

Emergency Cesarean Section for a Parturient with Severe Mitral Regurgitation and Vegetations Done under Regional Anaesthesia

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Abstract: *Rheumatic heart disease is the most common cardiac disease complicating pregnancy in developing countries. The most important is to determine the ideal anaesthetic technique for caesarean section in the presence of complex cardiac conditions. We report a case with the successful anaesthetic management of a parturient suffering from rheumatic heart disease with valvular lesion under epidural anaesthesia with good maternal and neonatal outcome.*

Keywords: Epidural anesthesia, Emergency cesarean section, Mitral regurgitation with vegetations

1. Introduction

Management of pregnant women with heart disease remains challenging due to the advancement of innovations in cardiac surgery and correction of complex cardiac anomalies, and more recently, with the successful performance of heart transplants, cardiac diseases are not only likely to coexist with pregnancy, but will also increase in frequency over the years to come. In developing countries with a higher prevalence of rheumatic fever, cardiac disease may complicate as many as 5.9% of pregnancies with a high incidence of maternal death. Since many of these deaths occur during or immediately following parturition, heart disease is of special importance to the anesthesiologist. This importance arises from the fact that drugs used for preventing or relieving pain during labor and delivery exert a major influence – for better or for worse – on the prognosis of the mother and newborn. Properly administered anesthesia and analgesia can contribute to the reduction of maternal and neonatal mortality and morbidity.

2. Case Details

A 21 - year - old primi gravida with H/O RHD was posted for emergency cesarean section at 36 weeks of gestation.

Preoperative examination – H/O exertional breathlessness and chest discomfort since 12 weeks of gestation which gradually occurred on less than ordinary activities with progression of pregnancy.

ECHO – Severe mitral regurgitation with fraction 60%, orifice area – 0.57 cm², regurgitant volume – 60ml /beat, Left atrium and left ventricle dilated. EROA > 0.4cm².

ECG - sinus rhythm. Other blood parameters were normal.

She was prescribed tablet metoprolol 25 mg twice daily, tablet furosemide 20 mg twice daily, pentids 400 mg twice daily, salt restriction, bed rest, and was considered to be at a high cardiac risk for pregnancy.

In the operating room, standard American Society of Anaesthesiologists monitors were applied. Clinical examination revealed tachypnoea, non - invasive arterial blood pressure (BP) 113/60 mmHg, mean arterial pressure (MAP) 73 mmHg, heart rate (HR) 96/min, regular in rhythm, and SpO₂ 100% in room air.

Epidural catheter was inserted through L1 - L2 interspace with the patient seated and was placed 4 cm into the epidural space. Position was confirmed by administering of a test dose of 3 ml of 2% lignocaine with adrenaline. The patient was placed in the supine position with a left tilt of 15° to prevent aortocaval compression and a sensory block to T6 dermatome was achieved by 12 ml of 0.5% bupivacaine in fractionated doses of 3 ml over a period of 20 min. O₂ - face mask at 6 l/min throughout the intraoperative period. A male baby of 2.2 kg with Apgar score 9 and 10 at 1 min and 5 min, respectively, was delivered. Following delivery of the baby, 5 units of oxytocin was administered intramuscularly followed by 5 units in 500 ml of lactated ringer solution infused over 1 h.

Hypotension (BP 116/43 mmHg, MAP 70 mmHg) occurred after oxytocin infusion was corrected by intermittent bolus of 50 µg of phenylephrine. The patient was transferred to ICU for observation for 48 h. Analgesia was maintained with 0.125% bupivacaine at 5 ml/h infusion and paracetamol infusion 1 g for 6 hourly. Patient shifted to the ward after 48 h. Postoperative period was uneventful. Prescribed cardiac drugs were continued throughout the perioperative period. The patient was discharged from the hospital on 7th postoperative day after obtaining cardiac consultation.

3. Discussion

We aimed to maintain hemodynamic stability by maintaining an optimum SVR, preload, heart rate, sinus rhythm, and avoiding myocardial depression and increase in PVR.

Epidural anesthesia in a graded manner using small fractionated doses of local anesthetic to ensure a gradual onset of block and minimize hemodynamic changes resulting from sympathetic autonomic blockade.

We chose to avoid general anesthesia in our patient to avoid polypharmacy, to prevent the rise in PVR and worsening of PHTN resulting from sympathetic stimulation during laryngoscopy, and nitrous oxide inhalation and to prevent myocardial depression in response to anesthetics. We administered oxytocin by intramuscular route and by slow intravenous infusion to avoid tachycardia and diastolic hypotension.

Neuraxial blockade in the form of graded epidural anesthesia that allows a gradual onset of block with avoidance of hypotension by intermittent fluid bolus and judicious use of vasopressors has been used successfully in the past.

Subarachnoid block was avoided to prevent the sudden hemodynamic perturbations. Some authors have described the use of general anesthesia with good maternal outcomes whereas others have reported increased pulmonary arterial pressure during laryngoscopy and tracheal intubation. Adverse effects of positive - pressure ventilation on venous return may lead to cardiac failure. Avoidance of tachycardia is of utmost importance which may be achieved by the use of opioids such as fentanyl before or during the induction of general anesthesia with neonatal respiratory depression as an adverse outcome.

4. Conclusion

Epidural anaesthesia provides a safer alternative to general anaesthesia in parturient with complex valvular lesions. Anaesthetic management was individualized keeping in view the hemodynamic goals relevant to the underlying complex pathophysiology.

Successful management necessitates strict vigilance and an extremely cautious approach to maintain the hemodynamic stability throughout the peripartum period.

5. Author's Contribution

All authors were actively involved in the management of the case and in the process of publication.

6. Financial Support

Nil

7. Conflicts of Interest

There are no conflicts of interest.

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