VOLUME - 13, ISSUE - 06, JUNE - 2024 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Anaesthesiology

ANAESTHESIA MANAGEMENT IN OBSTETRICS WITH SEVERE MITRAL STENOSIS WITH POSTBURN CONTRACTURE.

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ABSTRACT Perioperative management with cardiac disease is challenging. The physiological cardiac changes that occurred during pregnancy lead to haemodynamic stress to patient immediately after parturition. The choice of anaesthesia technique is usually general anaesthesia. 33-year-old female patient G3P1L1A1, 33weeks was planned for elective caesarean section for safe confinement. She had history of burn over her neck 10 years ago, moderate post burn contracture present. Regional anaesthesia with epidural analgesia was preferred due to difficult airway and post operative analgesia could be achieved with epidural top-ups. Ultimately, a good perioperative outcome has been achieved due to haemodynamic stability.

KEYWORDS :

INTRODUCTION

- Rheumatic mitral stenosis forms 88 % of heart diseases complicating pregnancy in tertiary referral centre in India and 25 % of these patients experiencing symptoms for first time during pregnancy.
- Parturients with severe mitral stenosis often do not tolerate the elevated cardiovascular demands during pregnancy due to relatively fixed cardiac output state.
- Young women who have asymptomatic mitral valve disease becomes unmasked due to haemodynamic stress of pregnancy
- Severity of mitral stenosis leads to adverse maternal and fetal outcome.
- Cardiac decompensation, pulmonary oedema, thromboembolism are the maternal adverse event associated with preterm delivery, intra uterine growth restriction, low birth weight is the neonatal outcome.
- Total burn surface area, depth and size of burn and estimating the gestational age of fetus influence mortality and morbidity from burn injury during pregnancy.
- We are discussing about anaesthesia management in patient with severe mitral stenosis with moderate post burn contracture.

Case report

A 33-year-old G3P1L1A1 with 33 weeks of gestation came for safe confinement.10 year ago, she had an accidental burn injury over the front of her neck for which she got admitted and diagnosed with rheumatic heart disease with moderate (neck extension 85 to 95 degree) burn contracture. She was started on injection benzathin penicillin 1.2 g.

Cardiac evaluation with 2d echo showed rheumatic valvular heart disease with severe mitral stenosis (MVA: 0.8cm^2) with moderate mitral regurgitation with moderate pulmonary artery hypertension (50mmHg), left atrial dilatation with good left ventricular systolic function and left ventricular ejection fraction of 50 percent. She has been on tablet furosemide 40mg and tablet metoprolol 25 mg for the past 10 years.

She has a history of full-term normal delivery three year ago with one-episode focal seizure at seven months of pregnancy. She is now scheduled for an elective caesarean section.

Patients vitals were stable, pulse: 80bpm regular, Bp: 110/60mmhg, SPO_2: 99 percent on room air. Airway examination includes, adequate mouth opening [more than three fingers] with moderate post burn contracture. On auscultation, air entry was clear and equal on both sides, systolic murmur grade 3 over the mitral area.

Preoperative investigations (2d echo, ECG) and labs were within normal limit. For this patient, we have planned regional method of anaesthesia (epidural analgesia).

Informed, verbal and written consent was taken. Nil per oral was confirmed. Injection ampicillin 1gram was given 30minutes prior to surgical prophylaxis. The patient was shifted to the operation room. Monitors were attached and baseline vitals(heart rate – 96b/m, blood pressure – 110/70mmHg and SpO_2 – 98%) were noted. An 18G and a 20G IV were secured in the right and left upper extremities and IV fluid ringer lactate started at 50cc per hour. The invasive arterial line was kept ready. An Internal jugular vein catheter was kept ready for resuscitative purposes. Noradrenaline was prepared and kept on standby in view of anticipated hypotension. A Difficult airway cart including all sizes of tubes, laryngoscope blades, Videolaryngoscpe, fiberoptic scope and bougie was kept ready.

Under all aseptic precaution, an epidural catheter of 16G was secured at the T11 – T12 space and the epidural was confirmed and fixed at 9cm to the skin using a 16 Touhy needle in the sitting position.

Incremental doses of 2% lignocaine (4ml) and 0.5 % bupivacaine(7ml) plus fentanyl (25 microgram) were administered over 30 minutes to achieve a sensory block upto T6.

A caesarean section was performed and female infant was delivered with an APGAR score of 9 at 1 minute. Carbetocin 100mg iv was given slowly. Injection furosemide 10mg was given after baby was delivered. One episode of hypotension was noticed (90/60mmHg), and injection phenylephrine 40microgram iv bolus was given.

The surgery lasted for 40 minutes with urine output of 100 ml and total blood loss of 800ml.The patient was shifted to the ICU for observation, and the epidural catheter was placed for a day to maintain her analgesic dose. Postoperative pain was managed with 0.125 percent bupivacaine of 8ml every 6 hourly for 48 hours of the postpartum. The iv fluids 60cc per hour continued and oral furosemide and metoprolol were resumed after 6 hours. The patient was monitored for two days and transferred to ward. The mother and baby were discharged from the hospital without any perioperative complications.

DISCUSSION

Valvular heart disease in pregnant women can lead to maternal, foetal and neonatal complications. The anaesthesiologist plays an important role in perioperative management because maternal death occur during or immediately following parturition.

The valve area is reduced to $<2\ cm^2$, a pressure gradient develops across the valve . This increase in Left atrial pressure is reflected back into pulmonary venous circulation and increases the risk of pulmonary edema.

The risk of pulmonary oedema persist for several days after delivery due to autotransfusion. So, intensive care monitoring is essential during peri-operative period.

The anaesthestic goals for perioperative management are to maintain normal sinus rhythm, low heart rate, adequate preload and afterload, prevention of factors that lead to pulmonary hypertension like hypoxia, hypothermia, acidosis, and hypercarbia.

In our patient , Epidural anaesthesia is preferred as incremental dosages of local anaesthetics given titrated to achieve sensory block. Slower onset of anaesthesia, allows the maternal cardiovascular system to compensate for the occurrence of sympathetic blockade, resulting in a lower risk of hypotension and decreased uteroplacental perfusion. To avoid haemodynamic changes, 0.5 percent bupivacaine given via epidural catheter.

In this patient, we have preferred regional anaesthesia as patient presented with moderate post burn contracture and it may associated difficult mask ventilation and difficult intubation.

General anaesthesia has a drawback with risk of laryngoscopy and intubation response affect haemodynamic stability. Mentosternal scar contracture limit cervical range of motion considered as difficult airway with distorted anatomy and airway edema in parturient can result in difficult intubation.

Kirti. Et al had used lignocaine and adrenaline to achieve quick onset of epidural blockade in their r case study for three patients of severe mitral stenosis.

CONCLUSION

Perinatal management of pregnant women with mitral stenosis should be made by multidisciplinary team. understanding the physiological changes of pregnancy and the pathological effects of mitral stenosis is necessary for pregnancy with mitral stenosis.Anaesthesiologist play an important role for deciding plan of management in such patients. Epidural analgesia with small doses avoid abrupt changes in haemodynamic and provide good analgesia.Ultimately, the morbidity and mortality is reduced with good perioperative maternal and neonatal outcome.

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