



A COMPARATIVE STUDY OF ASSESSMENT OF PAIN, PERFORMANCE TIME, QUALITY OF PATIENT'S POSITIONING BEFORE AND AFTER PERFORMING FEMORAL NERVE BLOCK.

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ABSTRACT

Background : Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. Inter individual variability of postoperative pain is influenced by multiple factors, including sensitivity to pain, psychological factors, age and genetics.

Methods: The study was conducted in 60 patients of either sex, between the age group of 30 to 80 years, belonging to ASA (I, II, III) for fracture neck of femur to be operated under regional anaesthesia (CSE). Group I (FNB) - Received block with 15ml of 1.5% Lignocaine (30 patients) Group II (NB) - No block was given (30 patients). During regional technique, pain was assessed before and after the block with the help of VAS score before positioning the patient for regional anaesthesia.

Results: VAS scores during positioning in the Group FNB and NB. The mean score of Group FNB was 1.4 ± 0.498 , while Group NB was 4.03 ± 0.32 . The difference in the scores was statistically significant. The score of quality of patient positioning in Group FNB was 2.10 ± 0.305 and Group NB was 1.13 ± 0.346 . This difference was also statistically significant. The time required for CSE in Group FNB was 16.23 ± 2.788 minutes and Group NB was 19.23 ± 2.674 minutes. Statistically significant difference was observed in both the groups.

KEYWORDS : Femoral Nerve Block, CSE, Pain

INTRODUCTION

The International Association for the Study of Pain (IASP), defines pain as a sensory and emotional experience associated with acute or potential tissue damage or described in terms of tissue damage.¹

Fracture femur usually occurs in elderly patients with presence of co-morbid conditions thus avoiding GA with polypharmacy for corrective surgeries. Most of the surgeries of lower limbs are conducted under regional anaesthesia i.e. CSE (Combined Spinal and Epidural) or Spinal anaesthesia. It usually occurs in elderly patients causing a significant morbidity and mortality. Any overriding at the fracture end is extremely painful and requires prompt attention, adequate analgesia either with high doses of systemic analgesics or femoral nerve block with local anaesthetics.^{2,3}

It can be blocked, as it emerges from abdomen behind inguinal ligament, in femoral triangle, where the nerve lies lateral to the femoral artery and deep to fascia iliaca and fascia lata.⁴

This peripheral block has been shown to be effective method for postoperative analgesia in knee arthroscopy, knee replacement surgery. It may be combined with local anaesthetics for varicose vein surgeries and when performed either during prehospital management or in emergency department^{3,5,6,7}.

AIM AND OBJECTIVES

- Assessment of pain before and after performing femoral nerve block
- To assess performance time
- Quality of patient's positioning

MATERIAL AND METHODS

After approval by the college ethical committee, the study was undertaken in the attached hospital.

INCLUSION CRITERIA

Study included patients of both sexes belonging to American society of Anaesthesiologists (ASA) grade I, II & III with age group between 30 to 80 years, scheduled for elective surgeries of fracture femur.

EXCLUSION CRITERIA

- Coagulation disorders
- Hypersensitivity to amide local anaesthetics
- Peripheral neuropathy
- Mental disorders – Dementia
- Skin infection
- Uncooperative patients
- Patient on chronic analgesic therapy
- Presence of prosthetic femoral artery graft

Study was carried out in 2 groups of 30 patients each.

Group I (FNB): Received block with 15 ml of 1.5% Lignocaine

Group II (NB): No Block was given

PROCEDURE

All the patients were counselled and explained the femoral nerve block procedure prior to regional anaesthesia and were reassured.

EQUIPMENTS

- Sterile gloves
- Antiseptic solution for skin disinfection
- Marking pen
- Sterile gauze
- One 20 ml syringe for local anaesthetic solution
- One 5 cm short bevel 22 gauge insulated needle
- Surface electrode
- Peripheral nerve locator
- Intravenous line on opposite hand
- Monitors (SpO₂, ECG, NIBP)
- Resuscitation equipments and drugs

The patient was placed in supine position. The anterior superior iliac spine and pubic symphysis were marked and a line was drawn between them which represents inguinal ligament. The Femoral artery was then palpated and marked at the inguinal crease. The nerve locator needle was introduced 1 to 1.5 cm. lateral to the Femoral artery and direction was cephalad about 30° angled to the skin.

Nerve Stimulator Settings:

We started the technique with the setting of current 1 to 1.2 mA and

a frequency of 1 Hz. After the brisk patellar snap was observed, we reduced the current to 0.5 to 0.6 mA eliciting the same response. 15 ml of 1.5 % Lignocaine (Local Anaesthetic) was injected after confirming that it was not in intravascular space, thus abolishing the stimulator response.

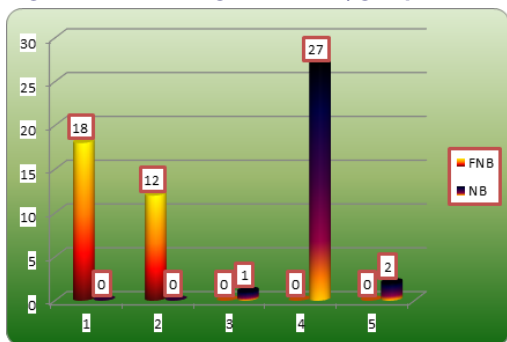
OBSERVATIONS DURING REGIONAL TECHNIQUE

- Assessment of pain before and after the block with the help of VAS score was noted.
- Performance time (Defined as the time from the beginning of patient positioning to the end of the performance of regional anaesthesia) was also noted.
- Quality of patient positioning during CSE was also graded accordingly (0 = Not satisfactory, 1 = Satisfactory, 2 = Good and 3 = optimal)

