



FRACTURE TIBIA WITH KYPHOTIC SPINE IN A CASE OF IHD WITH LOW EJECTION FRACTION DONE WITH ULTRASOUND GUIDED EPIDURAL ANAESTHESIA : CASE REPORT

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ABSTRACT

Anaesthesia management of patient with cardiac comorbidities underwent non -cardiac surgery has always been challenging. The goal of anaesthesia management is to keep the myocardial oxygen supply greater than the demand to avoid ischemia . In this case, anaesthesia implications included preoperatively assessing the cardiovascular and respiratory status with selecting ultrasound guided epidural anaesthesia and analgesia techniques . Incremental doses of local anaesthetic were given to maintain myocardial oxygen demand .Here, a 70-year-old female with a history of self fall was diagnosed with a right tibia fracture and known case of ischemic heart disease with kyphotic spine successfully underwent tibia nailing under ultrasound guided epidural anaesthesia.

KEYWORDS :

INTRODUCTION

- The primary goal of the anaesthetic management of a patient with ischemic heart disease / kyphotic spine posted for non- cardiac surgery present unique challenges to anaesthesia .
- Anaesthesia techniques must aim to keep myocardial oxygen supply greater than demand and thus avoid ischemia .n The aim is to avoid tachycardia , extremes of blood pressure , hypoxia , hypoxemia .
- Kyphosis causes a decrease in functional residual capacity (FRC) and total lung capacity (TLC) leading to restrictive pattern , decrease in chestwall compliance .
- Marked decrease in ventilation -perfusion mismatch leading to arterial hypoxemia .
- In cardiovascular system , there is a increase in pulmonary vascular resistance causing pulmonary hypertension .
- Restrictive lung disease and ischemic heart disease with low ejection fraction with extremes of age make general anaesthesia hazardous , where regional anaesthesia is met with technical problems due to abnormal curvature of spine .
- We report a case of right tibia fracture with known case of ischemic heart disease with kyphotic spine posted for tibia fracture under ultrasound guided epidural anaesthesia

Case report

A 75-year-old female came with history of giddiness and fall leading to trauma to left lower limb. Known case of seizure disorder since 25 years on medications. Last episode 2 years back. Known case of ischemic heart disease since 4 years. Patient had history of angina 4years back was started on aspirin 75 mg once daily and atorvastatin 10 mg once daily. Patient complaints of breathlessness on exertion. On examination of spine , revealed a lateral curvature along with thoracolumbar kyphosis. Pulmonary function test shows moderate restrictive lung disease pattern.CT chest shows extensive fibrocavitary changes with bronchiectatic changes involving right lower lobe and middle lobe . Subtle tracheal deviation to right with calcified mediastinal lymphadenopathy . On examination , patient was moderately built , nourished .

Preoperative

Vitals: Pulse 80 bpm, BP 110/70 mmHg, SpO2 97 on room air.

Airway: Edentulous with adequate mouth opening (3 finger breadths).

Auscultation: Clear air entry, reduced equally at the bases, no murmur.

Investigations: 2D echo showed sclerotic aortic valve ,left atrium and left ventricle dilated, moderate mitral regurgitation ,left ventricular systolic dysfunction and ejection fraction of 35% . chest X-ray showed cardiomegaly with bilateral increased bronchovascular markings and hilar opacity. All labs were within normal limits. CT brain -Normal. After thorough preoperative assessment patient was posted for surgery. Patient told to continue aspirin /atorvastatin and anticonvulsants before surgery. cardiologist opined to take up for surgery under class III cardiac risk.

Informed verbal and written consent was obtained. Nil per oral was confirmed, and injection ceftriaxone was given 30 minutes prior as surgical prophylaxis. Fasting blood sugar was 103 mg% .In the operation room, monitors were attached, and baseline vitals were noted (Pulse: 86 bpm, BP: 110/60 mmHg, SpO2: 98% on room air) . An 18G and a 20G IV cannula were secured in the right and left upper extremities, and IV ringer lactate was preloaded with 250 ml. A central line for resuscitative purposes and an invasive arterial line were kept ready. Noradrenaline was prepared in an infusion pump for anticipated hypotension. A difficult airway cart, including laryngoscopy blades and a bougie, was kept ready.



Under aseptic precautions, the patient is in sitting position, evaluated the spinal canal through ultrasound in consideration of a potentially difficult airway and narrow lumbar intervertebral spaces ,planned to administer neuraxial anaesthesia under the guidance of ultrasound . subcutaneous 2% lignocaine was administered. A 18 G epidural Tuohy needle was placed at the L2-L3 interspace under ultrasound guidance and an epidural catheter was

threaded into the epidural space with ease. The patient was placed in the supine position . A volume of 3 ml 2% lidocaine was administered via the epidural catheter as a test dose . After 5 minutes incremental doses were given through epidural catheter to achieve the desired level with continuous hemodynamic monitoring throughout the procedure. The procedure last for one hour 30 minutes , pt experienced two episode of hypotension managed with fluids and Inj.phenylephrine 50 microgram given. Total blood loss of 200 ml and urine output of 100 ml. The patient was shifted to ICU for postoperative observation and epidural analgesia doses were given according to Visual analogue score.

DISCUSSION

- Anaesthetic goals ; Careful titration of anaesthetic agents to maintain myocardial function, maintaining normovolemia, avoiding drug overdose during induction due to slow circulation time, avoiding increased ventricular afterload, Preventing sudden hypotension; regional anaesthesia is preferred, avoiding tachycardia, Judicious fluid therapy, Avoiding increases in peripheral vascular resistance by preventing hypoxia, hypercarbia, hypothermia, acidosis, and avoiding nitrous oxide .
- For our patient, epidural anaesthesia was preferred to avoid hemodynamic instability, risk related to general and spinal anaesthesia.
- Preserving spontaneous breathing and avoiding the need for mechanical ventilation reduces the risk of worsening hypoxia and hypercarbia. It's an excellent pain relief during surgery and reduce the need of systemic opioids.
- General anaesthesia has associated risks of laryngoscopy and intubation, can affect hemodynamic stability. Spinal anaesthesia is associated with hypotension and inability to control the level of block.
- In our case, the patient had ischemic heart disease with a low ejection fraction of 35% and a kyphotic spine, leading to compromised respiratory status. The associated cardiac risk was greater than 5%.
- It's concluded that epidural anaesthesia group patient had lesser incidence of postoperative myocardial morbidity compared with General anaesthesia. Epidural anaesthesia with opioid are better for postoperative analgesia.

CONCLUSION

The choice of anesthetic technique may have a profound impact on the patient's outcome and managing stable haemodynamic parameters perioperatively. In hemodynamically stable patients it is better to operate the underlying fracture as soon as possible to avoid further aggravation and complication of the condition. Thorough preoperative assessment , risk stratification, intraoperative monitoring and postoperative care and pain management are all equally important. Epidural anaesthesia can be used as an alternative to general anaesthesia as they reduce preload and afterload , coronary vasodilatation , postoperative analgesia and reduce harmful effects of general anaesthesia such as hypotension due to induction agents , hypertension and tachycardia due to pressure response .

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