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# A Prospective Study to Compare Analgesia from Femoral Obturator Nerve Block with Fascia Iliaca Compartment Block for Acute Preoperative Pain in Elderly Patients with Hip Fracture

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Data Interpretation D  
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**Background:** This study aimed to compare femoral obturator nerve block (FONB) with fascia iliaca compartment block (FICB) in the management of acute preoperative pain in elderly patients with hip fracture.


**Material/Methods:** Patients  $\geq 65$  years ( $n=154$ ) diagnosed with hip fracture who had surgery within 48 hours of hospital admission included two groups who received ultrasound-guided nerve block, the FONB group ( $n=77$ ), and the FICB group ( $n=77$ ). The visual analog scale (VAS) score for pain, requirement for analgesic drugs, nursing care requirements after hospitalization, post-operative complications, and rehabilitation were compared between the FONB and FICB patient groups.

**Results:** The VAS scores after both nerve block procedures were significantly reduced compared with those before both nerve block procedures ( $P<0.05$ ), but there were no differences on the second day after nerve block. The VAS scores at rest and on exercise in the FONB group were significantly lower than those in the FICB group at 30 min and one day after nerve block ( $P<0.05$ ). The requirement for postoperative analgesic drugs in the FONB group was significantly lower than that in the FICB group ( $P=0.048$ ). The incidence of nausea and vertigo in the FICB group were significantly higher than in the FONB group ( $P=0.031$  and  $P=0.034$ , respectively). Patients in the FONB group experienced significantly improved quality of postoperative function ( $P=0.029$ ).

**Conclusions:** Both FONB and FICB provided pain control for elderly patients with hip fracture. However, compared with FICB, FONB resulted in significantly improved analgesia with a reduced requirement for analgesic drugs.

**MeSH Keywords:** **Accessory Nerve • Cranial Nerves • Neurology**

**Full-text PDF:** <https://www.medscimonit.com/abstract/index/idArt/915289>

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## Background

Hip fractures are common among the elderly and are associated with moderate to severe pain accompanied by systemic effects, including on the immune system [1]. Poor management of acute pain due to hip fracture can prolong the length of stay in hospital and increase healthcare costs. Therefore, pain assessment should be performed on hospital admission for elderly patients with hip fracture [2], and the appropriate level of analgesic therapy should begin as soon as possible.

In our hospital, preliminary studies showed that nerve block with fascia iliaca compartment block (FICB) could significantly relieve the pain due to hip fracture in elderly patients who were expected to undergo surgery within 48 hours after hospital admission. Also, the FICB procedure led to improved quality of life during hospitalization but could not completely relieve the pain in some patients, resulting in a requirement for analgesic drugs for pain control.

The femoral and obturator nerves innervate the hip joint capsule, with the main nerve supply being from the obturator nerve [3]. A recent study showed that the FICB procedure did not block the obturator nerve [4], which may explain why FICB did not completely relieve the pain of hip fracture in patients in our hospital.

Based on a review of the literature, there have been no previous studies to compare femoral obturator nerve block (FONB) with FICB. Therefore, this prospective study aimed to compare FONB with FICB on the management of acute preoperative pain in elderly patients with hip fracture.

## Material and Methods

### Patient enrolment

Patients were included in the study who attended the Emergency Department of Beijing Jishuitan Hospital. The patients were  $\geq 65$  years of age ( $n=154$ ) and were diagnosed with hip fracture and had surgery within 48 hours of hospital admission. The hip fractures included femoral neck fracture, femoral intertrochanteric fracture, and femoral subtrochanteric fracture. Patients were enrolled in this study from June 2015 to August 2016. The patients were divided into two groups who received the ultrasound-guided nerve block, the femoral obturator nerve block (FONB) group ( $n=77$ ), and the fascia iliaca compartment block (FICB) group ( $n=77$ ).

The inclusion criteria were a visual analog scale (VAS) score for pain  $\geq 40$  on hospital admission and adequate health status for general anesthesia and surgery, and surgery scheduled

for 48 hours after hospital admission. Exclusion criteria were the presence of contraindications for regional nerve block, the use of non-steroidal anti-inflammatory drugs (NSAIDs) or opioid analgesics, the presence of pain caused by comorbidities, mental illness, and patients who had received any analgesic medications within 24 hours before hip fracture, and the presence of contraindications to surgery or anesthesia.

### Study design

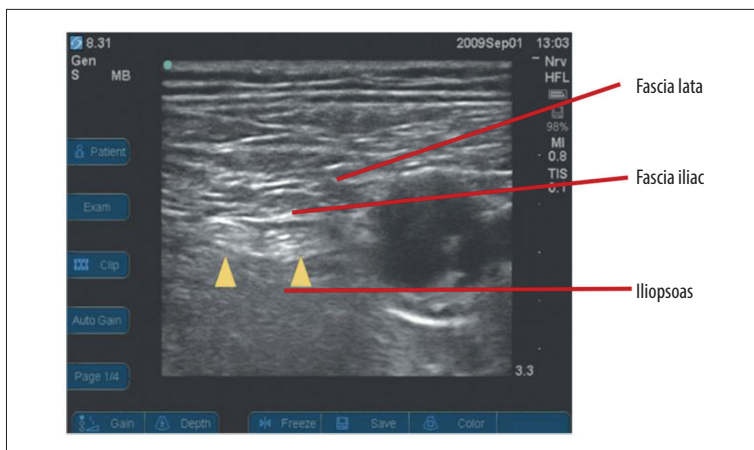
This study was designed as a prospective, double-blind, controlled study. Approval of the study was by the Ethics Committee of Beijing Jishuitan Hospital (approval date, 2015.6.12). The 154 patients included in the study provided written informed consent.

