

ORIGINAL ARTICLE**Comparison of efficacy of Femoral nerve block versus fentanyl: Analgesia for positioning patients with fractured femur**¹Payal Saxena, ²Vijay Gupta¹Assistant Professor, Department of Anaesthesia, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India;²Assistant Professor, Department of Orthopaedics, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India**ABSTRACT:**

Background: The present study was conducted for comparing the efficacy of Femoral nerve block versus fentanyl: Analgesia for positioning patients with fractured femur. **Materials & methods:** 50 patients with fractured femur within the age range of 18–80 years, and with ASA physical status I–III were enrolled. Complete demographic and clinical details of all the patients was obtained. All the patients were randomly divided into two study groups with 25 patients in each group: Group A- Patients which were given femoral nerve block and Group B- Patients which received two doses of IV fentanyl 0.5 µg/kg with a five-minute interval between doses. Pain scores were assessed at 15 minutes after intervention with FNB or IV fentanyl. Pain scores 10 minutes after analgesia and during positioning were recorded on a scale of 0 to 10 with 0 indicating no pain and 10 indicating maximum unbearable pain. Additional fentanyl requirement during positioning and satisfaction with patient position maintained for spinal block (yes = satisfactory, no = not satisfactory) were also recorded. **Results:** Mean pain score 10 mins after analgesia among the patients of group A and group B was 2.9 and 3.2 respectively. Mean pain score during positing among the patients of group A and group B was 6.3 and 6.1 respectively. Additional fentanyl requirement was similar in both the study groups. Patient satisfaction was achieved among 22 patients of group A and 23 patients of group B. Non-significant results were obtained while comparing the pain scores among patients of group A and group B. **Conclusion:** No difference was observed in terms of analgesic benefit between FNB and IV fentanyl for patient positioning before spinal block.

Key words: Femoral nerve block, Fentanyl, Femur**Corresponding author:** Vijay Gupta, Assistant Professor, Department of Orthopaedics, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India**This article may be cited as:** Saxena P, Gupta V. Comparison of efficacy of Femoral nerve block versus fentanyl: Analgesia for positioning patients with fractured femur. J Adv Med Dent Sci Res 2015;3(1):350-352.**INTRODUCTION**

Femoral nerve blocks and indeed all peripheral nerve blocks have become a popular, safe and effective method of providing postoperative analgesia. The advantages of a femoral nerve block for lower limb surgery include good postoperative analgesia, a reduction in the need for opioids and the potential for earlier mobilisation and discharge from the hospital. Blockade of the femoral nerve will be indicated for any procedure involving the anterior thigh, knee and medial aspect of the lower leg. For some surgery, blockade of the sciatic nerve and/or the obturator nerve and/or the lateral cutaneous nerve of the thigh will also be needed to obtain complete analgesia. Femoral nerve blocks have been shown to provide effective pain relief following: total knee replacement (TKR), cruciate ligament repair, knee arthroscopy, fractured neck of femur, donor site for skin grafting and lower limb vascular surgery.¹⁻³

Femoral nerve block (FNB) can significantly decrease the acute pain of a diaphyseal or distal femoral fracture and fracture neck of femur. This analgesic modality can be administered safely in the hospital emergency department and in the prehospital settings prior to the operative intervention. Profound analgesia is obtained without the adverse effects associated with

systemic intravenous analgesics (i.e., respiratory depression, hemodynamic effects, or obtundation of consciousness). This block is also very successfully used to facilitate positioning for placement of neuraxial block in the operating room (OR).⁴⁻⁷ Hence; the present study was conducted for comparing the efficacy of Femoral nerve block versus fentanyl: Analgesia for positioning patients with fractured femur.

MATERIALS & METHODS

The present study was conducted for comparing the efficacy of Femoral nerve block versus fentanyl: Analgesia for positioning patients with fractured femur. 50 patients with fractured femur within the age range of 18–80 years, and with ASA physical status I–III were enrolled. Complete demographic and clinical details of all the patients was obtained. All the patients were randomly divided into two study groups with 25 patients in each group: Group A- Patients which were given femoral nerve block and Group B- Patients which received two doses of IV fentanyl 0.5 µg/kg with a five-minute interval between doses. Pain scores were assessed at 15 minutes after intervention with FNB or IV fentanyl. Pain scores 10 minutes after analgesia and during positioning were recorded on a

scale of 0 to 10 with 0 indicating no pain and 10 indicating maximum unbearable pain. Additional fentanyl requirement during positioning and satisfaction with patient position maintained for spinal block (yes = satisfactory, no = not satisfactory) were also recorded. All the results were recorded in Microsoft excel sheet and was subjected to statistical analysis using SPSS software.

