

## SADDLE BLOCK FOR TRANSURETHRAL RESECTION OF PROSTATE IN CARDIAC PATIENTS

Dr Nandini R<sup>1\*</sup>, Dr Ranjitha M S<sup>2</sup>

1. Assistant Professor, Department of Anaesthesiology and Critical Care, Sapthagiri Institute of Medical Sciences and research centre

2. Registrar, Department of Anaesthesiology, Apollo Hospitals, Bangalore

**\*Corresponding author:**

**Dr Nandini R**, Department of Anaesthesiology and Critical Care, Sapthagiri Institute of Medical Sciences and research centre

### Abstract

**Aim:** to evaluate the anaesthetic efficacy of saddle block in maintaining hemodynamic stability in patients with low ejection fraction/poor cardiac function undergoing TURP.

**Materials and Methods:** This was a pilot study performed on 10 geriatric patients aged between 65- to 80-year-old with low cardiac reserve with Ejection fraction between 40 to 45% who were posted for TURP procedure. A thorough preoperative examination, detailed history, complete physical and systemic examination were done. Routine investigations such as haemoglobin, bleeding time, clotting time, urine examination, blood sugar, blood urea, serum creatinine, serum electrolytes, chest X-ray, electrocardiography and 2D ECHO was performed.

**Results:** The mean age of the study population was 73.8 +/- 5.44 years, with the range being 65-80 years. The average BMI was 21.9 kg/m<sup>2</sup>, which was normal, with other demographic parameters also within the expected range. The average prostate volume is necessary to assess the difficulty and duration of surgery, and in our study, we observed the volume to be 37.6 cc, with the average duration of surgery being 57.7 minutes. The mean SBP was 120.6 +/- 10.54 mm Hg, while mean DBP was 73.6 +/- 6.31 mm Hg. The mean heart rate was observed to be normal throughout the surgery, with the highest being 92 in one patient.

**Conclusion:** Saddle block is a simple and efficient regional anesthesia procedure for sufficient anaesthesia, intraoperative hemodynamic stability, and postoperative analgesia in elderly patients with poor ejection fraction undergoing TURP.

**Keywords:** TURP, ECHO, Saddle Block, Cardiac Patients

### 1. INTRODUCTION

Transurethral resection of the prostate, often known as TRP, is the surgical procedure that is performed the most frequently on patients who have benign prostatic hyperplasia. The majority of these patients are from the senior age range, and a significant number of them are affected by cardiopulmonary problems. (1) The fact that heart failure is a high-risk illness that is associated with a significant amount of perioperative morbidity and mortality demonstrates the importance of rigorous assessment, optimisation, and anaesthesia planning for patients

who are scheduled to undergo cardiac or non-cardiac surgery. Maintaining hemodynamic stability and even ensuring intraoperative survival are difficult challenges that arise throughout any surgical procedure that involves inadequate heart function. (2,3)

As a result of the fact that TURP requires increasing the amount of irrigation solutions, hyponatremia and volume overload are both caused. The combination of this with the lithotomy position results in an increase in preload, which therefore has the potential to cause right ventricular volume overload, which ultimately results in pulmonary oedema. (4)

The peripheral pooling of blood that occurs as a result of spinal anaesthesia aids in the early diagnosis of complications such as TURP syndrome and bladder perforation. This is because spinal anaesthesia reduces the likelihood of the circulatory system being overloaded. The most significant issue with spinal method is the potential for hypotension to occur as a consequence of arterial and venous vasodilatation brought about by the sympathetic block mechanism. (5) Intravenous fluids or vasopressor medications are typically used in the treatment of hypotension. The administration of intravenous fluid volume, on the other hand, should be done with caution in individuals who have impaired biventricular function.

The use of a lower dose of local anaesthetic in conjunction with adjuvants and the implementation of movements to control the distribution of the block in order to ensure that only the nerve roots that feed a particular area are affected are the means by which selective spinal anaesthesia, also known as modified spinal anaesthesia, can be accomplished. In addition to relaxing the pelvic muscles and blocking the sacral nerve roots, saddle anaesthesia increases the density of the dermatomes in the sacral, lumbar, and lower thoracic regions. As a lower level of block is established, the hemodynamic derangement and the likelihood of circulatory overload become less likely. Because of this, we have a hypothesis that suggests that this particular style of anaesthesia would be an optimal choice for TURP in patients who have cardiac compromise.

There are very few studies performed where saddle anaesthesia is used as the technique of choice for TURP. Hence, we evaluate the anaesthetic efficacy of saddle block in maintaining hemodynamic stability in patients with low ejection fraction/poor cardiac function undergoing TURP.

