

Introduction

Heel ulcers are the second most common site for pressure ulcers with associated incidence on the rise. 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.

https://nursing.advanceweb.com/SharedResources/Downloads/201-3/110413/HeelPressureUlcers_CHO.pdf

Heel Vulnerability

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

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.

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