

Pressure Ulcer Prevention: Enhancing the Perioperative Cardio-Thoracic Patient Experience

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Purpose & Rationale

The purpose of this evidence-based research is to analyze a series of nursing interventions to reduce pressure ulcer (PU) prevalence in the cardio-thoracic surgical patient population. 1) standard operating room (OR) bed surfaces were replaced with non-memory fluid pressure redistribution mattresses in the cardio-thoracic OR suites, 2) replaced water-filled warming blankets with forced-air underbody warming blankets to reduce negativity between the patient and the therapeutic mattress surface and 3) implemented the use of a therapeutic mattress surface for use during the immediate post-operative phase in the intensive care unit (ICU).

Research Question

The study was initiated to answer the question: Should the ICU experience be considered an extension of the intraoperative phase of the cardio-thoracic surgical intervention in an effort to reduce the rate of PU in the cardio-thoracic surgical patient population?

Synthesis of Review of Literature

A review of the literature revealed that PU formation is the result of physical force of pressure. The intensity and duration of pressure causes ischemic changes at the cellular level. Studies have shown that all patients undergoing surgical procedures 2 hours or greater are at risk for PUs and that the Braden Score is not a predictive tool in this patient population. The rate of PUs in the cardiothoracic surgical patient is 9.2% to 38% of total rate of PUs that occur during the intraoperative period. The higher risk and rate of PU in the patient population is related a compromised cardio-respiratory system, pre-operative diagnostic procedures, duration of the surgical procedure, and an extended period of restricted movement post-operatively.

Methods/Procedures

A retrospective chart review is utilized to collect data on all cardio-thoracic patients with PUs reported post-operatively. Data collected includes length of surgery, age, extracorporeal circulation, hypotensive event, ASA score, intra-procedure body temp, re-warming surface, OR bed surface, and Braden Score.

Results

Data collected 2 months post implementation of the therapeutic mattress surface for the patient post-operative/ICU experience demonstrated a dramatic reduction in the rate of PUs. Preliminary findings confirmed a 7.1% reduction in the rate of occurrence of PUs in the cardio-thoracic surgical patient population when compared to the same time period in 2009. On-going data collection continues to demonstrate a dramatic reduction in the rate of PUs as a result of the implementation of the use of a therapeutic mattress surface during the ICU patient experience.

Discussion/Application to Practice

This research led to the reduction rate of occurrence of PUs in the cardio-thoracic surgical patient population and was the impetus for the concurrent execution of a PU prevention program for all perioperative patients. A Skin Risk Assessment tool was designed to identify all patients at high risk for PUs and standard OR bed surfaces were replaced by visco-elastic foam mattresses. The significance of this study is that findings are applicable to all surgical patients and documented research is limited.