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A Study between Bupivacaine Alone and Bupivacaine and Fentanyl Together in Spinal Anesthesia in Bangladesh

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Abstract **Original Research Article**

Objective: To evaluate the effect of Bupivacaine and Fentanyl together in spinal anesthesia in Bangladeshi people. ***Methods:*** This experimental study was conducted at different types of medical college hospitals, from January 2019 to January 2020, from where written informed consent was taken from 120 patients to obtain this experimental study. ***Result:*** The patient selected for this study was divided into two groups- Group A (Hyperbaric Bupivacaine+ Fentanyl) and Group B (Hyperbaric Bupivacaine only). 10% of the patients who had operation for more than 3 hours, experienced pain. ***Conclusion:*** From this study we can conclude that patients anesthetized with hyperbaric Bupivacaine with 25 µg Fentanyl, increased the duration of analgesia and provided with haemodynamic stability with no major complication.

Keywords: Spinal anesthesia, Bupivacaine, Fentanyl.

INTRODUCTION

Spinal anesthesia is a very common practice in Bangladesh these days, especially in the rural areas. Even some anesthesia like Cholecystectomy, Lap. Chole, PCNL, etc. are conducted with spinal anesthesia in rural areas, even though it is a very stressful and traumatic thing for the patients. Some factors influences for this journey, such as money, time, gases, easy technique, efficiency and skilled hands influencing it. But regional anesthesia is not without side effects [1]. Potential side effects common in this regional anesthesia are inadequate anesthesia, post dural puncture headache (PDPH), hypotension, backache, nerve and vascular injury, and infection over the injection site [2]. In this comparative study, our goal was to compare the effectiveness of hyperbaric Bupivacaine and, hyperbaric Bupivacaine and low does of Fentanyl alone with respect to sensory and motor blockade, haemodynamic changes, side effect profile and post operative analgesia after spinal anesthesia [3].

OBJECTIVE

General objective-

To asses the effect of hyperbaric bupivacaine only and Fentanyl with hyperbaric Bupivacaine in different types of operations among Bangladeshi people.

Specific objective:

To detect intra operative events between two groups.

METHODOLOGY

Type of study	Comparative study
Place of study	Different hospitals in Dhaka and other rural areas.
Study period	January 2019 to January 2020
Study population	Written informed consent was taken for this comparative study.

Method

During the study, after taking written consent from the patients, they did not only have the normal physical status and the ASA physical status I and II but also have ASA physical status III and IV. Pre anesthetic checkups were done before the surgery and 20% of the patients had various co-morbidity like DM, HTN, asthma, history of past MI, IHD, CKD and COPD.

RESULT

The age distribution of the patients is shown in table 1, where most of the patients in both groups belong to the 20- 75 years age group. The following table is given below.

Table 1: Age group

Age group	Group A	Group B
20- 30 years old	70%	40%
30- 50 years old	25%	40%
50-75 years old	5%	20%

Table-2 is given below which shows the male/ female ratio.

Table 2: Male and female ratio

Male	Female
80%	20%

Time and length of surgery and volume of drugs given to the patients are identified in table 3. Patients who needed operations for more than 2 hours, got 3 mL of hyperbaric Bupivacaine with 25 µg Fentanyl. In 10% of the cases, who needed more than 3 hours of operation got 3 ½ mL of hyperbaric Bupivacaine with 25 µg Fentanyl.pts. who needed only ½ to 1 hour of operation did not get any fentanyl and belongs to group B.

Table-3: Time and length of surgery

Group B (½ to 1 hour)	Group A (1 to 2 hours)	Group A (More than 3 hours)
50%	40%	10%

Among all the 120 patients, 40% of them got the spinal anesthesia at the level of L2 and L3. 50% were given at L3 and L4 level. And only 10% got the anesthesia at the level of L1- L2. The following table of these statistics are given below in table 4.

Table-4: Statistics analysis of anesthesia level

Group A (L2- L3)	Group B (L3- L4)	Group A (L1- L2)
40%	50%	10%

Table 5 Consists different types of patients chosen from different types of surgery for the study.

Table 5: Different type of surgery

Urology	Orthopaedic surgery	General surgery
70%	20%	10%

Table 6 shows the comparison of intra operative events between two groups. In group A, 40% of the patients experienced hypotension and in group B, it was 20%. The table is shown down below.

Table: 6 Comparison of intra operative events

Group A (hypotension)	Group B (Hypotension)
40%	20%

DISCUSSION

It was found that the time required to reach the peak sensory level was much earlier in group A (B+F) with high degree of block. The duration of effective analgesia and blockage was also prolonged in group A (Bupivacaine with Fentanyl) [4]. On the contrary, complete sensory recovery and duration of motor recovery was significantly earlier in group B (Bupivacaine alone) with low level of block [5]. Increased heart rate, hypotension, restlessness was observed in group A (Bupivacaine with Fentanyl) with high degree of block [6]. About 10% of the patients complained pain when the operation continued for more than 3 hours and needed sedative. Every patient was given Injection. Pethidine (25 mg)i i.v at the very start of the operation [7]. Some patients were also needed Injection. Diazepam (5 mg) i.v. Hypotension was found and needed Ephedrine more commonly in group A (Bupivacaine with Fentanyl) than group B (Bupivacaine alone). Both groups had common side effects which was minimal and there was no causality and outcome was satisfactory [8].

The regional anesthetic techniques are widely accepted in Bangladesh for all the different benefits discussed earlier. In this study, we tried to find the clinical profile of sub arachnoid block in two groups and its effect on the patients.

CONCLUSION

We can conclude that, the addition of low dose of Fentanyl (0.25 µg) with 0.5% hyperbaric Bupivacaine for regional anesthesia in different types of surgical cases provided maximal level of motor and sensory blockade, with no significant instability of haemodynamic status, side effects were as usual and better post operative analgesia.

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