



ANESTHETIC MANAGEMENT IN EMERGENCY CESAREAN SECTION IN OPERATIVE CASE OF ATRIAL SEPTAL DEFECT (ASD) AND PARTIAL ANOMALOUS PULMONARY VENOUS CONNECTION (PAPVC) WITH MILD PULMONARY ARTERIAL HYPERTENSION (PAH) UNDER SPINAL ANAESTHESIA : CASE REPORT

Anaesthesiology

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ABSTRACT

It is common for thousands of mothers worldwide to die each year due to pregnancy. Comprehensive antepartum screening is critical to reduce maternal mortality. Heart disease is the leading cause of maternal mortality. Atrial septal defect is the most common congenital acyanotic heart disease. A 21-year-old G3P2L1 woman in the 38th week of pregnancy came to department of obstetrics and gynecology. In this report, we present emergency cesarean section due to fetal distress in operated case of atrial septal defect (ASD) and partial anomalous pulmonary venous connection (PAPVC) with mild pulmonary arterial hypertension (PAH) under spinal anaesthesia.

KEYWORDS

Cesarean, Emergency, Repaired atrial septal defect(ASD), Partial anomalous pulmonary venous connection (PAPVC), Pulmonary arterial hypertension (PAH).

INTRODUCTION

Pregnancy causes many physiological changes that increase heart rate, stroke volume, cardiac output and oxygen consumption. Although these changes are well tolerated in healthy pregnancies, they may increase the risk of maternal and fetal mortality and morbidity in pregnancies associated with heart disease. The incidence of heart disease during pregnancy is 0.3-3.5% and is the leading cause of maternal death. The most common heart diseases during pregnancy are rheumatic heart disease, valvular heart disease and congenital heart disease.

Atrial septal defect (ASD) is different size of hole in atrial septum. 3 mm size defect close spontaneously by 18 months in almost all cases, 3-8 mm closure defects occur in 80% of patients and defect larger than 8 mm rarely close spontaneously and may require surgery. Consequences of these physiological changes result in dilation of both the left and right atria, the right ventricle, and the pulmonary arteries to accommodate for the increased blood volume. Clinical symptoms depend on the size of the left-to-right shunt. Dyspnea is observed in 30% of patients in the 3rd decade and in more than 75% of patients in the 5th decade. Pregnancy and associated cardiorespiratory and hematologic changes further complicates anesthetic management.

Case Presentation

A 21 year old female weighing 55 kg, G3P2 L1 came with history of amenorrhoea of 38 weeks to Obstetrics & Gynecology department . Patient came with fetal distress therefore assessed for emergency lscs. Patient had history of previous lscs before 1.5 yr under spinal anaesthesia. Patient was a known case of Congenital cardiac anomaly ASD and operated for the same before 13 years under general anaesthesia. PAPVC Repair and ASD repair were done during the surgery. There was no history of any cynosis, Respiratory tract Infection, fever or any cardiac symptoms like palpitations, syncope, chest pain, pedal edema or PNVD.

On examination , patient pulse rate was 98/min, regular rhythm and adequate pulse volume, blood pressure was 136/88 mmhg , respiratory rate was 22/min and oxygen saturation was 98% on air . On cardiovascular system examination , a loud wide fixed splitting of 2nd heart sound, systemic flow murmur clearly heard by auscultation over left 2nd intercostal space. On respiratory system examination , no abnormality found. On hematological investigation were also within normal range. Airway and spine of patient was normal.

ECG was showing ST depression and T wave inversion V1,V2,V3, right axis deviation, tall R waves and prolonged QTc.

Chest X-ray was showing prominent pulmonary vascular marking with cardiac enlargement.

2D ECHO was showing ASD patch in situ, no flow leak across the

ASD patch, RVSP 35mmhg.

Anesthetic Management

The patient was transferred to the operating room, peripheral IV access was secured with a 20G cannula in both forearms, and a ringer lactate solution was started. Inj. ondansetron 4mg iv given. NIBP, Spo2, HR and ECG were monitored during surgery. During the operation, the patient received oxygen at a rate of 6 l/min using a face mask. The patient was placed in sitting position and following strict aseptic precautions, Spinal anaesthesia was administered into the L3-4 intervertebral disc space with a 26G quincke type spinal needle, after clear and free flow of CSF hyperbaric bupivacaine 0.5% 2.0 ml given ,Sensory blockade till T4 was achieved. After baby delivered, Inj. Oxytocin 20U was added to the drip. Blood pressure and heart rate were maintained between 130-100 mm/hg and 70-90/min and spO2 100% during the operation. Sufficient urine output maintained and blood loss was 250-300 ml. Postoperative vital signs were also normal.

DISCUSSION

There are no any particular recommendations for anaesthetic management of cardiac patients. Especially ASD patients were common either operated or nonoperated. There are many approaches for anaesthetic management of cardiac patient.

In cardiac patients, main attentive thing for intraoperative management is tissue oxygen delivery, continue balance between pulmonary and systemic flow, keep patient hemodynamically stable. We induced this cardiac pateint for emergency lscs under spinal anaesthesia. As many studies shows spinal anaesthesia produced sudden hypotension when induction drug is injection bupivacaine heavy used. But there is no any contraindication, you can cautiously use this inj bupivacaine heavy drug in spinal anaesthesia. Even if severe hypotension occurs you can use inotropes, vasopressors and left lateral uterine displacement can also be helpful in sudden hypotension after spinal anaesthesia.

Epidural anaesthesia have better hemodynamic stability, But demerits were time consumption, delayed onset of action ,require expertisation in gynaec emergency. Therefore we don't recommended EA.

General anaesthesia may be risky in full stomach parturient. General anaesthesia has disadvantages like difficult airway and stress response due to laryngoscopy because of this may happen other consequences are dysrhythmias, heart failure, heart block & infective endocarditis. Intra operative bleeding, lower neonatal apgar scores at 1 minute, peri operative nausea and vomiting. On other hand inadequate reversal of muscle relaxation (residual curarisation) leads to hypoxemia and post operative muscle pain. Intermittent positive pressure ventilation may cause hemodynamic instability in cardiac patient.

Considering above mention factors, spinal anaesthesia was choosen as anaesthetic technique of choice. We have maintained adequate fluid, a near normal systemic vascular resistance, pulmonary vascular resistance, heart rate, optimum cardiac contractility in peri-operative period.

CONCLUSION

The main objective for cardiac patient is to maintain adequate intravascular volume status, normal or moderate decrease in systemic vascular resistance and peripheral vascular resistance, avoidance of tachycardia, hypoxia, hypercarbia, acidosis and hypothermia. It is very well fulfilled with spinal anaesthesia. Spinal anaesthesia is first recommended plan of anesthesia because of rapid onset of action and less complications then other options are epidural anesthesia and general anesthesia.

Spinal anaesthesia and general anesthesia have their own merits and demerits, one should deal with meticolus observation intraoperatively and postoperatively.

Therefore deligent care is prerequisite for successful LSCS delivery in hemodynamically deranged cardiac patient specially repaired or unrepaired ASD patient with PAH.

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