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Prophylactic Phenylephrine Infusion to Mitigate Intraoperative Hypotension after Spinal Anesthesia among Orthopedic Patients

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Methods

- A retrospective, observational EBP project was conducted at PSHMC.
- Permission was obtained by PSHMC Clinical Innovation and Research Council and deemed exempt from human subjects research by the Providence Health Care Institutional Review Board.
- Patient data was securely extracted, deidentified, and stored in a HIPPA compliant REDCap database.
- Inclusion criteria: Adult patients ≥ 18 years old who received SA
- Exclusions: Pediatric, obstetric, emergency surgery, and surgery lines other than orthopedic.
- IOH outcome determined by absolute mean arterial pressure (MAP) thresholds, as described in Wesselink et al. (2018) systematic review.

Descriptive analyses were conducted to examine baseline demographics and IOH treatment regimens utilized at PSHMC.

- Independent risk factors determined using binary logistic regression and time-to-event (MAP <60mmHg) analyses determined using the Kaplan-Meier estimator (α = 0.05).

Results

The primary objective of this observational EBP project of 3,745 patients was to measure the use of prophylactic phenylephrine infusions among orthopedic surgery patients at PSHMC. Overall, we found that 16% of patients received a prophylactic phenylephrine infusion. The median infusion start time for a prophylactic infusion was 19 minutes following SA (IQ 10-29).

Patients who did not receive a prophylactic phenylephrine infusion following SA had significantly increased risk of MAP <60mmHg for ≥ 10 minutes (RR 3.42, 2.55-4.62, p<0.001). The observed median time to the first MAP <60mmHg was longer in patients who received prophylactic phenylephrine infusions (80 [41-99] vs 29 [16-57] minutes, p < 0.0001). Patients who were male, advanced age, higher physical status scores and history of CVD were more likely to receive a prophylactic infusion.

This project is the first to establish the utilization rate of prophylactic phenylephrine infusions and the incidence of IOH after SA among orthopedic patients at a large academic health center. However, due to the lack of prospective studies, further investigation is warranted.

References