

Hemodynamic Changes of Women with Preeclampsia Undergoing Spinal Anesthesia for Emergency Cesarean Section: A Prospective Observational Study

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Background:

Preeclampsia is a multisystem disorder in pregnancy and remains a significant cause of maternal morbidity and mortality. In this prospective observational study, we used a continuous noninvasive cardiac output monitor to investigate the changes in arterial blood pressure, cardiac output, systemic vascular resistance, stroke volume, and stroke volume variation during the immediate perioperative period

Materials and Methods:

Women with preeclampsia undergoing emergency cesarean section under spinal anesthesia were recruited in this prospective observational study. Cardiac output and arterial blood pressures were measured by the Nexfin monitor. Cardiovascular parameters were recorded intraoperatively and up to 48 h postoperatively. The primary outcome was to examine the differences in cardiac output between the intraoperative and postoperative periods



Results:

Thirty patients included in the data analysis had a mean age of 35.6 ± 5.2 years and gestation of 35.4 ± 2.1 weeks. Post spinal anesthesia, 50% experienced hypotension. 26.7% had nausea, 10% vomited, and other events included shivering, reactive hypertension, and bradycardia. The use of spinal anesthesia was associated with a significant reduction in systolic (126.7 ± 16.9 vs. 142.0 ± 21.2 mm Hg, $P < 0.001$), diastolic (71.2 ± 8.4 vs. 77.0 ± 11.3 mm Hg, $P < 0.001$), mean arterial pressure (92.6 ± 12.2 vs. 103.7 ± 15.3 mm Hg, $P < 0.001$), cardiac output, and stroke volume compared to postoperative readings. No significant difference was found in cardiac output, cardiac index, or systemic vascular resistance indices between the intraoperative and postoperative period

Conclusion:

Spinal anesthesia may have short-term hemodynamic changes in women with preeclampsia. Continuous

noninvasive cardiac monitoring can be used to monitor specific cardiac hemodynamic parameters, which may resolve in the immediate postoperative period