Pressure Ulcer prevention strategies in prolonged surgery
A Prospective Study

The Operating Room presents a potential high-risk environment for pressure injury. Development of pressure ulcers (PU) in surgeries of extended length is an undesirable clinical outcome. The patient who has undergone prolonged surgery (> 4 hours) may experience increasing multi-factored risk of pressure injury. PU that originate during surgical procedures may appear within a few hours post-operatively, but the majority usually become evident one to three days after surgery. Post-operative PU development is more prevalent than originally thought, possibly due to skin integrity assessment omission in the immediate post-operative period. Of the literature reviewed, very few studies have documented the incidence for intra-operatively acquired PUs (8.5-30%) and none have evaluated a systematic preventative plan. This ongoing quality improvement project details an improvement plan designed to intervene in a clinical trend of pressure ulcer development post-prolonged surgeries.

Background

1. To determine the incidence of pressure ulcers (PU) post prolonged head and neck surgery
2. To determine the outcome of interventional strategies on PU development over time

Methodology

Utilizing the FOCUS-PDCA model, an improvement plan was developed in patients undergoing surgery of ≥ 4 hour duration. A patient monitoring protocol was developed which included a full demographic database, a pre-operative risk assessment, an intra-operative prevention method documentation with a skin integrity check list and a post-operative OR/ICU Nursing skin assessment handover. The patients were monitored for signs of PU development for the next 7 days. Possible risk factors along with pressure ulcer reduction interventions were evaluated including utilization of an OR specialty mattress, Intra-operative PU prevention documentation, and use of OR positioning devices.

Results

Over a 3 year period, 1479 patients (H&N n= 230) were monitored for PU development post-prolonged surgery. The initial PU incidence was 23.5%. After implementation of a OR specialty mattress trial, the incidence decreased to 10%. With the use of additional mattresses/positioning devices, Intra-operative PU prevention documentation, and OR/ICU skin assessments, the incidence further decreased to 5%. The PUs that developed were either stage I or II; none of the ulcers progressed to a higher stage. Neither age nor gender was found to be a risk factor for PU development. Duration of surgery was found to be the most important risk factor in PU development (p< 0.05). The site of PU development was found to be the patient’s back in 50% (scapula 29%) of the cases which we think were related to the use of shoulder supports for neck extension and ECG pads (Figure 3). Increased LOS was associated with PU development (p< 0.05).

Conclusions

Downward trends in PU development were found to be related to the implementation of interventional strategies, specifically use of a specialty mattress. The high level of staff awareness, meticulous documentation and continuous monitoring prevented further progression of an early stage 1-2 PU.

References