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Perioperative effect of continuous infusion of dexmedetomidine on indirect gas calorimetry monitoring in liver transplantation

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Statement of the Problem: During general anesthesia, endotracheal intubation in the women with pre-eclampsia usually results in stimulation of sympathetic nervous system and catecholamine release and therefore, increase in mean arterial blood pressure (MAP), heart rate (HR) and heart load which adversely affect maternal and fetal wellbeing. The purpose of this study is to assess the effects of dexmedetomidine in attenuation of the hemodynamic responses and fetal outcome in patients with pre-eclampsia undergoing cesarean section (CS).

Methodology: This study conducted on 60 patients with pre-eclampsia undergoing CS classified into 3 groups; groups D1 and D2 received dexmedetomidine in a rate of 1 µg/kg 10 min before induction of general anaesthesia then 0.4 and 0.6 µg/kg/hr respectively, and group C received normal saline with the same regimen. Hemodynamic (MAP& HR) and hormonal responses (blood glucose and cortisol) were assessed before induction of general anesthesia, 1&5 minutes after intubation and then every 5 minutes till 10 minutes after extubation. Postoperative analgesia and sedation state, the rate of dexmedetomidine uteroplacental transfer and neonatal Apgar score were assessed.

Findings: The hemodynamic and hormonal responses to intubation and operative stress were significantly attenuated in D1 and D2 groups than the control group. Visual analogue scale was significantly lower in dexmedetomidine groups than the C group. First time to require analgesia after CS was significantly longer in dexmedetomidine groups. Total morphine consumption was significantly higher in the C group than in D2 and D1 groups. The rate of uteroplacental transfer was comparable in D1 and D2 groups (70.9% vs 75.7% respectively) without adverse neonatal effects.

Conclusion & Significance: Administration of dexmedetomidine in doses 0.4–0.6 µg/kg/h was associated with significant haemodynamic and hormonal stability, and reduces postoperative analgesic requirements, without adverse neonatal outcome. Recommendations are made for using dexmedetomidine as a part of general anesthesia in patients with pre-eclampsia.

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