

# Assessment of subarachnoid block and saddle block anaesthesia using hyperbaric bupivacaine and fentanyl for transurethral resection of the prostate (TURP) surgeries

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## Abstract

**Aim:** To compare subarachnoid block and saddle block anaesthesia using hyperbaric bupivacaine and fentanyl for transurethral resection of the prostate (TURP) surgeries.

**Methodology:** Patients were randomly divided into 2 groups of 31 each. Group A - Subarachnoid block with 2.2 ml of drug [1.7ml of 0.5% hyperbaric bupivacaine with 0.5ml (25 mcg) fentanyl] in L4-L5 intervertebral space in sitting position and patient was made to lie supine immediately after the intrathecal injection. Group B - Saddle block with 2.2ml of drug [1.7ml of 0.5% hyperbaric bupivacaine with 0.5ml (25 mcg) fentanyl] in L4-L5 intervertebral space in the sitting position and patient was kept in sitting position for 10 minutes after the intrathecal injection and then made supine. Investigations performed were Hb, BT, CT, urine complete examination, FBS, blood urea, serum creatinine, L.F.T and ECG. Assessment of vitals, SPO2 and complications was done.

**Results:** The mean age of group A patients was 56.7±6.2 years and group B patients was 58.4±8.6 years. The mean onset of sensory block was 2.5 minutes in group A and 5.6 minutes in group B, duration of sensory block was 126.1 minutes in group A and 123.8 minutes in group B and mean modified bromage score was 2.6 in group A and 1.3 in group B. Vasopressor requirement was seen in 18 in group A and 2 in group B. Complications observed were headache in 1 and 2, respiratory depression in 4 and 3, hypotension in 1 and 2, bradycardia in 4 and 2, pruritis in 2 and 3 and urinary retention in 1 and 2 patients in group A and B respectively.

**Conclusion:** Saddle block is a safer technique as it provides adequate anaesthesia and stable haemodynamics with less complications in comparison to subarachnoid block using hyperbaric bupivacaine and fentanyl for transurethral resection of the prostate (TURP) surgeries.

**Key words:** Saddle block, subarachnoid block, transurethral resection of the prostate.

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elderly males when the weight of the prostate is less than 60 grams. Prostatic size is assessed by bimanual examination or ultrasound endoscopic examination.<sup>[1]</sup> The procedure involves using a diathermy loop to resect the hyperplastic tissue while sparing the surgical capsule. The bladder is continuously irrigated with fluid to allow direct vision and to wash away blood and debris. Perioperative morbidity of this procedure ranges from 18% to 26%, whereas the mortality rate may be close to 1%.<sup>[2]</sup>

Spinal anaesthesia with a level of sensory blockade up to T10 dermatome is the preferred technique of choice in TURP. It reduces the chances of circulatory overload that occurs due to excessive absorption of irrigation fluid in TURP by peripheral pooling of blood and also helps to detect complications like TURP syndrome, bladder perforation early.<sup>[3]</sup>

Saddle block is a popular and well-known method of low spinal anaesthesia. This technique provides a segmental block for parts of the perineum, buttocks and inner thigh.<sup>[4]</sup> It involves injecting a low dose of hyperbaric local anaesthetic intrathecally in the sitting position and patients are allowed to remain in the same posture after the intrathecal injection till the drug is fixed.<sup>[5]</sup>

Bupivacaine hydrochloride has gained popularity in spinal blockade over the last decade.<sup>[6]</sup> It is a long-acting amide linked local anaesthetic agent and is available in 0.25%, 0.5%, or 0.75% preservative-free solutions.<sup>[7,8]</sup> Fentanyl is a synthetic opioid, a tertiary amine and a phenylpiperidine derivative which is 50-100 times more potent than morphine. It is widely used as an adjunct to local anaesthetics for enhancement of analgesia without enhancing the motor and sympathetic block in spinal anaesthesia.<sup>[9]</sup> We performed this study to compare subarachnoid block and saddle block anaesthesia using hyperbaric bupivacaine and fentanyl for transurethral resection of the prostate (TURP) surgeries.

## Introduction

Transurethral resection of the prostate (TURP) is the most common surgical procedure for bladder outlet obstruction due to benign prostatic hypertrophy in

**Materials and Methods**

After considering the utility of the study and obtaining approval from ethical review committee, we selected sixty- two adults age ranged 45 years to 75 years of both genders. Patients’ written consent was obtained before starting the study. Inclusion criteria was patients with ASA grade I and II, age ranged 45 years to 75 years of age and patients having prostatic volume of 30-80 cc. Exclusion criteria was those not giving consent, patients with neurological disorders, myocardial infarction and coagulation defect.

