups and detecting pressure ulcers

(by Greg Prentiss, Gel Product Manager, Innovative Medical Products)

In our first article on the new definitions and categories of pressure ulcers, we noted that the estimated total national cost of pressure ulcer treatment exceeds \$1.335 billion, not to mention the higher costs in terms of human suffering. A major step in bringing down this cost of treatment, and alleviating this serious medical condition, is educating healthcare providers not only in the detection and management of pressure ulcers but also in raising their awareness of the prevalence of pressure ulcers in certain at-risk populations. The Agency for Health Care Policy and Research (AHCPR) provides much guidance along these lines.

In a recent AHCPR account of various research studies, it was found that the incidence (new cases appearing during a specified time) of pressure ulcers in hospitals ranged from 2.7 percent up to 29.5 percent of patients. Another extensive study cited by the AHCPR found a prevalence of pressure ulcers in 9.2 percent of patients in acute care facilities. Among persons in skilled care and nursing home type facilities, the prevalence of pressure ulcers was as much as 23 percent. Needless to say, these statistics point out a major healthcare problem that could continue to fester unless healthcare providers are educated in early pressure ulcer detection and management, as well as at-risk group assessment.

Who are at-risk individuals and what are the factors placing them at risk? Bed- and (wheel) chair-bound individuals tend to be at risk and/or those with impaired ability to reposition themselves. Pressure ulcers typically develop when oxygen is cut off to living tissue (especially oxygen-demanding muscle tissue) when pressure blocks off the blood supply to that tissue area. Although the bedridden and chair-bound¹ are at high risk for this condition, young, active people are also susceptible. For example, individuals admitted to an emergency room might spend several hours lying immobile on a hallway gurney awaiting treatment; or an athlete undergoing extensive orthopedic surgery might spend hours on the operating table with little or no chance of being repositioned to distribute tissue pressure. Continued pressure redistribution and repositioning are key to preventing pressure ulcers.

In addition to immobility, the AHCPR identifies the conditions of several at-risk populations (referencing in part the Norton Scale² and Braden Scale³ of industry risk

¹ To ultimately alleviate pressure ulcers in chair-bound patients, a new sensory testing system, called “pressure mapping,” is being used to determine standards for what type of wheelchair cushioning provides the most effective pressure redistribution solution.

² The Norton Scale, a risk management tool developed by Doreen Norton in 1962 to assess problems of the elderly in London geriatric facilities, uses five criteria to assess

assessment methodologies): incontinence, constantly moist skin, general unresponsiveness, and nutritional factors such as inadequate dietary intake. These conditions should be considered “red flags” of at-risk individuals upon admittance to a hospital or nursing facility. Needless to say, patients with a history of pressure ulcers are also at risk for developing additional ulcers.

Other at-risk groups can include special populations that might be more pressure-ulcer susceptible than the general hospital or nursing home population. The AHCPR categorizes the following in this segment: a prevalence of 60 percent of quadriplegic hospitalized patients, 66 percent among elderly patients admitted for femoral fracture, and a 33 to 41 percent of patients who are admitted for critical care. (Although the AHCPR characterizes the incidence and prevalence of pressure ulcers as “sufficiently high to warrant concern,” the agency points out that determining the exact percentages of pressure ulcer occurrences has been a “complicated” process and thus any research data needs to be compared and interpreted against other parameters and measurements for accuracy.)

Pre-admission detection

Pressure ulcers are defined as any lesion caused by unrelieved pressure resulting in damage of underlying tissue. Pressure ulcers usually occur over bony prominences and are staged to classify the degree of tissue damage observed.⁴

How does this staging help healthcare providers identify pressure ulcers? The first article in this series covered this topic in detail but it is helpful to briefly review the revised stages of pressure ulcers in aiding detection. The following is from the National Pressure Ulcer Advisory Panel (NPUAP):

- Suspected Deep Tissue Injury: this condition is indicated by a purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear.
- Stage I: nonblanchable redness of intact skin over a bony prominence.
- Stage II: partial thickness skin loss presenting as a shallow open ulcer with a red pink wound bed without slough or bruising.
- Stage III: full thickness tissue loss; subcutaneous fat may be visible but bone, tendon or muscle are not exposed.
- Stage IV: full thickness loss with exposed bone, tendon or muscle.

patients’ risk for pressure ulcers: physical condition, mental condition, activity, mobility, and incontinence.

³ The Braden Scale for Predicting Pressure Sore Risk was developed by Barbara Braden. The risk management tool uses six criteria for predicting pressure ulcer risk: sensory perception, moisture, activity, mobility, nutrition and friction and shear (www.bradenscale.com).

⁴ see AHCPR

- Unstageable: Full thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown or black) in the wound bed.

Because skin discoloring or “bruising” could be a sign of pressure ulcers, the identification of pressure ulcers may be difficult to assess in patients with darkly pigmented skin, or when there is devitalized tissue already present. The NPUAP says that when eschar or dead skin is present, accurate staging of the pressure ulcer is not possible until the eschar has been sloughed or the wound has been debrided. Additionally, if pressure ulcers are hidden under casts, orthopedic devices or support stockings, routine assessment like checking for movement and sensation may fail to detect pressure ulcers in these circumstances. It would then be necessary to check the skin under the edges of the cast or remove the support stockings to assess the skin.

Post admission detection, skin care and nutrition

After admission, all at-risk individuals should have a systematic skin inspection – from head to toe – at least once a day with particular attention paid to bony prominences (elbows, shoulder blades, heels, buttocks, back of head).

In addition to regular skin inspection, the frequency of skin cleansing is important as research has shown there is some association between dry, flaky or scaling skin and an increased incidence of pressure ulcers. Mild cleansing agents should be used but without excessive rubbing so as not to disrupt the skin’s natural protective barrier. Moisturizers are good for dry skin but massaging over bony prominences should be avoided.

The exposure of the patient’s skin to moisture through incontinence, perspiration or wound drainage should be minimized. If these sources of moisture cannot be controlled, the AHCPR recommends absorbent underpads or briefs. Topical agents that act as barriers to moisture can also be used.

Finally, good nutrition is essential in preventing pressure ulcers and maintaining skin integrity. The AHCPR points out that clinical experts recommend supplementing or supporting intake of protein, calories, Vitamin C, and zinc in particular, for a balanced patient diet.

Conclusion

Whatever the at-risk group or early detection methodology, the most effective way to prevent pressure ulcers from developing is pressure redistribution and constant repositioning of the patient. But this doesn’t happen without an implementation system in place, nor without a team approach in support of that system. Our next article will address the latter effort in the prevention of pressure ulcers.