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**A COMPARATIVE STUDY OF TWO DIFFERENT LOW DOSES OF HYPERBARIC 0.5% BUPIVACAINE IN SADDLE ANAESTHESIA FOR DAY CARE SURGERIES**

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**ABSTRACT**

This study was done to compare the hospital stay and side effects of two low doses of bupivacaine plus buprenorphine in saddle block for day care surgeries in patients admitted in shri aurobindo institute of medical sciences indore. Low dose of bupivacaine drug in saddle anaesthesia allows rapid onset and early patient mobilization and a short stay in hospital particularly in day care surgeries. (1) Several studies targeting local anaesthetic at specific nerve roots supplying the surgical field have demonstrated successful results. (2) We compare the efficacy and early discharge of patients given low dose of 4.5mg bupivacaine for saddle blockade in perianal procedures compared with the dose 5.5mg bupivacaine, both with 30ug buprenorphine in addition for post operative analgesia. (3) Descriptive and inferential statistical analyses were performed using SPSS version 20.0 software.

**KEYWORDS :** low dose, day care surgeries and early discharge

**1. INTRODUCTION:**

Spinal anaesthesia is unparalleled in the way in which a small quantity of drug can produce profound surgical anaesthesia. Further, by altering the amount of drug, different levels of spinal anaesthesia can be produced. An increasing number of day-case surgical patients are challenging the presently used methods of anaesthesia.

Surgical anaesthesia should be fast, reliable with less side effects. 'Walk-in, walk-out' spinals with an extremely low dose of heavy bupivacaine for perianal surgeries forced to think about the concept of selective spinal anaesthesia. Bupivacaine is a well-established and most widely used long-acting regional anaesthetic, which like all amide anaesthetics has been associated with cardio toxicity when used in high concentration or when accidentally administered intravenously but safe for spinal anaesthesia.

The aim of this study is to compare two low doses of (5.5mg and 4.5mg) hyperbaric 0.5% bupivacaine with 30µ buprenorphine for operative analgesia, any side effect and time of discharge in elective perianal surgeries.

Objectives were mainly focused to compare in both groups for:

- To evaluate for any adverse events during surgery and first post-operative day.
- To evaluate the time of discharge from hospital.

**2. MATERIALS AND METHODS:**

A total of 40 in each group adult patients of ASA grade I and II scheduled for perianal surgeries were enrolled in this study after getting ethical committee clearance. Patients were allocated group A or group B for saddle block in elective perianal surgeries. Pre-anaesthetic checkup was done. Patient received anxiolytic at bedtime. Nil per oral and informed consent was obtained. A saddle anaesthesia was performed in the sitting position using a 23G spinal needle. Study drug injected in subarachnoid space. Patients were maintained in sitting position for 7 mins then placed in lithotomy position. In both groups, sensation was tested with toothless clamp gently applied radially, to assess height of sensory block. Onset time for S1-S5 sensory block, motor block and side effects were noted. Assessment was done by Modified Bromage Scale.

Nausea/Vomiting, Pruritis, urine retention, respiratory depression and sedation and other side-effects were noted.

All patients remained in the sitting position for 7 mins immediately before and after surgery sensory and motor

block were examined. Subjects were randomized by computer random number generator to either group in Group 1 - 5.5mg Bupivacaine + 30µ Buprenorphine Group 2 - 4.5mg Bupivacaine + 30µ Buprenorphine

After the approval of institutional ethical committee 40 patients in each group of ASA I and ASA II, between 18-55 years, undergoing elective perianal surgeries were included in study.

**INCLUSION CRITERIA**

- 1) ASA I and ASA II
- 2) AGE 18-55 years

**EXCLUSION CRITERIA**

- 1) Patient not fulfilling inclusion criteria
- 2) Patient refusal
- 3) Infection at the site of injection
- 4) Coagulopathy/bleeding disorder

**3. RESULTS:**

Both groups of drugs causes adequate anaesthesia for successful perianal block surgeries. No difference in duration of sensory and number of segments blocked. There is urinary retention in group B (p=0.005) The patients were randomly allocated into two groups and received either hyperbaric 0.5% 5.5mg bupivacaine plus 30mcg buprenorphine for group 1 patient or hyperbaric 0.5% 4.5 mg bupivacaine plus 30 mcg buprenorphine for group 2 patient. In our study, groups were compared with respect to age, height, weight, sex. There is early discharge in group A as compare to group B as urine retention is main side effect which we came out in this study.

