

Preventing Perioperative Peripheral Nerve Injury in Surgical Patients using Clinical Decision Support

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Abstract

Peripheral nerve injuries (PNIs) are an adverse complication from surgery. This quality project has four objectives: 1) Raise the awareness of peripheral nerve injury for operating room (OR) nurses; 2) implement a decision support screen to assist in the patient assessment and offer evidence-based interventions; 3) improve the nursing documentation of patient positioning; and 4) decrease the overall incidence of PNI.

Introduction

A PNI is defined as the interruption of electrical activity that affects either the motor, or sensory, or to both nerve functions. The PNI incidence rates for upper or lower extremities range from 0.02% to 21%¹. The causes of a PNI are considered multifactorial. Risk factors play a significant role in increasing a patient's susceptibility².

Methods

This project introduced the OR nurses to decision support with the implementation of a PNI risk assessment screen. Study design was quasi-experimental, involving all 44 operating rooms in an academic medical center. Primary outcomes included an increase in both PNI knowledge and documentation of interventions. Nurses were also introduced to basic decision support and reminders instructed them to document patient positioning.

Evaluation

Baseline data was obtained via retrospective audit of nursing documentation on patient positioning. PNI assessment screen components were validated with OR nursing experts. Use-case document assisted with determining the limitations of the PNI screen. One investigator developed an online survey that was used as a reference point on measuring baseline nursing knowledge about PNI before the educational presentation. Education on PNI and an introduction of the PNI assessment screen was accomplished. PNI incidence rates were determined using ICD-9 codes.

Outcomes

Use of the PNI decision support screen was voluntary. The PNI screen was completed an average of 51% over a 60 day time period. There was an increase in OR chart nursing documentation of PNI interventions from 63% to 92%, which was statistically significant. OR nurses agreed that decision support has the potential to improve patient outcomes. Due to the low frequency and the study duration it was not possible to demonstrate a decrease in PNI incidence rates. However, these data will now be tracked over longer time intervals. Baseline incidence rates of common areas of PNI injury are consistent with previous studies.

Conclusion

An educational program on PNI and the decision support screen raised OR nurses' awareness, improved documentation, and was well accepted by the staff. The two reminders had a positive effect on documenting patient care and PNI interventions. Decision support had minimal impact in their workflow according to post-survey results.

References

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