475694 - A DOUBLE-BLIND PLACEBO-CONTROLLED COMPARISON OF 4 FIXED DOSE PHENYLEPHRINE INFUSION REGIMENS FOR PROPHYLAXIS OF SPINAL-INDUCED HYPOTENSION DURING CESAREAN DELIVERY

Ronald George, MD FRCPC¹, Terrence Allen, MBBS FRCA², Holly Muir, MD FRCPC², William White, MPH², Ashraf Habib, MB ChB MSc FRCA²

1. Department of Women's & Obstetric Anesthesia, IWK Health Centre, Halifax, NS, Canada

2. Division of Women's Anesthesia and Critical Care, Duke University Medical Center, Durham, NC, USA

Introduction: The most commonly investigated regimen of phenylephrine (PE) infusion, starting at a dose of 100mcg/min, has been associated with reactive hypertension suggesting that lower doses may be more appropriate (1). This study investigates the dose of PE associated with the least number of physician interventions needed to maintain systolic blood pressure (SBP) within 20% of baseline.

Methods: With IRB approval 109 ASA 1-2 parturients undergoing CD with spinal anesthesia were enrolled. Parturients were allocated to four treatment groups [PE 25mcg/min (PE25), 50mcg/min (PE50), 75mcg/min (PE75), 100mcg/min (PE100)] or placebo (PE0). After three baseline SBP measurements patients received a standard spinal (12mg bupivacaine, 15mcg fentanyl, and 150mcg morphine). Immediately after the spinal, the blinded infusion was started along with a 20ml/kg crystalloid coload. Hemodynamic data was collected every minute for the first 10 minutes and then every 2.5 minutes until 10 minutes after delivery when the infusion was stopped. A decrease in SBP>20% of baseline or a SBP<90 mmHg was treated with 100mcg boluses of PE. An increase in SBP>20% of baseline stopped the infusion. The infusion was restarted if the SBP returned within 20% of baseline. Glycopyrrolate was used to treat bradycardia (<50bpm). The number of interventions needed to maintain SBP within 20% of baseline including the administration of PE boluses, stopping or restarting the infusion, and administration of glycopyrrolate were recorded. The number of hypotensive (SBP<20% of baseline) and hypertensive (SBP>20% of baseline) episodes were also recorded for each group. Statistical analysis was done for all pair wise comparisons using the Fisher and Kruskal Wallis test with adjustments made for multiple comparisons using stepdown permutations.

Results: Eight subjects did not complete the study. Demographics, duration of surgery, volume of fluid infused, estimated blood loss, incidence of nausea and vomiting, and the need for rescue antiemetics were similar among the groups. The results are shown in the table. Phenylephrine 50mcg/min and 25mcg/min were associated with significantly fewer interventions to maintain SBP within 20% of baseline when compared with 100mcg/min. A dose of 50mcg/min reduced the incidence of hypotension and the number of hypotensive episodes when compared with placebo. A dose of 100mcg/min was associated with more hypertension while significantly reducing the incidence of nausea.

Discussion: All infusion regimes significantly reduced the incidence of hypotension when compared with placebo. PE at 50mcg/min or less significantly reduced the number

of physician interventions needed to maintain maternal SBP within 20% of baseline.

References: 1. Anesthesiology 2005;103:744-50.

	PE0 (n=20)	PE25 (n=20)	PE50 (n=20)	PE75 (n=19)	PE100 (n=22)
No. of interventions	2 (1 - 3.5)	0.5 (0 - 4.5)	1.5 (0 - 3.5)	4 (1 - 6)	5 (4-6)*
Pre-delivery hypotension	16 (80%)**	6 (30%)	3 (15%)	2 (11%)	0 (0%)
Pre-delivery hypertension	2 (10%)†	5 (25%)	8 (40%)	14 (74%)	18 (82%)††
No. of hypotensive episodes	2.65±2.45‡	0.9±1.37	0.2±0.52	0.47±1.17	0.09±0.29
No. of hypertensive episodes	0.35±1.35‡‡	1.2±2.33	1.15±1.57	2.79±2.46	4.5±3.85
Hypotension induced nausea	7 (35%)	4 (20%)	1 (5%)	2 (11%)	0 (0%)§

Data are median (IQR), number (%), or mean±sd

*p=0.004 vs PE50, p=0.02 vs PE25

**p=0.001 vs PE50, P=0.0001 vs PE75, p<0.0001 vs PE100

†p=0.0006 vs PE75, p<0.0001 vs PE100

††p=0.008 vs PE25

‡p=0.002 vs PE25, p<0.0001 vs PE50, PE75, & PE100

‡‡p<0.0001 vs PE100

§p=0.04 vs PE0