

Effect of pre-operative wound characteristics and previous treatments on pressure ulcer healing outcomes and disposition

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Background

- Pressure ulcers = injuries to the skin and underlying tissue that often develop into chronic wounds
- Common complications include dehiscence, maceration, drainage, and necrosis
- Many patients require long-term rehabilitation to achieve functional recovery

Research Objectives

The purpose of this study is to evaluate the association between wound characteristics and treatments prior to surgical closure and wound healing outcomes, including complication rates, closure rates, and patient disposition

Methods

- Post-hoc analysis of RCT data which included 80 patients with grade III-IV pressure ulcers, admitted for surgical closure at NMH
- Primary outcome of initial RCT: effectiveness of two offloading systems – found no differences
- On admission, wound location, size of wound (length, width, depth), and previous wound treatment (previous closure, debridement, negative pressure wound therapy, hyperbaric oxygen, biologics, revascularization) were recorded
- Patients were also followed for at least 1 year post-closure for assessment of wound status, complications, and long-term disposition
- Outcomes for this post-hoc analysis: 2-week complication rates, length of hospital stay, disposition on discharge, and wound closure rates at 2 weeks, 1 month, 6 months, and 12 months

Table 1. Effect of Wound Location

Outcome	Ischial wounds	Sacral wounds	P-value or odds ratio (CI)
2-week complication rate	11%	44%	OR = 0.16 (0.04-0.59)
Average # complications	0.19	0.67	p = 0.01
Length of hospital stay	14 days	15.7 days	p = 0.04

Table 1: Summary of differences in outcomes for patients with ischial vs. sacral pressure ulcers

Table 2. Effect of Previous Treatments

Outcome	Previous treatment	No prev. treatment	P-value or odds ratio (CI)
% discharged to LTAC	80%	39%	OR = 6.22 (1.07-36.2)
Avg # comps (for previous wound closure only)	0.09	0.42	p = 0.01

Table 2: Summary of differences in outcomes for patients with and without previous treatments prior to surgical closure

Results

- 68 patients completed the study - 36 (53%) had ischial wounds, 25 (37%) had sacral wounds, and 7 had wounds in other locations
- Patients with sacral wounds had significantly increased 2-week complication rate, total number of complications, and length of hospital stay compared to ischial wounds (Table 1)
- Patients who received previous treatments prior to surgical closure had a lower chance of being discharged to a long-term care facility
- Patients who had a previous wound closure had a lower average number of complications (Table 2)
- No other previous treatments had significant impacts on short- or long-term outcomes
- Increased initial wound volume led to significantly lower chance of closure at 14 days (p = 0.006), but did not impact long-term closure rates

Limitations and Conclusions

- Any previous treatment prior to surgical closure decreases the need for long-term acute care.
- Many wound treatments like NPWT have been shown to improve wound healing outcomes in other studies. The low sample size in this study was likely insufficient to investigate the impacts of individual treatments.
- Sacral wounds were associated with significantly worse short-term outcomes compared to ischial wounds, but long-term disposition was not affected.
- Further investigation into short-term wound care for patients with sacral wounds is warranted to prevent complications and prolonged hospital stays.