

## 475356 - HYPOTHERMIA IS ALSO A CONCERN UNDER NEURAXIAL ANESTHESIA

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**Introduction:** The maintenance of intraoperative normothermia has been identified as an important factor in the reduction of surgical site infections, intraoperative blood loss, postoperative cardiac complications and PACU recovery time. The impact of prewarming and intraoperative warming on the temperature of patients under general anesthesia has been demonstrated in previous studies. However, the value of these interventions in cases performed under regional anesthesia in the clinical setting has not been clearly determined. This randomized controlled trial was conducted to determine whether preoperative and intraoperative warming of patients under neuraxial anesthesia will result in improved patient temperature during the perioperative period.

**Methods:** Following research ethics board approval, consent was obtained from 120 patients presenting for primary total hip arthroplasty (N=60) or primary total knee arthroplasty (N=60). Subjects were randomized to: (1) active prewarming through a forced-air blanket in the block room for 30-60 minutes as well as intraoperative warming, (2) passive warming through cotton blankets in the block room but active forced-air warming in the OR, or (3) passive cotton blanket warming pre- and intraoperatively. Surgery was performed under spinal anesthesia with sedation. Intraoperative temperatures were monitored at 15 minute intervals through a tympanic infrared thermometer. Preoperative and early postoperative temperatures were also recorded. Recovery room admission and discharge times and incidence of shivering were noted. Four subjects were excluded from the data analysis due to failure of the neuraxial block and administration of general anesthesia. Data are described as mean  $\pm$  standard deviation. Statistical analysis was conducted by ANOVA on temperature data and chi-squared analysis on shivering data.

**Results:** Passively warmed patients were found to have consistently low perioperative temperatures. Only the prewarmed patients had a significantly higher postoperative temperature ( $35.6^{\circ}\text{C} \pm 0.63$ ) compared to those who were passively warmed ( $35.1^{\circ}\text{C} \pm 0.48$ ,  $p < 0.01$ ). Preoperative warming resulted in normothermic conditions at the start of surgery ( $36.2^{\circ}\text{C} \pm 0.57$ ) while patients who were not prewarmed experienced a more precipitous temperature drop ( $35.8^{\circ}\text{C} \pm 0.63$ ,  $p < 0.01$  and  $35.9^{\circ}\text{C} \pm 0.41$ ,  $p < 0.05$  for groups 2 and 3 respectively). Average intraoperative temperature was significantly lower in patients who were passively warmed ( $35.1^{\circ}\text{C} \pm 0.51$ ) compared to those who were actively warmed ( $35.5^{\circ}\text{C} \pm 0.62$ ,  $p < 0.05$  and  $35.8^{\circ}\text{C} \pm 0.60$ ,  $p < 0.001$  for groups 2 and 1 respectively). No difference was found in recovery room length of stay or the incidence of postoperative shivering.

**Discussion:** Patients undergoing primary total hip or knee arthroplasty under neuraxial anesthesia are at risk of developing mild perioperative hypothermia. Active pre- and intraoperative warming of these patients with a forced-air blanket results in higher

temperatures in the perioperative period and can be of benefit as a temperature management strategy. The risks associated with perioperative hypothermia warrant increased attention to the temperature management of this patient population.

**References:** Sessler DI: Mild perioperative hypothermia. *NEJM* 1997; 336:1730-37  
Insler SR and Sessler DI: Perioperative thermoregulation and temperature monitoring. *Anesthesiol Clin* 2006; 24(4):823-37