The effect of prophylactic low-dose norepinephrine infusion on perioperative hypothermia during cesarean section: a retrospective cohort study

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Background

Perioperative hypothermia during cesarean section under spinal anesthesia is common (≥30%).

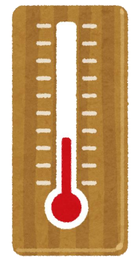
- ✓ Heat redistribution is a major mechanism.
- ✓ Prophylactic vasopressor infusion may attenuate peripheral vasodilation, reducing redistributive hypothermia.

Hypothesis

Low-dose norepinephrine effectively prevents hypotension and may also prevent hypothermia.

Study Aims

To determine whether prophylactic norepinephrine infusion reduces perioperative hypothermia during cesarean section under spinal anesthesia.



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Methods

Study Design: Single-center, retrospective cohort study
Population: Elective cesarean section under spinal anesthesia
Period: 1 year and 4 months before and after May 1, 2024
Cohorts: **NE**: Prophylactic low-dose norepinephrine infusion
HC: Historical control (phenylephrine or ephedrine boluses as needed)
Primary Outcome: Incidence of hypothermia (<36ºC at any point) in the NE vs HC group

Routine management:

- ✓ Forced-air warming (43ºC) upon admission to OR.
- ✓ Maternal core temperature monitoring with a non-invasive zero-heat-flux thermometer.

Results

	Norepinephrine (NE)	Historical Control (HC)	P Value
Number (total 511)	278	233	-
Hypothermia	17.6% (49/278)	24.0% (56/233)	0.080
Shivering	2.2% (6/278)	3.4% (8/233)	0.424
Mean minimum core temperature	**36.4ºC**	**36.3ºC**	0.014

No significant difference in incidence of hypothermia and shivering.
Slightly higher minimum core temperature in the NE group.
No difference in mean systolic blood pressure at any point.

Discussion

- While the effect size was very small, norepinephrine may contribute as part of a multimodal strategy for perioperative normothermia management.
- Routine forced-air warming appears to have been effective in reducing perioperative hypothermia (17.6-24.0% in our cohorts compared to ≥30% commonly reported in the literature).
- The overall incidence of maternal hypothermia remains high, and further work is needed to address this common complication.

Conclusion

Prophylactic low-dose norepinephrine infusion may make a small contribution to the management of maternal hypothermia during cesarean section.