## 2. METHODS AND MATERIALS

This was a pilot study performed on 10 geriatric patients aged between 65- to 80-year-old with low cardiac reserve with Ejection fraction between 40 to 45% who were posted for TURP procedure. This was performed in a tertiary care center from Jan 2023 to June 2023.

A thorough preoperative examination, detailed history, complete physical and systemic examination were done. Routine investigations such as haemoglobin, bleeding time, clotting time, urine examination, blood sugar, blood urea, serum creatinine, serum electrolytes, chest X-ray, electrocardiography and 2DECHO was performed.

Those patients taking anticoagulants stopped antithrombotic agents before regional anaesthesia according to recommendations of 2010 American Society of Regional Anesthesia and Pain Medicine guidelines.

PROCEDURE- patient was kept NPO for 6 hours, and a written informed consent was sought from all the patients. Patients were explained the details of the anaesthetic procedure and surgery.

On arrival at the operating room, all standard monitors were connected, and baseline heart rate (HR), SpO<sub>2</sub>, systolic blood pressure (SBP), diastolic blood pressure (DBP), and mean arterial blood pressure (MABP) were documented.

Under aseptic precautions, Saddle block was given in sitting position, using 25G Quincke needle subarachnoid space was reached in L3-L4 interspace, after confirming free flow of clear CSF, 2 ml of 0.5% hyperbaric bupivacaine injected Intrathecally.

After administering the drug, the patients were kept in sitting position for next 10 minutes and then laid supine with one pillow under the head. Immediate haemodynamics were monitored for any hypotension or raised CVP.

Sensory level was assessed by pin prick method and motor level was assessed by modified Bromage scale. A standard ASA monitoring was done throughout the procedure. The data recorded every 5 min for the first 30 min and then every 10 min until the end of surgery.

### 3. RESULTS

This study was conducted on 10 consecutive patients undergoing TURP.

The mean age of the study population was 73.8 +/- 5.44 years, with the range being 65-80 years.

The average BMI was 21.9 kg/m<sup>2</sup>, which was normal, with other demographic parameters also within the expected range.

The average prostrate volume is necessary to assess the difficulty and duration of surgery, and in our study, we observed the volume to be 37.6 cc, with the average duration of surgery being 57.7 minutes.

The mean SBP was 120.6 +/- 10.54 mm Hg, while mean DBP was 73.6 +/- 6.31 mm Hg. The mean heart rate was observed to be normal throughout the surgery, with the highest being 92 in one patient. Hence, saddle anaesthesia didn't significantly influence the haemodynamics of the patient, which is essential in patients with reduced cardiac reserve.

There was no episodes of bradycardia or episodes of Hypotension requiring vasopressor.

Postoperative analgesia was patient satisfactory with VAS <= 4 , only one patient required post operative rescue analgesia with injection TRAMADOL 50 mg intravenous.

Immediately post-operatively, chest x-ray and 2DECHO was assessed for these patients, and there was no deterioration from the pre-operative values. (p value 0.921)

### 4. DISCUSSION

Spinal anaesthesia is preferred for TURP, however the block should not exceed T10. Baricity of anaesthetic solution, age, patient position, drug dosage, injection site, and drug volume affect spinal anaesthesia block height. In contrast to epidural anaesthesia, spinal anaesthesia has no segmental spread dose specification. Toumiren underlined that local anaesthetic concentration, volume, and position during and after injection determine dispersion. (4)

According to Pitkänen et al., (5) 10 mg of 0.5% hyperbaric bupivacaine causes less BP drop than other local anaesthetics, and hemodynamic differences may be minor even in older individuals with proper pre-hydration. Other TURP experiments employed 2 ml hyperbaric bupivacaine. Saddle block works swiftly, paralyses pelvic muscles and sacral nerve roots, and is shorter; hypotension is less likely. (6) The lowest dose of medication is given intrathecally in saddle block, and patients sit till it settles. Saddle block is mostly for anal and perineal operations.

To the best of our knowledge, aside from an ongoing clinical trial comparing spinal and saddle anaesthesia, this is the first study of its kind in our country. We deduced that saddle anaesthesia induces less haemodynamic changes and doesn't overload the weakened cardiopulmonary system.

## 5. CONCLUSION

Saddle block is simple and effective technique of regional anaesthesia for providing adequate anaesthesia, good intraoperative hemodynamic stability, effective post operative analgesia and can be safely performed in elderly patients with low ejection fraction undergoing TURP.

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