



PERIOPERATIVE MANAGEMENT OF A CASE OF CHRONIC RHEUMATIC HEART DISEASE POSTED FOR EMERGENCY CAESAREAN SECTION

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ABSTRACT

Rheumatic heart disease (RHD) still remains an endemic in India. It is one of the major causes of mortality and morbidity in parturients in developing countries. We present a 26 year old second gravida with history of chronic rheumatic heart disease with multiple valvular disease. She presented with complaints of palpitations, dyspnoea progressing from New York Heart Association (NYHA) class II to class III. On physical examination, patient was pale, had bilateral pedal edema, tachycardia, dyspnoea, undifferentiated murmur on auscultation. Further evaluation revealed anemia, dilated left atrium, moderate mitral regurgitation, mild mitral stenosis, mild aortic regurgitation and fetal distress. Patient was taken for emergency caesarean section in the view of maternal condition and fetal distress. She developed pulmonary edema during surgery and was kept on ventilator to optimize the patient condition with further management. She was successfully extubated after 3 days of meticulous care in intensive care unit (ICU).

KEYWORDS : Chronic rheumatic heart disease, multiple valvular disease, pregnancy, pulmonary edema

INTRODUCTION:

Rheumatic heart disease is a complication of rheumatic fever caused by untreated or under treated group A beta hemolytic streptococcal infection.^(1,2,3) Incidence is decreased in developed countries but it still remains as an endemic in under developed and developing countries in the world.⁽¹⁾ Rheumatic heart disease is usually associated with pancarditis involving pericardial, epicardium, myocardium and valves of the heart.⁽⁴⁾ It mostly involves left sided valves. Valvular heart disease is more common in women when left untreated or under treated.⁽⁵⁾ Mitral stenosis and aortic stenosis in pregnant women lead to greater mortality and morbidity compared to regurgitant lesions as regurgitant lesions are better tolerated in pregnant women.⁽²⁾ Early diagnosis by high index of suspicion, prompt diagnosis and management, preconception counseling, plan of action devised by multidisciplinary team of cardioobstetrics and anesthesia team for the perinatal period has to be done to decrease the morbidity and mortality caused by rheumatic heart disease in pregnancy.⁽⁶⁾ It remains an impractical task in under developed countries, developing countries and low socioeconomic status population (SES) in India due to lack of awareness, infrastructure and resources making rheumatic heart disease a persistent trouble in the pregnant population.

Case Report:

26 years old second gravida with 36 weeks 3 days gestational age presented with the chief complaints of tachypnea, orthopnea and palpitations. Further evaluation revealed patient being a known case of chronic rheumatic heart disease for 5 years, was on medication with oral Metoprolol 25mg once in a day (od) and oral Furosemide 10mg od. She was fortuitously diagnosed with rheumatic heart disease in her first pregnancy. She was of NYHA class II and progressed to NYHA class III for the previous 24 hours. She had surgical history of caesarean section 5 years ago. She had history of 5

packed cell transfusions 2 in previous pregnancy and 3 in the current pregnancy. On examination, patient was thin built, pale and had bilateral pedal edema. Auscultation revealed undifferentiated murmur. She had tachycardia with about 120 beats per minute and her pressures were 90/60 mm Hg. She was anemic with 6.6gm% of hemoglobin, her leucocyte count was 16000 cells/cu.mm. Normal sinus rhythm was seen on electrocardiogram. Her echo findings included dilated left atrium, moderate mitral regurgitation, mild mitral stenosis, mild aortic regurgitation and an ejection fraction of 60%. Other investigations appeared to be in normal range. Non stress test and fetal cardiocography elucidated fetal distress. In view of maternal and fetal condition, emergency termination of pregnancy was planned under general anesthesia.

Patient was taken to operation room with ongoing packed cell transfusion. She was connected to non invasive blood pressure monitor, pulseoximeter, electrocardiogram. A 7 Fr 16 cms triple lumen central venous catheter was placed in right internal jugular vein. Her preoperative vitals of 118 beats per minute of heart rate, 110/80 mm Hg of blood pressure and saturation of 98% were noted. She was induced with 1.5mcg/kg of fentanyl and 2mg/kg of propofol intravenously. 0.1mg/kg of vecuronium was given and preoxygenation was done for the next 8 minutes. She was then intubated with 6.5mm sized endotracheal tube fixed at 19cm. Patient was intraoperatively maintained on isoflurane and vecuronium. Single live female baby of 2.5kgs weight was delivered, cried immediately after delivery with APGAR 8, Ballard's 35 and transient tachypnea of newborn. Baby was admitted in neonatal intensive care unit (NICU). Injection oxytocin 15U in 200ml crystalloid was infused intravenously instead of bolus immediately after delivery of baby.

