The Effectiveness of Pleth Variability Index to Predict Hypotension Induced by Spinal Anesthesia for Cesarean Delivery.

**Introduction**
Pleth variability index (PVI) is used to predict fluid responsiveness in mechanically-ventilated patients. We investigated whether preoperative values of PVI were potentially correlated with hypotension induced by spinal anesthesia for cesarean delivery.

**Methods:**
Parturient women undergoing elective cesarean delivery without pregnancy-induced hypertension received spinal anesthesia with 0.5% hyperbaric bupivacaine (10 mg) and fentanyl (10 μg) at the third lumbar intervertebral space. Immediately after spinal tap, 500 mL of 6% hydroxyethyl starch was rapidly administered before delivery. Arterial pressure and heart rate were measured twice at 1-min intervals and averaged, and a bolus injection of phenylephrine was administered immediately when the mean arterial pressure (MAP) decreased below 80% of the baseline value. PVI was continuously measured using pulse oximetry (Radical 7TM, Masimo Co, Irvine, CA) on the left index finger. Values, with P < 0.05 were considered statistically significant, and data were expressed as mean ± standard deviation(SD).

**Results**
Nineteen parturients were enrolled in this study. Baseline MAP was 77.5±8.5 mmHg and decreased significantly to 60.4±9.6 mmHg after spinal anesthesia. MAP was returned to 68.1±5.6 mmHg after administration of hydroxyethyl starch; phenylephrine was administered to 10 parturients. Baseline PVI was 15.9 ± 5.2%, and PVI at the right lateral position was significantly changed to 22.1 ± 7.0% before the spinal tap. Administration of hydroxyethyl starch restored PVI to 8.8±3.5%. Simple regression analysis revealed a significant correlation between baseline PVI and minimum MAP, and between PVI at the right lateral position and minimum MAP (r = -0.52, -0.69, respectively; P < 0.05).

**Conclusion:**
PVI could predict hypotension induced by spinal anesthesia for cesarean delivery. In particular, the value of PVI at the right lateral position would be a more precise predictor of hypotension responding to a decrease in the left ventricular preload.