**4. OBSERVATIONS:**

All parameters of both groups of the patients were comparable in all aspects and statistically insignificant.

Table 1; shows that time to attain S1 level block is almost same in both groups. Mean duration of postoperative analgesia, 1<sup>st</sup> and 2<sup>nd</sup> rescue analgesia is statistically insignificant.

Parameter	Group 1	Group 2	p-value	Remark
Time to attain S1 block level	6.45 mins	6.87mins	0.052	insignificant
Mean duration of post-operative analgesia	273 mins	275 mins	0.827	insignificant
1 <sup>st</sup> rescue analgesia	279 mins	288 mins	0.569	insignificant
2 <sup>nd</sup> rescue analgesia	360 mins	358 mins	0.988	insignificant

The baseline mean blood pressure of patients is statistically insignificant in both the groups. Small decrease in mean blood pressure is seen in both groups after giving saddle block at different time intervals. The difference in mean pulse rate was also statistically insignificant between both the groups ( $p > 0.05$ ) throughout the surgery.

ROSHDI R. AL-METWALLI(4) used lower doses of hyperbaric bupivacaine in saddle anesthesia and concluded that there is no motor block during surgery and early mobilization is possible ( $96.82 \pm 15.07$  min), no other complications were seen and early home discharge done ( $108.27 \pm 19.22$  min).

The ED50 of hyperbaric 0.5% bupivacaine for saddle block for perianal surgeries was 1.9 mg (95% confidence interval = 1.7–2.1 mg).

Table 2; There is no side effect seen in both groups except urine retention in group B in 10 patients out of 40 which is 25% due to which patient have to stay for longer duration in hospitals lead to mental and financial burden to patients.

Side effect	present (group 1)	Present (group 2)	percentage	p-value
Respiratory depression	No	no	0%	1
nausea	No	no	0%	1
vomiting	No	no	0%	1
pruritis	No	no	0%	1
Urine retention	10 patients	no	25%	0.0005

#### 5. DISCUSSION :

Saddle block is adequate for patients and surgeon satisfaction. We can conclude that there is 25% urinary retention with group B than no retention in group A.

There were no complications during surgery and excellent patient satisfaction. We observed patients for side effects and found there is no respiratory depression, sedation, nausea/vomiting and pruritis intra-operatively and postoperatively in both of our study groups. There is highly significant urinary retention in group 1 as compare to group 2 which lead to delayed discharge. Group 1 data shows 25% patients have urinary retention where there is no urine retention in group 2.

Prasad ML, et al (1978) (5) found that urinary retention is a common complication in perianal surgeries with a incidence of up to 52%, independent of the type of anaesthesia. But in our study it was found that it is totally dependent on dose of anesthetic agent in saddle block.

Tarkkila P1, et al (1997) (6) 54 patients were prospectively studied to evaluate discharge with small dose (1 or 2 ml) of subarachnoid hyperbaric 0.5% bupivacaine. Although the sensory and motor block after 1 or 2 ml hyperbaric bupivacaine recovered in time for day-case surgery. We used 1.2ml maximum dose including buprenorphine in that group also we got 25% patients urine retention.

Soo Young park, et al (2010) (7) conventional spinal block is performed with sitting position, keeping the patients sitting for 3 to 10 mins after injection. This prolong time lead to urine retention. While in this study, we used fixed time of 7mins after injection in both the groups.

#### 6. CONCLUSION:

Hyperbaric 0.5% heavy 5.5mg bupivacaine plus 30µ buprenorphine and hyperbaric 0.5% heavy 4.5mg bupivacaine plus 30µ buprenorphine both provides similar and effective saddle block for perianal surgeries.

Both the groups were comparable in all parameters except there is significant urinary retention in group 1 (25%) as compared to group 2.

We would recommend low dose of bupivacaine 0.5% for perianal surgeries to avoid any complication and early discharge but more study needed in saddle block for perianal surgeries. As we used buprenorphine as additional drug for prolong pain relief which can be other factor for deciding dose of bupivacaine in perianal surgeries.

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