RESULTS

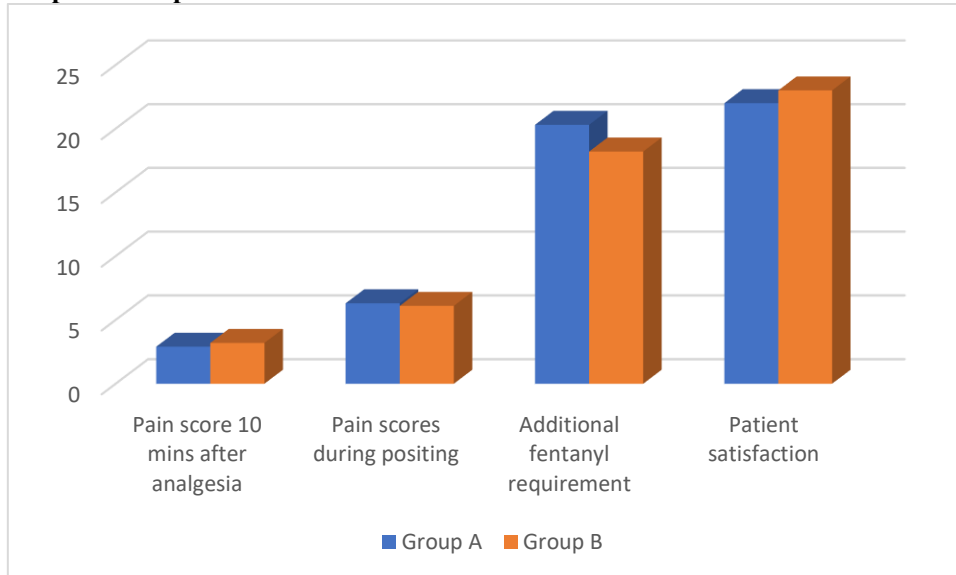
Mean age of the patients of group A and group B was 43.8 years and 39.6 years respectively. Majority proportion of patients of both the study groups were

males. More than 80 percent of the patients of both the study groups belonged to ASA grade I. Mean pain score 10 mins after analgesia among the patients of group A and group B was 2.9 and 3.2 respectively. Mean pain score during positing among the patients of group A and group B was 6.3 and 6.1 respectively. Additional fentanyl requirement was similar in both the study groups. Patient satisfaction was achieved among 22 patients of group A and 23 patients of group B. Non-significant results were obtained while comparing the pain scores among patients of group A and group B.

Table 1: Comparison of pain scores

Variable	Group A	Group B	p-value
Pain score 10 mins after analgesia	2.9	3.2	0.12
Pain scores during positing	6.3	6.1	0.39
Additional fentanyl requirement	20.3	18.2	0.75
Patient satisfaction	22	23	0.38

Graph 1: Comparison of pain scores



DISCUSSION

Fracture of femur is a particularly painful bone injury because the periosteum has the lowest pain threshold of the deep somatic structures. Surgical repair most commonly involves either internal fixation of the fracture or replacement of the femoral head with arthroplasty. Spinal block is routinely used more frequently than general anesthesia (GA) for femoral fracture surgery. However, any movement of the patient leads to severe pain. Providing adequate pain relief not only increases comfort in these patients, but has also been shown to improve positioning for spinal block. Analgesics or femoral nerve block (FNB) are often used to help the patient tolerate positioning.⁸⁻¹⁰ Mean age of the patients of group A and group B was 43.8 years and 39.6 years respectively. Majority proportion of patients of both the study groups were males. More than 80 percent of the patients of both

the study groups belonged to ASA grade I. Mean pain score 10 mins after analgesia among the patients of group A and group B was 2.9 and 3.2 respectively. Mean pain score during positioning among the patients of group A and group B was 6.3 and 6.1 respectively. Iamaroon A et al compared the analgesic effects of femoral nerve block (FNB) with intravenous (IV) fentanyl prior to positioning patients with fractured femur for spinal block. Sixty-four ASA I-III patients aged 18-80 years undergoing surgery for femur fracture were randomized into two groups. Fifteen minutes before spinal block, the FNB group received nerve stimulator-assisted FNB with a mixture of 20 mL bupivacaine 0.5% and 10 mL normal saline 0.9%, and the fentanyl group received two doses of IV fentanyl 0.5 µg/kg with a five-minute interval between doses. Numeric rating pain scores were compared. During positioning, fentanyl in 0.5

µg/kg increments was given every five minutes until pain scores were ≤ 4 . There were no statistically significant differences between the groups according to pain scores, need for additional fentanyl, and satisfaction with positioning before spinal block. They were unable to demonstrate a benefit of FNB over IV fentanyl for patient positioning before spinal block.¹¹ In the present study, additional fentanyl requirement was similar in both the study groups. Patient satisfaction was achieved among 22 patients of group A and 23 patients of group B. Non-significant results were obtained while comparing the pain scores among patients of group A and group B. Mutty CE et al determined whether a femoral nerve block administered in the emergency department could provide better pain relief for patients with femoral fractures than currently used pain management practices. Patients who presented with an acute diaphyseal or distal femoral fracture were identified as potential candidates for this study. Eligible patients were randomized by medical record number to receive either (a) the femoral nerve block (20 mL of 0.5% bupivacaine) along with standard pain management or (b) standard pain management alone (typically intravenous narcotics). The pain was assessed with use of a visual analog scale at the initial evaluation and at five, fifteen, thirty, sixty, and ninety minutes following the initial evaluation. Fifty-four patients were enrolled in the study from April 2005 to May 2006. Thirty-one patients received a femoral nerve block, and twenty-three patients received standard pain management alone. Baseline scores on the visual analog pain scale did not differ between the groups at the initial evaluation. The patients who received a femoral nerve block (along with standard pain management) had significantly lower pain scores at five, fifteen, thirty, sixty, and ninety minutes following the block than did the patients who received standard pain management alone ($p < 0.001$). The score on the visual analog pain scale across these time-points was an average of 3.6 points less (on a 10-point scale) for those who received the block. There were no infections, paresthesias, or other complications related to the femoral nerve block. The acute pain of a diaphyseal or distal femoral fracture can be significantly decreased through the use of a femoral nerve block which can be administered safely in the hospital emergency department.¹²

CONCLUSION

No difference was observed in terms of analgesic benefit between FNB and IV fentanyl for patient positioning before spinal block.

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