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Case Report

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Anaesthetic Management of a Patient with Ischemic Heart Disease Posted for Penectomy

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ABSTRACT

One of the major determinants of the function of the heart is given by the left ventricular ejection fraction. Patients with congestive heart failure have a low ejection fraction and this increases the risk of perioperative adverse cardiac events and sometimes death[1]. It also changes the plan of anaesthesia along with the outcome. The major goal perioperatively is to maintain hemodynamic stability[1], also maintaining forward flow, promoting inotropy without inducing or exacerbating ischemia and returning patient to their preoperative level of function after surgery[2,3]. In this report we present a 60-year-old male with ischemic heart disease with left ventricular ejection fraction 30% who underwent penectomy under saddle anaesthesia without any complications. We believe that saddle anaesthesia can be a useful alternative anaesthetic technique in patients with low ejection fraction undergoing penectomy for carcinoma of penis. We showed evidence-based and customized anaesthetic management of a high-risk patient with available equipments and resources[1,4].

Key Words: Low ejection fraction, Ischemic Heart Disease, Selective Spinal Anaesthesia

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INTRODUCTION:

Ischemic heart disease is a major health burden as the number of patients are on a rise which is alarming for the anaesthesiologists[2,5]. The risk for perioperative mortality and morbidity is very high which demonstrates the need for optimal management in the patients.

CASE

A 60-year-old male (90 kg, 176 cm) was scheduled for penectomy after he was found to have carcinoma of penis which was associated with difficulty in micturition for 4 weeks. His medical history was significant for ischemic heart disease two months back and he was on treatment for the same. Electrocardiographic analysis showed sinus tachycardia and left ventricular hypertrophy. Transthoracic echocardiography prior to surgery estimated left ventricular ejection fraction of 30%, dilated left ventricle and generalized left ventricular hypokinesia. Postero-anterior chest radiography showed prominent broncho-vascular markings. Other organ function and biochemistry were normal. His medications on admission included Aspirin, Atorvastatin, Torsemide and Spironolactone. We estimated his subjective metabolic equivalent of tasks < 4 and Revised Cardiac Risk Index of > 11%.

At admission to the operation theatre, informed consent was taken. He was then taken to the operating room where standard monitors were attached and supplemental oxygen was administered via nasal cannula. The patient was then placed in a sitting position for spinal anaesthetic administration.

The saddle block was performed by a consultant anaesthetic between the level L3 and L4 interspace using the midline approach. The skin was anaesthesized with 2 ml of lignocaine 2 % and a 25 G Quinke spinal needle was used to administer a mixture of 1.8 ml Bupivacaine 0.5 % heavy and 25 mcg of Fentanyl. After intrathecal injection, the patient was kept in sitting position for 10 minutes. After that the patient was made supine. The sensory assessment revealed a loss of pinprick sensation to the level of T10 dermatome.

Heart rate, oxygen saturation and blood pressure were recorded before saddle block (baseline mean blood pressure, MAP 86 mm of Hg, heart rate 74 bpm,SpO2 98% on room air), just after saddle block and then after every 5 minutes till the end of surgery. He received a total of 500 ml crystalloid intraoperatively. The procedure lasted for 50 minutes and patient was transferred to post- anaesthetic care unit for further monitoring. He did not experience any side effects of perioperative therapy like nausea, vomiting, pruritis, hypotension or post-dural puncture headache.

DISCUSSION:

Ischemic heart disease is a high-risk disease with considerable peri-operative morbidity and mortality demonstration the need for careful assessment, optimization, and anaesthetic planning for patients undergoing cardiac or noncardiac surgery[1].

The goals for peri-operative management in these patients include focused preoperative assessment, close perioperative monitoring, suitable anaesthetic and maintaining hemodynamic stability[1].

Selective spinal anaesthesia(also known as modified spinal anaesthesia) can be achieved by using a reduced dose of local anaesthetic and adjuvants and by adapting maneuvers to control the spread of the block so that only the nerve roots supplying specific area are affected[1]. Saddle block is one of its variants.

There is evidence that adding adjuvants such as opioids reduces the dose of intrathecal local anaesthetic and can decrease local anaesthetic related adverse effects and prolong post-operative analgesia without compromising intraoperative anaesthesia[1]. Having these experiences in mind, we conducted a modified spinal block using a mixture of low dose heavy bupivacaine 9 mg, and Fentanyl 25 mcg.

Spinal anaesthesia induced hypotension is one of the commonest immediate complications after the block due to arterial and venous vasodilatation resulting from the sympathetic block along with a paradoxical activation of cardio-inhibitory receptors[1] Fluid co-loading with crystalloids reduces the severity of arterial hypotension[1].

CONCLUSION

We present a case in which a patient with low ejection fraction underwent penectomy under modified spinal anesthesia. We claim that the successful conduct of anaesthesia, in this case, relies on a widespread appreciation of the clinical significance of adjuvants, such as opioids, mechanism of action of LAs, and adoption of the maneuvers to control the spread of the spinal block.

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