The Effect of Pre-Operative Warming on Intra-Operative and Post-Operative Normothermia and Surgical Outcomes in ERAS Protocol Bowel Resections

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Introduction: Patients undergoing surgery face the risk of unplanned hypothermia, which is associated with adverse patient outcomes.

Identification of the Problem: Forced-air warming is a pre-operative standard of care shown to improve surgical outcomes. Further evidence is needed to assess its effect on specific outcomes and normothermia, as current literature is mixed.

Purpose of the Study: This study aimed to contribute to the evidence supporting pre-operative warming as a safe and effective intervention that increases normothermia and improves patient outcomes, including Phase length of stay (LOS), hospital LOS, need for blood transfusion, and surgical site infection (SSI).

Methodology: This study was a prospective observational study and program evaluation. Patients included underwent elective major abdominal surgery. Patients meeting the inclusion criteria were warmed using forced-air warming gowns and Bair Hugger devices in the pre-op department with a goal temperature of ≥36.0°C.

Results: 89.5% of patients warmed in pre-op were normothermic in Phase I. Male sex, age >65, and PMH of respiratory disease, diabetes, hypertension, and rheumatological disease were all associated with a longer Hospital length of stay (LOS). Age >65 was associated with a longer Phase I LOS. Patients in the study had low rates of SSI (0%) and blood transfusion (5.2%).

Discussion: The results of this study would be considered mixed when addressing the original study objectives. No safety events were reported using forced-air warming units, and positive patient outcomes (Blood transfusion and SSI) support the practice as safe and effective. The effect of forced-air warming on Phase I LOS and hospital LOS was inconclusive.

Conclusion: This study contributes to evidence supporting pre-operative warming as a safe intervention, as no forced-air warming safety events were reported. Positive patient outcomes were identified. The effect of forced-air warming on Phase I LOS, hospital LOS, and increased normothermia was inconclusive.

Implications for perianesthesia nurses and future research: Due to the low generalizability of this study, the authors do not believe that the mixed results warrant any change to current practice. This study can provide some lessons learned and improvements for future study designs. Further research is warranted in this population as the rates of colorectal cancer increase in the United States (US).