Anesthetic Consideration in Patient posted for LSCS with RHD with Severe MS

Nitesh Goyal[1], Mandeep Singh[1], Vijay Kumar[1], Kewal Krishan Gupta[2]

ABSTRACT

Introduction: Rheumatic mitral stenosis forms 88% of the heart diseases complicating pregnancy in the tertiary referral centre in India.

Case report: 27 year old G4P2L2A1 with 39 weeks of gestation with Rheumatic Heart Disease with severe Mitral stenosis with moderate mitral regurgitation and tricuspid regurgitation was posted for elective caesarean delivery. After doing preanaesthetic evaluation patient was managed conservatively with iv diuretics and inj metoprolol and patient status improved from nyha iv to ii. After taking written high risk consent,the patient was taken on OT table with Pre op vitals PR-84/min, BP =110/67mmhg, Sp02=99% in room air and during Intraop course Induction was done after premedication with Inj Etomidate 12 mg IV and scoline 75mg IV and was intubated orotrachealy with RSI technique with ETT of 7.0mm Bilateral air entry confirmed and fixed at 19 cm at corner of mouth. Anaesthesia was maintained with O2 at 100%@5L/min and isoflurane at 0.4-0.6 and inj Atracurium 15+5+5 mg IV and Inj Fentanyl 40 µg IV. Inj.Esmolol 5 mg IV was given at regular intervals to control tachycardia. Tab sildenafil was given via ryles tube.After delivery of the baby,20 IU of oxytocin was given via IV infusion and Inj. Furosemide 40 mg IV was also given.Total fluid input was 300 ml and she had an output of 250 ml.She was also given usg guided b/l TAP block using 40 ml of 0.25% Ropivacaine.She was extubated after giving neostigmine 2.5mg and glycopyrrolate 0.5mg IV.she maintained SPO2 of 99% on room air and was shifted to recovery room and oxygen supplemented pos operatively @6L/minPost op vitals:PR=89/min,BP=120/74mmhg and SPO2=100%

Conclusion: Rheumatic mitral stenosis complicating pregnancy is still a frequent cause of maternal death. A better understanding of the physiological changes in pregnancy and the pathological impact of mitral stenosis over pregnancy and a multidisciplinary approach in diagnosis and management reduce the mortality and morbidity.

Keywords: Anesthetic Consideration, LSCS, RHD, Severe MS

INTRODUCTION

Cardiac disease is the leading cause of maternal mortality in the developed world. The majority of women with heart disease are able to successfully undergo pregnancy. However, in women with severely impaired ventricular function, severe left heart obstruction, pulmonary hypertension and aortopathy, such as Marfan syndrome, with significant aortic dilatation, pregnancy is associated with a significant risk, and these women should be counselled against pregnancy if there is no option for treatment that reduces risk.[1] Similarly Rheumatic heart disease is a major heart problem associated with pregnancy in India, despite its declining trend. The incidence of rheumatic mitral stenosis was 5.4 per 1,000 school children in 1995,[2] and it has been reduced to 0.5–0.64 per 1,000.Rheumatic mitral stenosis forms 88% of the heart diseases complicating pregnancy in the tertiary referral centre in India.

CASE REPORT

Here we are reporting a case of 27 year old G4P2L2A1 with 39weeks of gestation with Rheumatic Heart Disease with severe Mitral stenosis with moderate mitral regurgitation and tricuspid regurgitation posted for elective caesarean delivery .

The patient came to the obstetric casualty with complaints of breathlessness and palpitations since 3 months with acute exaggeration of symptoms since 3 days .she was having breathlessness even on rest. On auscultation bilateral crepitations were heard all over the lung fields. A diastolic murmur was auscultated over the cardiac area along with parasternal heave. She was admitted in ICU and 2D echocardiography was done and was suggestive of RHD with moderate to severe MS (MVA=0.91cm²) with moderate TR and MR along with moderate to severe PAH (PASP=60mmHg) and global hypokinesia of LV and an EF of 46-48%. a 12 lead ecg revealed sinus tachycardia along with p mitrale.She was treated with inj furosemide 20mg iv bd and inj metoprolol 25 mg tds and breathlessness improved from nyha 4 to nyha 2.all laboratory investigations including serum electrolytes were normal.

