

PROPHYLACTIC PHENYLEPHRINE INFUSION AND RESPIRATORY MORBIDITY IN NEONATES AFTER ELECTIVE CESAREAN SECTION: INTERIM RESULTS OF AN IMPACT STUDY

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BACKGROUND

- Transient tachypnea of the newborn (TTN) is the most common cause of respiratory distress in term newborn¹
- Incidence of TTN is higher after cesarean section than vaginal delivery¹
- Low systolic blood pressure (SBP) and mean arterial pressure (MAP) is associated with TTN after neuraxial anesthesia in elective cesarean sections²

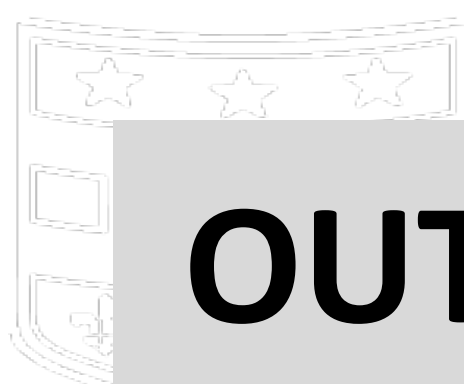
HYPOTHESIS

Maintenance of maternal normotension with prophylactic phenylephrine infusion after spinal anesthesia will reduce the incidence of respiratory morbidity newborns after elective cesarean delivery

METHODS

- Study design: Retrospective, before-after impact study
- In March 2019, our institution began administering prophylactic phenylephrine infusions for all elective cesarean deliveries
- Compared incidence of outcomes in a total of 140 patients before and after the institutional change
- Exclusion criteria: Maternal hypertension, multiple gestation, antenatal steroids, congenital anomalies, spinal anesthesia to phenylephrine infusion start time >5 minutes





OUTCOMES

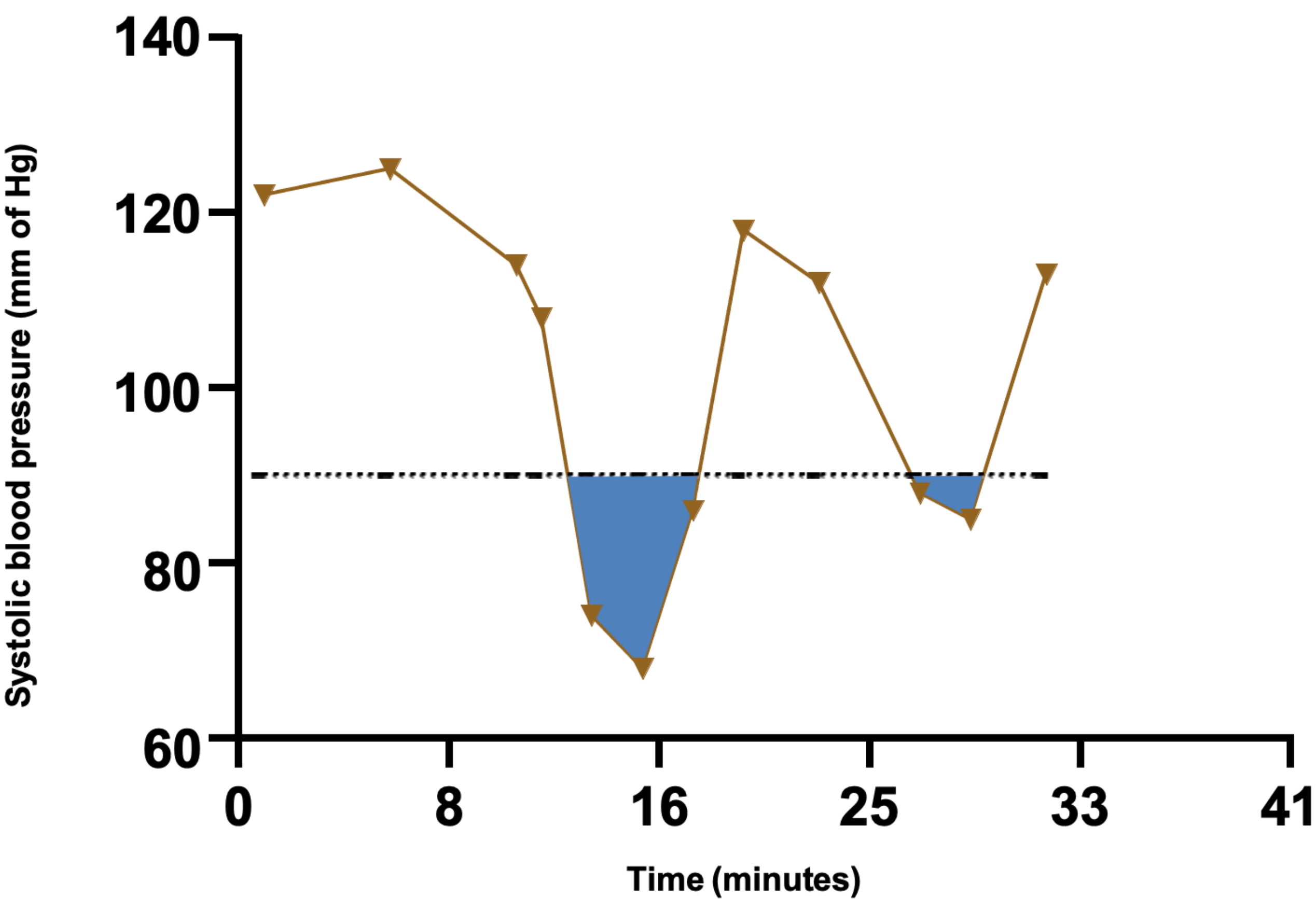
- Primary outcome: Composite of neonatal respiratory morbidity (including respiratory assistance in and outside the OR and higher level of care)
- Secondary outcomes included neonatal pH and base excess, total maternal vasopressor boluses and intraoperative fluids

