ORIGINAL ARTICLE

To Compare the Effects of Two Different Doses of 0.75% Bupivacaine in Saddle Block for Perineal Surgery on Motor Blocked

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ABSTRACT

Aim: To compare the effects of 7.5mg versus 4mg of 0.75 bupivacaine in saddle block for perineal surgery on motor blocked.

Study Design: Randomized controlled trial

Place and duration of study: Operations Theatres of Jinnah Hospital Lahore from 1st March 2009 to 31st March 2010.

Methodology: One hundred patients were included and divided into Group A and group B received 4 mg and 7.5 mg hyperbaric bupivacaine intrathecally respectively in sitting position at the level of below L2-L3. Patient's blood pressure was noted every two minutes for 10 minutes and later on every five minutes interval during surgery.

Results: Grade I motor blockade was found in 36(72%) in group A while in group B only 7(14%) patients with statistically significant (P<0.05). Grade II motor blocked was found in 11(22%) patients in group A and 19 (38%) in group B. Grade III motor blocked found in 3(6%) patients of group A while 21(42%) in group B with statistically significant (P<0.05). No patients with grade IV motor blocked in group A while 3(6%) in group B and there was no significant difference in hemodynamic changes in both groups. All patients remained pain free in both groups.

Conclusion: 4 mg of 0.75% hyperbaric bupivacaine produces significantly less motor blocked as compared to 7.5 mg while no significant hemodyamic change.

Keywords: Perineal surgery, Saddle block, Spinal anesthesia, Motor blockade, Hemodynamic changes

INTRODUCTION

Perineal surgery is usually performed under "saddle block" since this option of anesthesia can provide satisfactory surgical anesthesia without any significant change in hemodynamic.[1] Many reports have described different forms of local anesthetic infiltration for anal surgery[2-8].

Spinal anesthesia is a form of regional anesthesia where spinal nerve roots are block at spinal cord level by injecting local anesthetic drug in subarachnoid space. Subarachnoid block provide complete analgesia and muscle relaxation.[2]

Several studies have been done with a low dose of bupivacaine to produce a short acting block without significant change in hemodynamics[9,10]. Several attempts have been made to limit the effects of local anesthetics in subarachnoid space to provide benefits to the patients regarding hemodynamic changes and early mobilization. This can be achieved by injecting low dose. It has been studied that perineal surgery can also be performed by injecting 4-5 mg hyperbaric bupivacaine in subarachnoid space with minimum hemodynamic changes and motor block[11]. In one study 1.5mg bupivacaine was observed to provide acceptable analgesia without significant side effects in perineal surgery of short duration[12].

A 'saddle block' is a good option for day-case surgeries. A prostate Brach therapy with 5mg of bupivacaine 0.75% alone and with only a 2.5mg of bupivacaine 0.75% with 25µg of fentanyl. Both doses provided good quality anesthesia for short procedures but in the bupivacaine/fentanyl group 43% of the patients needed intravenous midazolam to keep pt comfortable. Patients were discharge 40 minutes faster in the combination group[13].

This study is designed to compare two doses of hyperbaric bupivacaine to assess that low dose can keep the patient pain free with minimum motor blocked and hemodynamic changes in perineal surgery.

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MATERIALS AND METHODS

This RCT was conducted at Surgical Operations Theaters, Jinnah Hospital Lahore from 1st March 2009 to 31st March 2010. One hundred patients admitted for elective and emergency perineal surgery were included. Patients were divided into two A and B groups and 50 patients in each group. Group A and group B received 4 mg and 7.5 mg hyperbaric bupivacaine intrathecally in sitting position at the level of below L2-L3 space. All patients admitted for elective and emergency perineal surgery, ASA I and II, age between 25-60 years, both sexes and weight above 40kg were included. All patients refusal for spinal anesthesia, coagulopathy, infection at the site of injection, increased intracranial pressure, severe hypovolemia and severe aortic/mitral stenosis were excluded. Patient's blood pressure was noted every two minutes for 10 minutes and later on every five minutes interval during surgery. Motor

blocked was checked by Bromage scale when patient lies down with interval of two minutes for 10 minutes. The data was entered and analyzed through SPSS.20. Chi-square test was applied and P value ≤0.05 considered significant.

RESULTS

The mean age was 34.52±7.32 and 33.10±5.6 years in group A and group B respectively. There were 32(64%) males and remaining 18(36%) females in group A while in group B, 34(68%) males and 16(32%) females (Table 1).

Grade I motor blockade was found in 36(72%) in group A whereas in group B only 7(14%) patients. Grade II motor blocked was found in 11(22%) patients of group A and 19(38%) in group B. Grade III motor blocked found in 3(6%) patients of group A while 21(42%) in group B and statistically there was significant (P<0.05) difference. No patient with grade IV in group A while in group B, 3(6%) patients (Table 2).

