Analysis of hemodynamic profiles in term pregnancies receiving subarachnoid blockade for cesarean section: A randomized comparison trial between left uterine displacement vs. without left uterine displacement maneuver.

Clinical trials, analgesic techniques, measurement techniques, cardiac output

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Background

- Theoretically technique which was purposed to augment cardiac output (CO) in a term pregnancy who receive subarachnoid blockade (SB) for cesarean section (CS) is the left uterine displacement maneuver (LUD); however, its benefit to hemodynamic profiles entire intraoperative period had never been clarified.
- Goal of this study is to compare differences in hemodynamic profiles of term pregnancies who underwent cesarean section with- vs. without LUD maneuver.

Materials and Methods

- We studied hemodynamic profiles in 60 term-pregnancies who underwent elective CS under SB using non-invasive CO monitor (Nexfin™).
- All patients were randomized into 2 groups which were...
 - LUD group (received 15°-30° of LUD after SB; n=30) and
 - Non-LUD group (no LUD after SB; n=30).
- Patient's hemodynamic variables were measured continuously since pre-SB till the end of surgery. Primary outcome was incidence of maternal systolic hypotension within 5-min following SB, secondary outcome were differences in intraoperative hemodynamic variables between 2 groups.

Results

- There was no difference in preoperative baseline characteristics between 2 groups of patients.
- Patients in LUD groups had significantly lower incidence of maternal systolic hypotension (16.7%) than patients in non-LUD group (53.3%) at both 5-min and 10-min following SB (Fig. 1).
- In pre-fetal delivery phase, patients in LUD groups had significantly higher CO (Fig. 2), higher left ventricular contractility index, and lower systemic vascular resistance (SVR) (Fig. 3) than patients in non-LUD groups.
- In post-fetal delivery phase, the patients received LUD had significantly lower mean arterial pressure (Fig. 4) and lower SVR (Fig. 3), while there was no difference in CO (Fig. 1) and heart rate between 2 groups.

Fig 1. Incidence of systolic hypotension at 5-min and 10-min post subarachnoid blockade (SAB) (Chi-square test, *p<0.05).

Fig 2. Difference in cardiac output over time between 2 groups (Mann-Whitney U test, *p<0.05 compared between 2 groups at a same time).

Fig 3. Difference in systemic vascular resistance over time between 2 groups (Mann-Whitney U test, *p<0.05 compared between 2 groups at a same time).

Fig 4. Difference in mean arterial pressure over time between 2 groups (Mann-Whitney U test, *p<0.05 compared between 2 groups at a same time).

Conclusions

- In term pregnancy patients who received SB for elective CS, performing LUD was associated with lower incidence of maternal systolic hypotension.
- Potential benefits of LUD to maternal cardiovascular system was found confined in pre-delivery phase.