

SUCCESSES IN REDUCING HEEL PRESSURE ULCER WOUND SIZE BY OFFLOADING HEELS WITH AN ENGINEERED OFF-LOADING HEEL PROTECTOR

Author: Brock Liden, DPM, Berger Hospital Wound Care Clinic, Circleville, OH
Co-Author: Alexis Taylor, MS¹

Background

Heel pressure ulcers (or decubitus ulcers) are painful and serious medical conditions affecting surgical and other non-ambulatory patients.²⁻⁴ Once present, these ulcers can be extremely difficult to manage. Published studies and pressure ulcer guideline recommendations suggest that pressure relief, or offloading, is the most important aspect of heel ulcer prevention.⁴ This retrospective pilot study assessed the effectiveness of a pillow-based off-loading heel protector engineered specifically for offloading and protecting the heels of non-ambulatory patients. The heel protector was used as an adjunct to advanced wound care modalities in reducing wound size of chronic heel pressure ulcers.

Methods

Pilot study population:

- 3 non-ambulatory patients with 6 chronic heel pressure ulcers (n=6)
- Each patient had complex conditions that made treatment difficult, including diabetes, edema, and pain.
- All ulcers were being managed with aggressive advanced wound therapies, which showed minimal success.
- To reduce the size of the ulcers and in combination with standard modalities, each of the 3 patients received the off-loading heel protector⁵ and underwent education regarding proper application and use.
- Wound size data including the length, width, and depth of each ulcer were collected at regular clinic evaluations.
- Statistical analysis was performed.⁶ Ulcer depth, area, and volume measurements were compared between baseline and most recent evaluations.

Results

A trend towards **reduction in ulcer size** was observed.

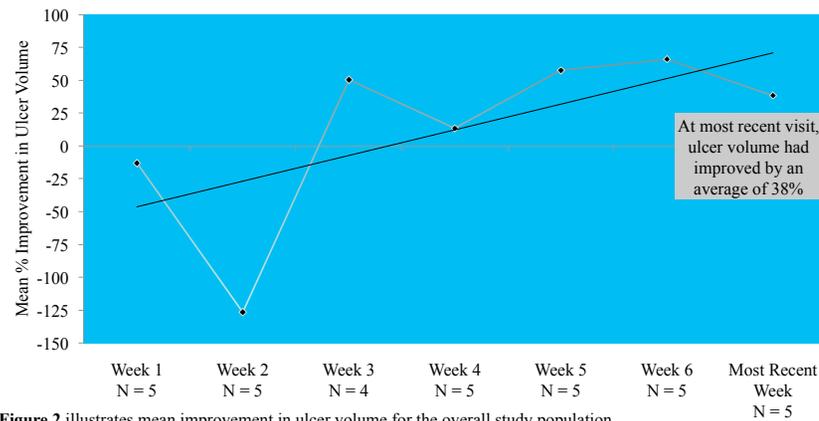


Figure 2 illustrates mean improvement in ulcer volume for the overall study population.

Discussion

•With use of this off-loading heel protector, the investigator saw a clinically significant decrease in wound size of each of the 6 ulcers. A lack of statistical significance may be attributed to the small patient population of this pilot study. Such results may warrant further study in larger populations.

•Case study Patient #2 (Figure 3):

- This patient's right heel pressure ulcer was made further complicated by comorbidities including diabetes, peripheral vascular disease, edema, and pain.
- Per clinic notes, this patient related that he noticed a **great deal of pressure relief on the ankle** when he started wearing the heel protector.
- 73% reduction** in overall wound size over just 8 weeks with use of this offloading heel protector.

A pillow-based off-loading heel protector⁵ engineered specifically for offloading and protecting the heels of non-ambulatory patients was used in addition to standard wound care protocols for heel pressure ulcers.



Case Study: 73% reduction in overall wound size over just 8 weeks with use of this offloading heel protector.



Figure 3: Baseline (left) and most recent follow-up (right) evaluation photographs of an ankle ulcer (#2). This wound decreased in size—90% by volume, 80% by depth, and 50% by area—for an overall decrease of 73%.

Conclusions

The addition of this offloading heel protector to standard wound care protocols showed great improvement in reducing wound size in the majority of the heel pressure ulcers over a short period of time. This was significant because these patients had previously been unsuccessfully treated for an extended time with various standard of care methods. In addition, the heel protector may be effective in relieving pressure experienced by the patients, potentially increasing comfort and compliance. These encouraging results are being used as support for a multi-center, prospective, randomized, controlled study comparing treatment and patient satisfaction between this heel protector and standard of care offloading techniques for the treatment of heel pressure ulcers.

Notes & References

1. Independent Research Consultant, Sage Products, Inc., Cary, IL.
2. Park-Lee E, Caffrey C. Pressure ulcers among nursing home residents: United States, 2004. NCHS Data Brief, 2009;14:1-8.
3. Clegg A, Kring D, Plimmons J, Richbourg L. North Carolina wound nurses examine heel pressure ulcers. J Wound Ostomy Continence Nurs. 2009;36:635-9.
4. Fowler E, Scott-Williams S, McGuire JB. Practice recommendations for preventing heel pressure ulcers. Ostomy Wound Manage. 2008;54:42-8, 50-2, 54-7.
5. Sage Products, Inc., Cary, IL: Prevalon Heel Protector with Integrated Wedge (#7355).
6. Statistical analyses were performed using SigmaStat® Software, version 2.0 (SPSS, Inc., Chicago, IL). Statistical differences were considered significant when the p-value was less than or equal to 0.05 with a power of at least 0.80. Paired t-test was utilized to compare normally distributed continuous variables.