After taking written high risk consent,the patient was taken on OT table and ASA standard monitors including ECG,non invasive blood pressure,pulse oximeter,temperature probe were attached.right subclavian central venous access was already present.

Pre op vitals PR-84/min, BP =110/67mmhg, Sp02=99% in room air

Premedication given with inj Fentanyl 60 micrograms IV, Inj dexamethasone 8 mg IV , Inj Paracetamol 1g IV infusion and inj. Esmolol 15 mg IV

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Induction was done with Inj Etomidate 12 mg IV and scoline 75mg IV and was intubated orotrachealy with RSI technique with ETT of 7.0mm Bilateral air entry confirmed and fixed at 20 cm at corner of mouth. Anaesthesia was maintained with O2 at 100%@5L/min and isoflurane at 0.4-0.6 and inj Atracurium 15+5+5 mg IV and Inj Fentanyl 40 µg IV. Inj. Esmolol 5 mg IV was given at regular intervals to control tachycardia. Tab sildenafil was given via ryles tube.

After delivery of the baby,20 IU of oxytocin was given via IV infusion and Inj. Furosemide 40 mg IV was also given. Total fluid input was 300 ml and she had an output of 250 ml. She was also given usg guided b/l TAP block using 40 ml of 0.25% Ropivacaine.She was extubated after giving neostigmine 2.5mg and glycopyrrolate 0.5mg IV.she maintained SPO2 of 99% on room air and was shifted to recovery room and oxygen supplemented postoperatively @6L/min.

Post op vitals: PR=89/min, BP=120/74mmhg and SPO2=100%

DISCUSSION

Individualizing the anaesthetic management according to the parturient's cardiovascular status and the practitioners' knowledge and experience of the existing treatment options is the key to success in these patients.

General anaesthesia has the upper hand for better jurisdiction of tachycardia and haemodynamic stability though it has the disadvantage of increased pulmonary arterial pressure and during laryngoscopy and tracheal intubation and the adverse effects of positive-pressure ventilation.[3]

Despite these disadvantages, General anaesthesia is good choice in managing tachycardia and also by avoiding these inducing drugs like atropine, ketamine, pancuronium and meperidine that induce tachycardia. A beta-adrenergic receptor antagonist and an adequate dose of opioid like fentanyl should be administered before or during the induction of general anaesthesia. Because esmolol has a rapid onset and short duration of action, it is a better choice in controlling tachycardia. Since foetal bradycardia has been reported after esmolol, foetal heart rate should be monitored. Modified rapid sequence induction using etomidate, remifentanyl and succinylcholine is an ideal choice in tight stenosis with pulmonary hypertension.[4] Maintenance of anaesthesia can be carried out with oxygen and nitrous oxide 50:50, isoflurane, opioids and vecuronium. With associated severe pulmonary hypertension, nitrous oxide can be omitted. At this juncture, invasive haemodynamic monitoring is an inevitable guide.

For the past two decades,though spinal anaesthesia is contraindicated , epidural regional anaesthesia has proved to be a safe technique in cardiac patients presenting for caesarean section. Epidural and continuous spinal anaesthetic techniques are attractive options in mild to moderate MS.

One of the major advantages of epidural analgesia is that it can be administered in incremental doses and that the total dose could be titrated to the desired sensory level. This, coupled with the 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. Moreover, the segmental blockade spares the lower extremity "muscle pump," aiding in venous return, and also decreases the incidence of thromboembolic events. Invasive haemodynamic monitoring, judicious intravenous administration of crystalloid and administration of small bolus doses of phenylephrine maintain maternal haemodynamic stability.

CONCLUSION

Rheumatic mitral stenosis pregnancy even after so much research is still a recurring cause of maternal mortality. A proper compassion of the physiological changes in pregnancy and the pathological impact of mitral stenosis over pregnant patient and a multidisciplinary approach for diagnosis and management reduce the mortality and morbidity.

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