Demographic data such as name, age, gender etc. was recorded. Patients were randomly divided into 2 groups of 31 each. Group A – Subarachnoid block with 2.2 ml of drug [ 1.7ml of 0.5% hyperbaric bupivacaine with 0.5ml (25 mcg) fentanyl] in L4-L5 intervertebral space in sitting position and patient was made to lie supine immediately after the intrathecal injection. Group B – Saddle block with 2.2ml of drug [1.7ml of 0.5% hyperbaric bupivacaine with 0.5ml (25 mcg) fentanyl] in L4-L5 intervertebral space in the sitting position and patient was kept in sitting position for 10 minutes after the intrathecal injection and then made supine. Investigations performed were Hb, BT, CT, urine complete examination, FBS, blood urea, serum creatinine, L.F.T and ECG. Assessment of vitals, SPO2 and complications was done. The results were compiled and subjected for statistical analysis using Mann Whitney U test. P value less than 0.05 was set significant.

**Results**

Age group 45- 55 years comprised of 5 patients in group A and 7 in group B, 55- 65 years had 11 in group A and 4 in group B and 65- 75 years had 15 in group A and 20 in group B. The mean age of group A patients was 56.7±6.2 years and group B patients was 58.4±8.6 years (Table 1).

**Table 1: Age wise distribution**

Age group (years)	Group A	Group B
45-55	5	7
55-65	11	4
65-75	15	20
Mean±SD	56.7±6.2	58.4±8.6

The mean onset of sensory block was 2.5 minutes in group A and 5.6 minutes in group B, duration of sensory block was 126.1 minutes in group A and 123.8 minutes in group B and mean modified bromage score was 2.6 in group A and 1.3 in group B. Vasopressor requirement was seen in 18 in group A and 2 in group B. The difference was significant (P<0.05) (Table 2).

Complications observed were headache in 2 and 3, respiratory depression in 4 and 3, hypotension in 1 and 2, bradycardia in 4 and 2, pruritis in 2 and 3 and

urinary retention in 1 and 2 patients in group A and B respectively. The difference was non- significant (P>0.05) (Table 3).

**Table 2: Assessment of parameters**

Parameters	Group I	Group II	P value
Onset of sensory block (in mins)	2.5	5.6	0.001
Duration of sensory block (in mins)	126.1	123.8	0.82
Mean modified bromage score	2.6	1.3	0.01
Vasopressor requirement (n)	18	2	0.001

**Table 3: Evaluation of complications**

Complications	Group A	Group B	P value
Headache	2	3	0.68
Respiratory depression	4	3	
Hypotension	1	2	
Bradycardia	4	2	
Pruritis	2	3	
Urinary retention	1	2	

**Discussion**

This study compared subarachnoid block and saddle block anaesthesia using hyperbaric bupivacaine and fentanyl for transurethral resection of the prostate (TURP) surgeries. Sixty- two patients were randomly divided into 2 groups of 31 each. Group A – Subarachnoid block with 2.2 ml of drug [ 1.7ml of 0.5% hyperbaric bupivacaine with 0.5ml (25 mcg) fentanyl] in L4-L5 intervertebral space in sitting position and patient was made to lie supine immediately after the intrathecal injection. Group B – Saddle block with 2.2ml of drug [1.7ml of 0.5% hyperbaric bupivacaine with 0.5ml (25 mcg) fentanyl] in L4-L5 intervertebral space.

Our results showed that Age group 45- 55 years comprised of 5 patients in group A and 7 in group B, 55- 65 years had 11 in group A and 4 in group B and 65- 75 years had 15 in group A and 20 in group B. The mean age of group A patients was 56.7±6.2 years and group B patients was 58.4±8.6 years.

The mean onset of sensory block was 2.5 minutes in group A and 5.6 minutes in group B, duration of sensory block was 126.1 minutes in group A and 123.8 minutes in group B and mean modified bromage score was 2.6 in group A and 1.3 in group B. Vasopressor requirement was seen in 18 in group A and 2 in group B. Doger C et al<sup>[10]</sup> compared the effects of intrathecal bupivacaine and bupivacaine

plus sufentanil in elderly patients undergoing transurethral resection of the prostate. The addition of sufentanil 5 µg to small dose bupivacaine for spinal anaesthesia effectively decreased the motor block level, time to regression of motor block and increased postoperative analgesic request time without increasing the haemodynamic or other side effects in elderly patients. Sufentanil facilitates the spread of the block and offers greater postoperative analgesic efficacy. Since less motor block was observed and the first analgesic request was longer, the combination of bupivacaine and sufentanil might be appropriate for elderly patients undergoing TURP. Complications observed were headache in 2 and 3, respiratory depression in 4 and 3, hypotension in 1 and 2, bradycardia in 4 and 2, pruritis in 2 and 3 and urinary retention in 1 and 2 patients in group A and B respectively.

### Conclusion

Saddle block is a safer technique as it provides adequate anaesthesia and stable haemodynamics with less complications in comparison to subarachnoid block using hyperbaric bupivacaine and fentanyl for transurethral resection of the prostate (TURP) surgeries.

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