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Case Report

A case report of epidural labour analgesia in pregnant female with severe mitral stenosis

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Abstract

This is a case report of a full term pregnant patient with severe mitral stenosis and impending cardiac failure. We provided labour analgesia to this patient with epidural local anaesthetics and opioids and conducted the delivery of baby safely. We recommend the use of labour analgesia to attenuate the response of pregnency and labour on cardiovascular system in mitral stenosis patient.

Keywords: mitral stenosis, epidural analgesia, pregnancy

Key Messages: Epidural labour analgesia is safe and effective in severe mitral stenosis and it blunts the hemodynamic response of labour and pregnancy.

1. Introduction

In traditional teaching, severe mitral stenosis (MS) is considered to be a relative contraindication to neuraxial blockade as sympathetectomy associated with neuraxial blockade can cause hypotension and compensatory tachycardia which are poorly tolerated in severe MS. Here, we present a case of full term pregnant female admitted to our hospital for delivery and we provided epidural analgesia for labour pain to her without any complication.

2. Case Report

A 22 yrs. old primegravida was admitted in our hospital with full term pregnancy for safe confinement. Patient was diagnosed to be suffering from rheumatic heart disease at 2 months of pregnancy when she consulted cardiologist for progressively increasing dyspnoea on exertion. Her 2D echo showed severe mitral stenosis (valve area 0.9 cm), trivial mitral regurgitation and moderate tricuspid regurgitation with left ventricular ejection fraction 65%. She was taking metoprolol and furosemide for last 7 months which controlled her symptoms and her dyspnoea was relieved. After admission in hospital, she had labour pains and we were consulted to provide labour analgesia. Patient had complains of dyspnoea and chest pain with each uterine contraction. Her pulse rate was 60/minute, blood pressure 125/78 mmHg, respiratory rate 14/minute and peripheral oxygen saturation was 98%. Her weight was 55 kg and height was 5 feet. Her haematological and coagulation profile were within normal limit. After counselling the patient, we placed 18 guaze epidural catheter at L1-L2 intervertebral space. We used 0.0625% bupivacaine with 5 µg/ml fentanyl in epidural. After giving 10 ml of bolus, we started 5 ml/hour infusion of this solution. Patient had complete pain relief and her dyspnoea and chest pain subsided. Another, 5 ml bolus was required during the 2nd stage of labour over the baseline infusion. Her vitals remained stable throughout the labour without any hypotension. Infusion was terminated ½ hour after delivery and epidural catheter was removed. Patient was referred to cardiologist after 5 days of delivery for management of heart disease.

3. Discussion

Mitral stenosis (MS) is the most common valvular disorder in females. Usually these disorders are discovered during adulthood especially when the female becomes pregnant and the cardiovascular changes of pregnancy aggravate the symptoms of MS. MS usually presents with dyspnoea on exertion, palpitations, pedal oedema and rarely chest pain. Insufficient cardiac output, heart failure and pulmonary oedema give rise to symptoms of MS. Epidural analgesia for labour pain blunts the sympathetic response to pain and relives patient's anxiety thus avoiding tachycardia and hypertension and subsequent heart failure and pulmonary oedema. Epidural analgesia is shown to decrease the increase in cardiac output during labour and in immediate postpartum period.[1] However, sympathetectomy associated with use of local anaesthetics in epidural catheter can cause hypotension especially when patient is on diuretics for congestive cardiac failure.

There is tendency of premature delivery and IUGR in pregnancy associated with heart lesion.[2] Cardiac output is increased up to 40-50% of the non pregnant state by the end of second trimester and additional 20% increase is seen during labour. Cardiac output can be as high as 75% above pre labour values in immediate post partum period.[3,4] The risk of maternal mortality with severe mitral stenosis is 5-15 % (NYHA-1992).

Labour analgesia is now commonly provided nowadays with epidural and combined spinal epidural analgesia (CSE). Systemic and inhalational drugs are avoided due to their side effects. CSE had been given in severe MS by giving 25 µg fentanyl intrathecally followed by infusion of 0.1% bupivacaine with fentanyl in epidural space.[5,6]

We used 0.0625% bupivacaine with fentanyl to avoid haemodynamic changes. Our patient had good functional capacity and ejection fraction. She did not have any episodes of tachycardia and hypotension and had complete pain relief, so we can safely conclude that 0.0625% bupivacaine provides adequate analgesia for labour pain without any adverse heamodynamic changes. Patient required an additional bolus when

perineum was stretched during 2nd stage of labour to cover sacral dermatomes. A baseline infusion of 5ml/hr was adequate which is lesser than recommended 8-15 ml/hr infusion rate.

Use of bolus dose of oxytocin should be avoided after delivery as it can precipitate heart failure.[7] So, we recommend that epidural labour analgesia should be given to patients with mitral stenosis and the combination of 0.0625% bupivacaine with 5µg/ml fentanyl is sufficient for adequate pain relief without any adverse effects.

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