

An Exploration of Postoperative Delirium and Unplanned Perioperative Hypothermia in Surgical Patients

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Introduction: Postoperative delirium (POD) may impact 72% of surgical patients and has been associated with increased hospital length of stay, one-month mortality, post-acute discharge to long-term care, and a higher probability of developing dementia. These adverse events contribute to significant increases in healthcare costs.

Identification of the Problem: Unplanned perioperative hypothermia (UPH) has been mentioned as a trigger for POD, but the relationship has been inadequately explored.

Purpose of the Study: The purpose of this study was to investigate associations between UPH and the incidence of POD among adults undergoing non-cardiac surgery.

Methodology: A retrospective, exploratory study using practice-based research methodologies was conducted. Data were electronically abstracted from a purposive convenience sample of medical records of all adult patients undergoing non-cardiac surgery from January 2014 to June 2017. Logistic regression predicting probability of POD conditional on UPH and other known and suspected associated variables was conducted. The analyzed dataset included 22,548 surgeries, of which 9% experienced documented POD.

Results: Mean age was 63.23 (\pm 15.37); mean number of hypothermic minutes was 42.41 (\pm 55.19). 44.7% of the sample was male and 91.4% received general anesthesia. Logistic regression indicated that a patient's ASA class was the strongest predictor of POD ($\chi^2=1207.11$, $df = 4$, inclusive of all ASA class terms). Of particular interest, a significant relationship between UPH and POD ($\chi^2=54.94$, $df = 4$, inclusive of all UPH terms) and a complex relationship among UPH, patient age, ASA class, and POD was also found.

Discussion: Surprisingly, UPH was found to be protective to the development of POD in the oldest of old. UPH, however, was a contributing factor to POD in the younger patient, particularly sicker patients, although assessment for and documentation of POD was missing in many younger patients.

Conclusion: There is a relationship between UPH and POD. Notably, there is also a complex relationship in the non-cardiac surgery population among UPH, age, ASA class, and POD.

Implications for Perianesthesia Nurses and Future Research: This study builds the science of perianesthesia nursing by identifying the relationship between UPH and POD. Further study is indicated to explore the physiology associated with the protective impact of UPH on POD while considering the adverse effects associated with UPH.