Background & Overview

Heel ulcers account for 30.3% of total pressure ulcers and are the second most common site for skin breakdown. Increased lengths of stay, inconvenience, and higher medical costs make complex heel pressure ulcers one of the most costly health complications in the elderly. Costs to treat pressure ulcers range from $2,000 to $30,000 and can be as high as $70,000 for a complex full-thickness pressure ulcer.1

Most heel pressure ulcers can be prevented and are often viewed as quality-of-care indicators. Risk identification and assessment of comorbidities combined with an effective heel pressure ulcer prevention protocol and early, aggressive implementation of pressure-relieving devices can reduce the incidence of heel pressure ulcers. 2 The results are decreased care costs and fewer complications, improved patient outcomes and quality of care. The most common risk factor for pressure ulcer development is impaired mobility. Patients who are completely immobile and unable to reposition their lower extremities should have a care plan that includes total-relieving pressure on the heels. Because of its small surface area and high interfacial pressure, the heel is the most difficult anatomical areas to be addressed by protective devices. Support surfaces, including special bed mattresses, and overlays, do not provide complete pressure relief in the heel region.3 Common methods of floating the heels off the bed, such as through the use of pillows or foam blocks, have had limited success in the prevention and control of heel ulcers.4,5

Methods

All patients were assessed on admission for risk of pressure ulcers. Patients scoring 18 or below on the Braden scale were automatically placed on the intervention protocol which called for the use of a new pressure-relieving heel protector boot to suspend heel(s). Two patients scoring 18 IMCU and six from the nursing home were included in the study — both heels were treated in all cases, for a total of 16 devices.

Results

Complete prevention of heel ulcer patients

No new pressure ulcers developed during the 10-week intervention period.

Effective healing of existing heel pressure ulcers

One patient with multiple pressure ulcers at initiation of the trial (from friction and shear due to thrashing in bed) had complete closure of wounds.

One patient with Stage IV heel ulcer demonstrated progress toward healing, with ultimate complete closure of wounds.

Device efficacy and durability

The pressure-relieving heel protector device was found to be efficacious in the sitting position (important for residents in nursing homes) and in bed. Although the device was marketed for critical care and short term use, we liked the design and hoped to find that it would be durable enough for long term care. While the manufacturer recommends wiping clean with a disposable cloth, and advises against using an industrial washer and dryer, they recommend if such is utilized, to use a gentle cycle with the device in a linen bag and allow to dry air. We used a non-commercial washer and dryer unit for device care, and found that the boot held up well even at 10 weeks.

Conclusion

A pressure ulcer prevention protocol that incorporates comorbidity risk factors and early implementation of effective pressure-relieving devices with frequent assessment of heel skin integrity is effective in reducing the incidence of heel pressure ulcers.

The positive outcomes of this study are attributed to the use of the new pressure-relieving heel protector boot, which is also featured in a positive outcome experience recently published by Walsh and Ploeoczynski in the March-April JWCC.6

The findings of this study demonstrate that the new pressure-relieving heel protector boot:

is effective in the prevention and treatment of heel pressure ulcers

The researchers concluded that the new pressure-relieving heel protector device not only significantly reduces the risk of developing heel pressure ulcers in a high risk population for whom pillows placed lengthwise under lower legs with heels suspended is not effective, but also is efficacious in treating existing heel pressure ulcers.

was well-received by staff and patients

Staff readily accepted the use of the pressure-relieving heel protector because of its ease of use, ability to fit most patients, durability and patient comfort.

Patients were able to wear the boot in a sitting position.

is now being used in all of our facilities

Based on the success of this 2-month trial, all of the Archbold Medical Center facilities have converted to using the pressure-relieving heel protector boot.

The impact of this will standardization of a system-wide protocol that prevents heel ulcers in high risk patient populations and substantial cost savings in treating heel pressure ulcers.

References

1. Amlung SR, Miller WI, Bosley LM. The 1999 National Pressure Ulcer Audit. Archbold Medical Center, Thomasville, Georgia