The hemodynamic changes variation of blood pressure on different intervals at baseline, at 2 minutes, 4 minutes, 6 minutes, 10 minutes and at the end of the surgery there was no significant difference (P>0.05) in blood pressure variation. Hypotension was not noted in any patient (Table 3).

According to pain during surgery, which was not found pain in any patient and 100% patients was remained pain free during surgery (Table 4).

Table 1: Demographic information of the patients

Variable	Group A (n=50)		Group B (n=50)	
	No.	%	No.	%
Age (years)				
25-30	15	30.0	17	34.0
31-40	27	54.0	29	58.0
41-50	5	10.0	3	6.0
51-60	3	6.0	1	2.0
Gender				
Male	32	64.0	34	68.0
Female	18	36.0	16	32.0

Table 2: Comparison of motor blockage

Grade	Group A (n=50)		Group B (n=50)		P value
	No.	%	No.	%	
I	36	72.0	7	14.0	0.00
II	11	22.0	19	38.0	0.063
III	3	6.0	21	42.0	0.00
IV	-	-	3	6	-

Table 3: Comparison of hemodynamic (n=100)

Time (minutes)	Group A (n=50)		Group B (n=50)	
	Systolic	Diastolic	Systolic	Diastolic
Baseline	118.10±2.41	82.21±1.35	119.32±2.41	81.21±1.53
2	122.32±2.41	79.21±1.27	109.24±1.89	72.67±2.11
4	117.60±1.18	76.83±1.21	101.42±1.15	68.29±1.28
6	116.25±2.67	78.29±1.78	106.87±1.54	74.78±1.01
8	119.28±1.78	79.45±1.26	112.34±1.59	78.27±2.18
10	119.28±1.78	78.45±1.62	115.34±1.59	79.27±2.23
At the end of surgery	121.28±1.78	80.45±1.07	118.34±1.59	80.27±2.67

P>0.05

Table 4: Comparison of pain during surgery (n=100)

Presence of pain	Group A (n=50)		Group B (n=50)	
	No.	%	No.	%
Yes	-	-	-	-
No	50	100.0	50	100.0

DISCUSSION

Perianal surgery, such as hemorrhoidectomy, perianal fissure, perianal fistula and perianal abscess is often performed under “saddle block”. The Saddle block is the anesthetic technique where there is minimal changes in hemodynamic by using minimum dose of local anesthetics there is no change in hemodynamic and minimum motor blocked which is not required for perineal surgeries[1]. Furthermore, minimal doses of anesthetic agents are used for saddle block, so the only desired area is anaesthetized to avoid undesired effects[14]. Sensory block for perineal surgery was achieved by giving 4mg hyperbaric bupivacain in subarachnoid space in sitting position and keeping the patient in a sitting for 10 minutes[11].

Hypotension and bradycardia are common side effects of spinal anesthesia and can lead to serious complications i.e. cardiac arrest these can be avoided by using minimum doses of local anesthetics or[15].

The safety, effectiveness and long lasting post-operative analgesia without significant variations in hemodynamic make saddle block technique a method of choice for perianal surgery. Saddle block provide reliable conditions for surgeon and satisfaction of patients. 92% of investigated patients prefer to opt saddle block for their perineal surgery again and success rate of spinal anesthesia was 99.5%[16].

This study demonstrated that minimum dose of bupivacaine may be useful for short perianal surgeries. We found no patient experienced for discomfort in surgery with respect to surgical manipulations. Selectively targeting low dose of local anesthetic at nerve roots supplying the surgical area with preserving neural blockade to desired level was shown to be successful[17].

In the present study, 72% of patients who received bupivacaine 4 mg had Grade I block, remained pain free and shifted themselves from operation table to shifting trolley while 22% had grade II motor blocked, remained pain free and shifted with some support from operation table to shifting trolley (Table 2). There was no significant difference in hemodynamic changes with 4 mg and 7.5mg bupivacaine as hypotension was not observed in any patient (Table 3).

In a prospective, randomized, double-blind study by Wassef et al[12] used the minimum dose of Hyperbaric bupivacaine could be sufficient for safe and pain free short perianal procedure. The use of 1.5 mg spinal bpivacaine can be use successfully for short perianal surgery[5].

Gradiatyle and colleagues[11] compared 4, 5.7 and 10 and concluded that perianal surgery can also be performed by injecting 4 mg hyperbaric bupivacaine in subarachnoid space with minimum hemodynamic changes and motor blocked.

CONCLUSION

Bupivacaine 4 mg in saddle block causes significantly less motor blocked as compared to 7.5 mg with adequate anesthesia for surgery and no significant change in hemodynamic.

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