RESULTS

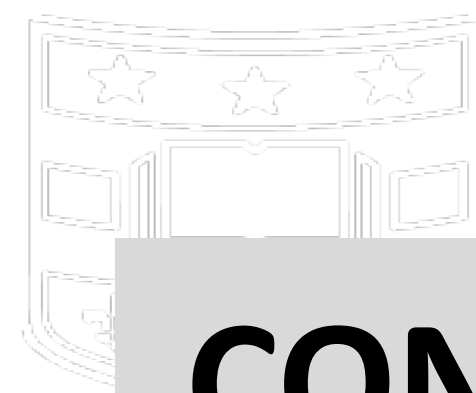
- AUC for maternal SBP <90 statistically significant despite no significant difference in neonatal outcomes before and after institution of prophylactic phenylephrine infusion
- AUC for maternal MAP <65 lower but not statistically different
- Very small statistically significant difference in neonatal pH and base excess

*statistically significant

**no data for one neonate



Outcome	Pre (n=70)	Post (n=70)	p-value
Maternal			
AUC MAP <65 mm Hg*min	947.55	549.96	0.096
AUC SBP <90 mm Hg*min	758.90	290.47	0.04*
Neonatal			
Respiratory assistance in OR	22	20	0.640
Respiratory assistance outside OR	12	8	0.334
NICU admission	0	2	0.154
Special care nursery admission	13	9	0.353
Median cord pH (IQR 25%-75%)	7.25 (7.18-7.27)	7.26 (7.23-7.29) (n=69) **	0.01*
Median base excess (IQR 25%-75%)	-4.3 (-6.25- -3.15)	-3.0 (-4.0 - -2.0) (n=69) **	0.000*



CONCLUSIONS

- Our limited study did not show a difference in neonatal respiratory morbidity despite institution of a prophylactic phenylephrine infusion during elective cesarean delivery
- Our study showed a novel finding that AUC for SBP <90 , but not MAP <65 , was significantly different after institution of the policy, despite no difference in neonatal outcomes. This differs from a prior study that showed AUC for both SBP and MAP correlates with incidence of TTN²

DISCUSSION

- Factors determining uteroplacental blood flow?
- Does MAP contribute more than SBP?
- Limitations of our study

REFERENCES

1. Edwards, M et al. Paediatr Respir Rev. 2013 Mar;14(1):29-36
 2. Singh, S et al. Anesth Analg. 2019 Jul;129(1):162-167
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