# HEEL ULCERS ARE PREVENTABLE!

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The Gold Medal should always go to prevention. Unfortunately about 1.7 million people will develop pressure ulcers each year at a cost of between $2.2 billion and $3.6 billion (1). Amlung et al found an over all pressure ulcer prevalence of 14.8% among 42,817 patients in 356 facilities (2), and Barczak et al noted that the incidence of heel pressure ulcers ranges from 19% to 32% of a given population (3).

Whereas sacral and trochanteric ulcers may be diminishing in incidence, the heel ulcer incidence and prevalence appears to be increasing! (4). The cost of managing one diabetic foot ulcer ranges from $22,000 to $36,000.00 (5). The Mayo Clinic Department of Geriatric Medicine notes that 17,000 lawsuits related to pressure sores occur annually and individual awards have been as high as four million dollars(6). All of these statistics indicate that pressure ulcers are a very prevalent, painful, disabling, and expensive problem.

On a brighter note numerous studies have found that the heel ulcer portion of the problem is preventable. Duncan, et al, found a heel ulcer incidence of 53% in 30 hip fracture patients hospitalized five days or more. A prospective review of 60 hip fracture patients actively treated with heel pressure relief reduced the incidence to 0% (7).

T.I. Bordner performed a recent study of 52 hip fracture patients followed from admission in the emergency room through their hospital course. Thirty control patients received only high level nursing care, and 22 received the Heelift® Suspension Boot. Seventeen percent of the control patients acquired heel ulcers. There were no heel ulcers in the Heelift® treated cohort (8).

*HEEL PRESSURE ULCERS CAN BE PREVENTED*! Though every patient entering the hospital or nursing home may not be a candidate for wearing a heel pressure relief device full time in bed, surgery, or the recovery room, the high risk patient should. Full time pressure relief is clearly indicated for all patients with:

1) Diabetes--manifest neuropathy [loss of sensation in their feet].
2) Diabetes--manifest peripheral vascular disease- poor or absent foot pulses.
3) Poor or very limited mobility and absence of foot pulses [the posterior tibial and dorsalis pedis should be manually palpable--not just doppler ultrasound]. Examples would be hip fracture, stroke with paralysis, unconsciousness, and limited mobility such that bed to wheelchair assistance is required.
4) Patients undergoing multihour surgery who have no palpable pedal pulses and will be immobile in the recovery room and bed for hours afterwards.
5) Patients with severe peripheral vascular disease who have no popliteal [knee] pulses or pedal [foot] pulses even when not diabetic.
6) Patients with a past history of pressure ulcers as might be seen in those with poor nutrition, spasticity, contractures, or agitation.
7) A Braden Score of 15 or less (8).

The first line of defense against all pressure ulcers is a thorough admission assessment including the Braden scale. The frequent turning and repositioning of the immobile high-risk patient is a known requirement. Good observant nursing care is most important. However the mobile patient can have many of the above risk factors and their heels are also in jeopardy. Heel sensitive nursing care might include:

1) At the end of each shift, departing nurses check all heels and open up all pressure relieving devices. This allows the leg to rest in the device and the skin to cool and dry. Those devices with open heel areas provide ease of palpation or visualization.
2) At the beginning of each shift the incoming nurses observe and/or palpate all heels and close up all pressure relieving devices.
3) The nurse or physician makes 'Scissors' rounds and vertically splits the heels on all graded pressure stockings (anti-embolic hose). Compression stockings are difficult and time consuming to remove for either palpation or visualization of the heels. A vertical split across the heel allows the stocking to retract and relieves the constant heel pressure. The heel is now more easily observed or palpated.
4) Pedal pulses are palpated and recorded by a reliable observer at least every 48 hours.
5) True heel pressure relieving devices should transfer pressure onto the calf, and off of the heel.

Simple heel pads of any material that are placed under the heel itself are not only useless but increase heel pressure. The heel pressure relief device chosen should provide certain benefits and no risks.

1) Complete heel pressure elimination!
2) Good forefoot support to prevent foot drop and heel cord contractures.
3) Good mobility. Low friction against bed sheets helps to keep the foot properly positioned in the device, and allows the patient to move their legs if they can to prevent DVT.
4) Adjustable- can control rotation; will not bottom out under the bariatric patient.
5) Reasonable cost to the institution.
6) Safe- Will not injure or ulcerate the ipsilateral or contralateral limb.

Selling the patient and hospital on low cost prevention may occasionally be difficult. Patients often are annoyed by anything covering their feet or interfering with movement. Heel pressure relieving devices are often found in bed with the patient and not on the patient. This situation requires patient education.

Hospital administrators are under constant pressure to cut costs. They must also be educated and given an understanding of the immense costs of treating just one heel ulcer. There are many papers demonstrating the increased length of stay associated with heel ulcers, and the associated increased hospital costs.

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