Table 1: Visual Analog Score in study groups

VAS	Group		Total (%)
	FNB (%)	NB (%)	
1	18 (60.0)	0	18 (30.0)
2	12 (40.0)	0	12 (20.0)
3	0	1 (3.3)	1 (1.7)
4	0	27 (90.0)	27 (45.0)
5	0	2 (6.7)	2 (3.3)
Total	30 (100)	30 (100)	60 (100)

Bar diagram of visual analog score in study groups



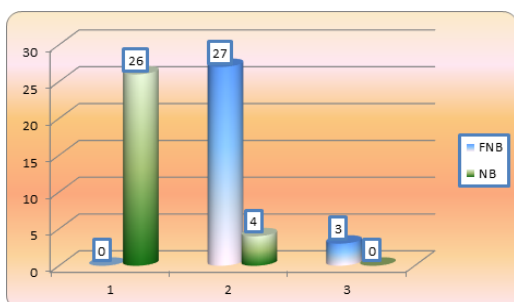
In FNB Group, VAS was 1 in 60% of patients and 2 in 40% of the patients, while in NB Group, VAS was 3 in 3.3%, 4 in 90% and 5 in 6.7% of the patients.

Table 2: Quality of patient positioning

(0-Not satisfactory, 1-Satisfactory, 2-Good, 3-Optimal)

Scores	Group		Total (%)
	FNB (%)	NB (%)	
1	0	26 (86.7)	26 (43.3)
2	27 (90.0)	4 (13.3)	31 (51.7)
3	3 (10.0)	0	3 (5.0)
Total	30 (100)	30 (100)	60 (100)

Bar diagram of quality of patient positioning in study groups

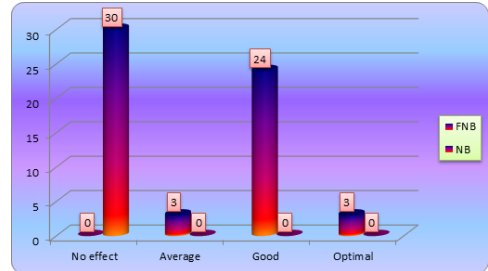


Quality of patient positioning had a score of 2 and 3 in 90% and 10% patients respectively in FNB group, while score of 1 and 2 in 86.7% and 13.3% respectively in NB group.

Table 3: Distribution of patient's acceptance in study groups

	Group		Total (%)
	FNB (%)	NB (%)	
No effect	0	30 (100)	30 (50.0)
Average	3 (10.0)	0	3 (5.0)
Good	24 (80.0)	0	24 (40.0)
Optimal	3 (10.0)	0	3 (5.0)
Total	30 (100)	30 (100)	60 (100)

Bar Diagram of patient's acceptance in study groups



About 80% of the subjects in Group FNB felt that the pain relief was good in femoral nerve block group. All the patients in Group NB had a painful positioning.

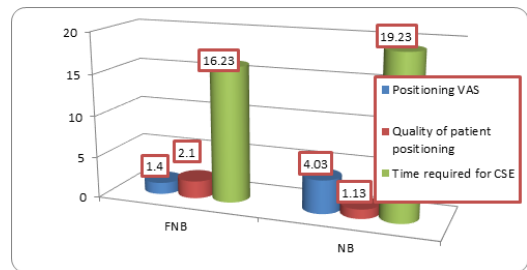
Table 4: Comparison between the study groups

Parameters	Group FNB Mean ± SD	Group NB Mean ± SD	Z Value P Value
Positioning VAS	1.4 ± 0.498	4.03 ± 0.32	-24.360 0.0001**
Quality of patient positioning	2.10 ± 0.305	1.13 ± 0.346	11.482 0.0001**
Time required for CSE (min)	16.23 ± 2.788	19.23 ± 2.674	-4.254 0.0001**

* Significant at 0.05 level

** Significant at 0.01 level

Bar Diagram of comparison between the study groups



Above table shows the VAS scores during positioning in the Group FNB and NB. The mean score of Group FNB was 1.4 ± 0.498, while Group NB was 4.03 ± 0.32. The difference in the scores was statistically significant. The score of quality of patient positioning in Group FNB was 2.10 ± 0.305 and Group NB was 1.13 ± 0.346. This difference was also statistically significant. The time required for CSE in Group FNB was 16.23 ± 2.788 minutes and Group NB was 19.23 ± 2.674 minutes. Statistically significant difference was observed in both the groups

SUMMARY

The study was conducted in 60 patients of either sex, between the age group of 30 to 80 years, belonging to ASA (I, II, III) for fracture neck of femur to be operated under regional anaesthesia (CSE).

Group I (FNB) - Received block with 15ml of 1.5% Lignocaine (30 patients)

Group II (NB) - No block was given (30 patients)

All patients were examined preoperatively and necessary investigations were done. After obtaining written informed consent, intravenous access was established with 18/20 gauge cannula. Patients were preloaded with 10-15ml/kg of Ringer's Lactate solution.

During regional technique, pain was assessed before and after the block with the help of VAS score before positioning the patient for regional anaesthesia.

In FNB Group VAS was significantly lower as compared to NB Group.

Time required to perform CSE was also significantly less than NB Group of patients.

Quality of patient positioning was found to be much better in FNB Group.

Patient acceptance was graded 24 hours postoperatively. Majority of the patients in FNB Group had adequate pain relief during positioning.

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