Reducing Peri-Operative Pressure Ulcers in Thoracic, Cardiovascular, and Spinal Surgery patients: Achieving ZERO Incidence is Possible!

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ABSTRACT

Reducingiatrogenic skin injuries is an institutional priority of all hospitals today1. Historically, pressure ulcer (PU) prevention in surgical patients has focused on postoperative nursing practices such as assessment, pressure relief, nutrition, and skin care2. At the University of Virginia (UVa), two studies were undertaken in surgical patients at high risk for hospital acquired pressure ulcers (HAPU). The studies included a well defined skin care bundle plus use of a soft silicone dressing pre procedure. The results showed a significant reduction of pressure ulcers postoperatively prompting the house wide adoption of the dressing as part of comprehensive pressure reduction program.

BACKGROUND

Retrospective review of pressure ulcer prevalence rates at UVa showed that postoperatively, Thoracic and Cardiac surgery patients had a high incidence of pressure ulcer formation. Another subset of patients positioned prone for complex spinal fusion procedures on the Jackson Table revealed similar risk stratification.

The surgical patient faces increased risk such as prolonged immobility, surgical positioning, hypoperfusion, hypothermia, length of procedure, and application of external force to secure surgical devices2. Patients positioned prone intraoperatively for spinal surgery on the Jackson table were at risk for PU over the chest and iliac crests. High risk ICU bound cardiac or thoracic procedure patients were at risk for PU over the sacrum. A quality improvement project was undertaken with the Peri-Operative team with the goal to decrease or eliminate HAPU in the Thoracic, Cardiac and Spinal surgery patients.

METHODS

A convenience sample of adult spine, cardiac and thoracic surgical patients were treated with an application of a soft silicone self-adherent bordered foam dressing to anterior bony prominences during prone positioning for spine surgery as well as sacral application for supine cardiac and thoracic surgical procedures2. Multiple skin integrity assessments were integrated into the study, with final follow up at 72 hours post-operatively by a CWOCN.

First Study – Pre Procedure, Sacral Border Dressing* was placed on 71 adult patients in the Sacrococcygeal area in thoracic and cardiac patients that were ICU bound.

Second Study – Pre Procedure, Border Dressing* was placed on iliac crest and chest on 104 adult spine surgery patients. The study was continued with 114 adult patients serving as controls comparing standard of practice (without the dressing)

A comprehensive approach including pre-procedure interventions and post-procedure interventions were incorporated into the project

1. Multiple skin integrity assessments were integrated into the study, with final follow up at 72 hours post-operatively by a CWOCN.
2. All applicable pre, intra and post op nurses were informed of the project.
3. The study patients charts were flagged with a hot pink sheet
4. Intra-operative team included nurses, surgeons, anesthesia providers and patient care technicians
5. Assessment of patient preoperatively was done by OR nurses immediately prior or upon positioning on OR table for skin assessment
6. The silicone dressing was applied on targeted identified areas (historical information)
7. The area under the dressing was visualized immediately post procedure, prior to transport out of OR
8. Nursing Documentation included skin assessment pre procedure, intra-operative positioning, length of case and skin assessment post procedure
9. Handoff of care to postop destination included all of the above information
10. Silicone dressing was left in place on supine patients to prevent pressure ulcers

The surgical patient faces increased risk such as prolonged immobility, surgical positioning, hypo perfusion, hypothermia, length of procedure, and application of external force to secure surgical devices2. Patients positioned prone intraoperatively for spinal surgery on the Jackson table revealed similar risk stratification.

Conclusions

First Study - In 71 patients positioned supine in OR there were ZERO pressure ulcers observed in the Sacrococcygeal area as compared to 16.7% in historical controls. Two patients in this group experienced mild contact dermatitis from the dressing / device.

Second study – (with control group showed) - In 104 patients there were ZERO pressure ulcers observed on the skin overlying the chest and iliac crests as compared to 12 injuries in control group of 114 patients without dressing, a rate of 10.5% incidence. 3 of 104 patients (2.9%) suffered minor injuries in areas adjacent to dressing, none resulted in Stage 3 or greater pressure ulcers. The findings were statistically tested and found to be significant (p =0.0319).

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REFERENCES

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PRODUCT NOTATION

* Mepilex Border Dressing by Molnlycke Health Care
** Mepilex Border Sacrum Dressing by Molnlycke Health Care