Heel Pressure Ulcers

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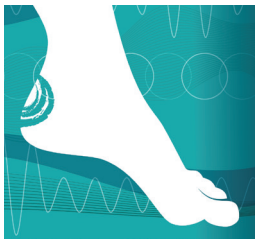

Heel ulcers are the second most common site for pressure ulcers with associated incidence on the rise. Today, 41% of all deep tissue injuries are found in the heels.[1,2] With or without underlying diabetes, there is a reported 19%-32% occurrence in acute care.[3] Prevalence of heel pressure ulcers account for 23.7% of the pressure ulcers in acute care facilities, 22.5% in long-term/acute care facilities, and 22.9% in long-term care facilities.[2,4] As individuals live longer, enter hospitals with multiple co-morbidities and complex care needs, and undergo more surgical procedures at advanced age, they are at higher risk — particularly when hip and lower extremity orthopedic procedures are required. In October 2008, CMS announced it would no longer provide reimbursement for significant hospital-acquired pressure ulcers, so the concern about this impacts both the patient and the business.

Heel Vulnerability

- The calcaneus bone is the largest in the foot and is wide in relation to its associated skin surface area.[3]
- Little subcutaneous fat surrounds the calcaneus. The shock absorptive capacity of the heel decreases with age, leaving it more susceptible to forces of pressure, friction and shear.[3]
- Because the sole of the foot has no sebaceous glands, the lack of lubrication leaves the skin more vulnerable to drying and cracking.[3]
- Peripheral vascular changes in the patient with diabetes can cause narrowing and hardening of blood vessels, particularly in the legs and feet.[3]
- Decreased blood flow results in damage to nerves (neuropathy) and reduced tissue tolerance to pressure.[3]
- Loss of sensation, secondary to diabetic neuropathy, can prevent patients from feeling ischemic pain that causes a normally sensate patient to move his or her leg to relieve the pressure and stop the pain.[3]
- Additional factors that put the heel at risk include circulatory impairment, atherosclerosis of vessels, as well as vascular, ischemic and obstructive insufficiencies.[3]

Other Clinical Factors

- Heels are often overlooked during nursing skin assessments, both on admission and during the hospital stay.
- The most commonly used risk assessment tools do not have a sub-scale for non-movement of lower extremities, meaning they typically do not address the specific risk factors responsible for the development of heel pressure ulcers.
- Because heels are not incontinent, they do not require the frequent assessment, cleansing and lubrication that is associated with an incontinent patient.
- Patients with diabetes are four times more likely to develop a heel ulcer.[3]

Risks

- History of previous heel ulcer
- Immobility
- Multiple co-morbidities (emphasis on diabetes mellitus)
- Devices that place pressure on heels (TEDS, traction, CPMs, compression hose)
- Lower extremity vascular disease
- Vasoconstrictive drugs and sedation used in critical care
- Epidural and general anesthesia
- Lower extremity contractures that lead to constant unrelieved pressure
- Lower extremity orthopedic surgeries
- Lower extremity edema
- Ventilator dependency
- Agitation that results in friction and tissue distortion to heel skin
- Prolonged operative procedures without adequate heel protection

Prevention

- Be aware of all of the risk factors for heel pressure ulcer development, including a Braden mobility score of three or less and a patient's inability to lift their foot off the bed unassisted or reposition independently
- Assess and document heel skin integrity on admission and during each shift
- Treat dry skin with a skin moisturizer twice daily to decrease friction and shear
- Institute regular and frequent repositioning of the extremity
- Float heels of at-risk patients: position pillows lengthwise from the knee to just above the heel, suspending heel off the support surface for short-term intervention
- Consider protective heel boot if prolonged inactivity occurs (i.e., greater than six hours)
- Provide range-of-motion exercises to ankles every 12 hours and as needed
- Remove TED stockings, CPMs, compression hose and ace wraps per facility protocol for skin assessments
- Mobilize patients as soon as possible
- Consult wound ostomy continence nurse if patient develops a heel ulcer or deep tissue injury
- Consult physical therapist if patient has foot drop or is at risk for developing a plantar flexion contracture at the ankle
- Protect heels at risk during times in the operating room and long stays in emergency departments

References
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NOTES: