

## **Correlation between pleth variability index and ultrasonic inferior vena cava-collapsibility index in parturients with twin pregnancies undergoing cesarean section under spinal anesthesia**

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**Background:** To explore the correlation and consistency of non-invasive pleth variability index (PVI) combined with ultrasonic measurement of inferior vena cava-collapsibility index (IVC-CI) in parturients with twin pregnancies undergoing cesarean section under spinal anesthesia.

**Methods:** Forty-seven twin pregnancies women undergoing elective cesarean section were selected. The ASA score was rated as I-II, aged from 18 to 45 years. Spinal anesthesia was performed at L3-4. PVI and IVC-CI, general data (BMI, gestational weeks, operation duration, blood loss), MAP, temperature sensory block level and adverse reactions were recorded at baseline (T1) and completion of testing the level of spinal anesthesia (T2).

**Results:** The correlation coefficient analysis of baseline IVC-CI% and PVI revealed that the Pearson's coefficient was 0.927, > 0.4. Thus, pre-anesthesia IVC-CI% had a strong correlation with PVI, with R2 of 85.69%. The correlation coefficient analysis of post-anesthesia IVC-CI% and PVI revealed that the Pearson's coefficient was 0.904, > 0.4. Thus, post-anesthesia IVC-CI% had a strong correlation with PVI, with R2 of 81.26%.

**Conclusion:** PVI is strongly consistent with ultrasound measurement of IVC-CI twin pregnancies, which can be used as a valuable index for predicting the volume in parturients with twin pregnancies undergoing cesarean section under spinal anesthesia. Trial registration This study was registered on ClinicalTrials.gov with clinical trial registration number of ChiCTR2200055364 (08/01/2022).