

## **Effect of continuous spinal anesthesia on the hemodynamics of labor analgesia in hypertensive pregnant women: a comparative, randomized clinical trial**

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**Background:** To observe the changes in hemodynamic, stress and inflammatory responses during labor and their labor outcomes after continuous spinal anesthesia labor analgesia for hypertensive pregnant women, and to evaluate whether the continuous spinal anesthesia had any advantages compared to continuous epidural analgesia for hypertensive pregnant women and their newborns.

**Methods:** A total of 160 hypertensive pregnant women were selected and randomly divided into continuous spinal anesthesia analgesia group (CSA group) and continuous epidural analgesia group (EA group). Participant age, height, weight and gestational week were recorded; MAP, VAS score, CO and SVR were recorded after the onset of regular uterine contractions (T0), 10 min after analgesia (T1), 30 min (T2), 60 min (T3), when the uterine opening was complete (T4) and when the fetus was delivered (T5); the duration of the first stage of labor and the second stage of labor were recorded; the number of cases of treatment with oxytocin and antihypertensive therapy, mode of delivery, eclampsia and postpartum hemorrhage were counted; pregnant women Bromage scores were recorded at T2. We also recorded neonatal weight, Apgar scores at 1, 5 and 10 min after birth; arterial blood gas analysis of the umbilical cord was performed in newborns; finally, TNF- $\alpha$ , IL-6, and cortisol in pregnant women venous blood were measured at T0, T5, and 24 h after delivery (T7). The number of successful compressions and the total drug dosage administered by the analgesic pump were recorded for both groups.

**Results:** The first stage of labor in CSA was longer than EA ( $P < 0.05$ ); the MAP, VAS and SVR value in CSA were lower than EA group at T1, T3 and T4 ( $P < 0.05$ ); in contrast, the CO in CSA at T3 and T4 was higher than in EA ( $P < 0.05$ ). The oxytocin was more often used whereas the antihypertensive drugs were less used in CSA as compared to EA. The level of TNF- $\alpha$ , IL-6, Cor in the CSA at T5 was lower than the EA group ( $P < 0.05$ ), and the level of TNF- $\alpha$  in the CSA group at T7 was lower than the EA group ( $P < 0.05$ ).

**Conclusion:** For pregnant women with hypertension during pregnancy, continuous spinal anesthesia labor analgesia has no significant effect on the final mode of delivery, but shows precise analgesic effect and stabilizes circulatory system, it is recommended to perform continuous spinal anesthesia early in labor for hypertensive pregnant women, which can effectively reduce the stress reaction.

**Trial registration:** ChiCTR-INR-17012659. Date of registration: 13/09/2017.