

Pressure Injury Prevention Using Low Air Loss in the Burn ICU

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Introduction

Low air loss support surfaces have been used for the prevention and treatment of pressure injuries (PI), formerly pressure ulcers, for many years¹. Incidence rates for an intensive care unit (ICU) may be as high as 38 percent¹. The risk factors and incidence of PI in the burn population are not well known². There is some data to suggest burn patients and possibly Stevens-Johnson syndrome (SJS) patients are at higher risk of developing PI based on admission Braden Scale scores³.

Caring for burn patients is typically expensive—an average of more than \$88,000 per patient⁴. Additionally, the average hospital-acquired pressure injury (HAPI) can cost a facility \$70,000¹. This amount may be higher in the burn population due to multiple comorbidities, such as immobility and protein loss. A clinically effective support surface is an important tool in the care of the ICU burn patient. Air-fluidized therapy (AFT) is the historical standard of care. The purpose of this study was to examine—with the use of a high-volume low air loss immersion support surface—PI incidence in a group of patients admitted to an acute burn unit. The study was conducted in the southern part of the U.S.

Methods

After obtaining IRB approval, eligible consecutive adult patients were admitted from Jan. 2016 to June 2017 and from Jan. to Sept. 2018 to a regional burn center and enrolled. Subjects who would normally be placed on air fluidized therapy were placed instead on a high-volume low air loss immersion support surface. All other routine unit protocols were followed. General demographic data included age, gender, height,

and weight. Medical history, major comorbidities, and pre-albumin were also collected, as well as type, percentage, and degree of burn. All subjects were assessed upon admission for pre-existing pressure injuries. All subjects were followed the length of the admission and reassessed upon discharge. For patients with a PI, the location and stage of the PI was noted. Qualitative survey data was also collected from the nursing staff who used the support surface.

Results

193 patients were enrolled in the study (123 male and 70 female). Thirty eight of the subjects were not burned but were followed because of complex skin diagnoses such as necrotizing fasciitis and SJS. Of those burned, the majority had 2nd to 4th-degree burns. The length of time on the high-volume low air loss immersion support surface ranged from one to 123 days. The average time was 13.47 days, with 2,600 total patient days on the support surface. Twenty-six patients were admitted

with pre-existing PIs. Five patients received a HAPI; all had a Stage 2 PI to the coccyx, for an incidence rate of 2.59 percent.

Conclusion

While this was a study of 193 patients, only five patients obtained a pressure injury on the high-volume low air loss immersion support surface, showing promise for reduction of HAPIs in the burn population. This immersion support surface may reduce the number of HAPIs in the burn population. The results of this study warrant further study with a larger sample.

References

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193 Patients in study 2,600 Patient days on surface 5 Hospital-acquired pressure injuries

2.59% HAPI rate

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Poster Presentation at The National Pressure Ulcer Advisory Panel (NPUAP) Annual Conference, St. Louis, Mo., 2019