Intraoperative input of about 1450 ml given with 320 ml of

packed cells, 1000ml of crystalloids, 100ml of 1 gram paracetamol. Tranexamic acid injection 1 gram was given slowly in intravenous route. Intraoperative blood loss was estimated to be around 750 ml and urine output was 20ml. In spite of maintaining depth of anesthesia and transfusion of PCV to compensate the ongoing blood loss during surgery to prevent further downturn of the patient condition, patient's condition couldn't be optimized and had tachycardia of around 120 to 160 beats per minute, pressures of around 110/70 mm Hg to 160/100 mm Hg with increase in pressures towards the end of surgery. At the time of extubation, pink frothy secretions were seen in endotracheal tube, heart rate was about 160 beats per minute, 160/100 mm Hg of blood pressure, auscultation revealed bilateral creptations all over the lungs suggesting pulmonary edema. Injection furosemide 20 mg and injection hydrocortisone 100 mg was given intravenously. Patient was paralyzed, thorough endotracheal tube suctioning was done and shifted to ICU for further management. Patient was kept on injection furosemide infusion, injection dopamine infusion (2mcg/kg/minute), analgesics and muscle relaxants for next 24 hours. Patient was maintained in a negative fluid balance state. Patient developed fever spikes on the day of surgery in the postoperative period. Blood picture indicated leukocytosis of 40000/cu.mm and hemoglobin of 8gm%. Blood sample was sent for culture & sensitivity and the patient was kept on paracetamol 1 gram when needed and injection meropenem 1 gram 8th hourly for 3days. Blood transfusion was done post operatively while maintaining the negative fluid balance to prevent worsening of the hemodynamic condition by fluid overload. Patient's vitals came down to normal range and the lungs were clear on day 1 of the postoperative period. Blood investigations indicated improvement in the patient's condition with hemoglobin of 9gm% and leucocyte count of 17000 cells/cu.mm. There were no fever spikes later. Patient was kept on T piece for next 24 hours and was successfully extubated on day 2 of postoperative period.

DISCUSSION:

India has 40% of the global rheumatic heart disease population. Most of the pregnant women present to medical services after deterioration of their clinical condition due to lack of awareness, poor infrastructure and resources.^[6,7] In this case scenario we had presented, patient presented in the similar condition with deterioration of maternal and fetal clinical status. Inadequate optimization in the antenatal period worsened the situation. Anemia being under treated superimposed with mitral and aortic valvular disease caused by rheumatic heart disease made it a challenging case to maintain the goals of anesthesia for this patient. Heart rate, blood pressure above the expected values, decreased urine output and development of pulmonary edema in mother and fetal distress was due to suboptimal preoperative clinical status of patient. Fine decision making and methodological approach to optimize the patient condition, to prevent further deterioration of the patient condition and meticulous ICU care helped the patient and baby survive the crisis. But maternal ICU admission, post operative ventilator support and NICU admission of the baby could have been avoided by increasing the awareness among the endemic population for early diagnosis and regular follow-ups, optimization of the clinical condition with a proper plan of management devised by multidisciplinary team of cardioobstetric and anesthesia team from preconception to postoperative period.

CONCLUSION :

Prevention of rheumatic heart disease by avoiding under treatment of rheumatic fever caused by beta streptococcal pharyngitis, early diagnosis of rheumatic heart disease by high index of suspicion and rapid testing, preconception counseling and risk stratification, optimization of patient condition by considering lesion specific therapeutic options,

development of clear birth plan during the early weeks of pregnancy with input from cardioobstetric and anesthesia team, regular followup, proper treatment plan for the possible complications during pregnancy and postpartum period to both mother and fetus will help in decreasing maternal and fetal mortality and morbidity caused by rheumatic heart disease. This will help in decreasing NICU admissions in babies and ventilator days and ICU requirement in mothers.

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