### Patient monitoring and preoperative nerve block

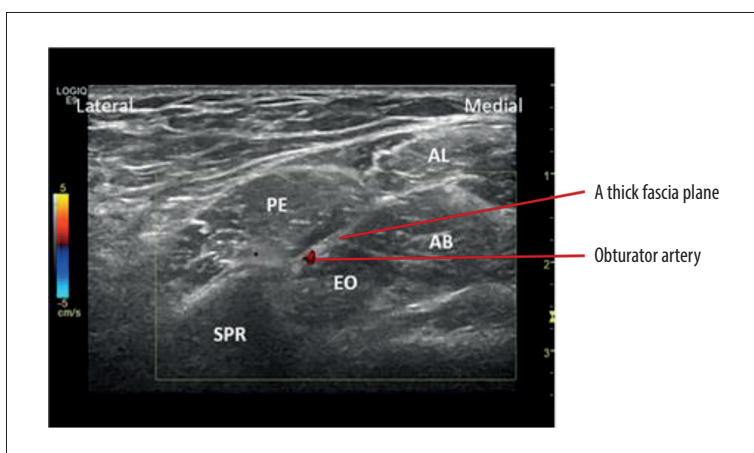
Standard patient monitoring procedures included an electrocardiogram (ECG), and noninvasive arterial blood pressure (NIBP) measurement. Pulse oximetry ( $SpO_2$ ) was performed in the operating room using a GE Datex-Ohmeda S/5 Anesthesia Monitor (GE Healthcare Life Sciences, Logan, UT, USA). Venous access was established.

FICB was performed, as previously described by Capdevila and colleagues [5]. Briefly, patients were placed in the supine position, and a line was drawn that connected the pubic tubercle and anterior superior iliac spine, which was divided into equal thirds. The point where the line intersected the middle and lateral section was determined, and the probe was positioned 2 cm beneath this point, and the fascia lata, the iliac fascia, and the iliopsoas were identified. The probe was directed to the femoral, obturator, and lateral femoral cutaneous nerves. A sterile 18-gauge nerve block needle was inserted and advanced until it achieved double puncture. Normal saline (5 ml) was injected to confirm the location of the needle tip between the iliac fascia and iliopsoas muscle (Figure 1). Local anesthetic solution (35 ml) was injected that contained 0.4% ropivacaine hydrochloride and 5 mg of dexamethasone sodium phosphate. Thirty minutes after the FICB was completed, the patient was admitted to the ward.

FONB was also performed while the patients were in the supine position, and the probe was placed in the same position as with the FICB. The femoral nerve block was performed following injection of 20ml of local anesthetic solution. The probe was moved beneath the level of the inguinal ligament and was positioned at a  $30^\circ$  to  $40^\circ$  cephalad angle. The thick fascial plane was identified that extended to the pectineus muscle (Figure 2). The needle was inserted at a  $30^\circ$  to  $45^\circ$  angle to the skin, 2 cm from the center of the ultrasound probe. After injecting 5 ml of anesthetic solution, an ultrasound monitor



**Figure 1.** Schematic diagram of fascia iliaca compartment block (FICB). The yellow arrow indicates the femoral nerve. The fascia iliaca compartment is the fascial space between the iliac fascia and the iliopsoas muscle.



**Figure 2.** Schematic diagram of the femoral obturator nerve block (FONB). AL – adductor longus muscle; AB – adductor brevis muscle; PE – pectineus muscle (faded); EO – external obturator muscle; SPR – superior pubic ramus. The femoral obturator nerve was the point of identification of a thick fascial plane deep to the pectineus muscle. The obturator artery may be identified.

was used to visualize the hypoechoic shape that was separate from the muscles in the fascial layer. This procedure allowed for additional cephalad angling, and the advancement of the needle into the dilated interfascial space, facilitating cephalad local anesthesia. Pressure was applied distal to the puncture site for 3 minutes to promote the distribution of the local anesthetic.

**Pain management**

Postoperative pain was managed according to the standard procedure of our hospital. When visual analog scale (VAS) scores for pain at rest were  $\geq 40$ , oxycodone (4.482 mg) and acetaminophen (325 mg) were administered orally. If the pain was not relieved after 60 min, 50 mg of pethidine hydrochloride was given by intramuscular injection. Pethidine hydrochloride was used repeatedly, if required, with a maximum dose of 150 mg with dosing intervals of no less than 4 hours (Figure 3).

**Patient follow-up data**

The VAS scores for pain at rest were recorded for each patient, first with the patient in a supine position, and then with

passive leg elevation to 15° before nerve block and 30 min after nerve block, and on the first and second morning after admission. Vital signs that were recorded included the mean arterial blood pressure (MAP), heart rate (HR), and peripheral oxygen saturation (SpO<sub>2</sub>) before and 30 min after nerve block, and on admission to the hospital ward. The use of analgesic medications and adverse reactions to pain medications were recorded. Nursing quality included whether a patient could turn over and sit up in bed independently and could request food and water. Sleep rhythm and quality were recorded, including sleep duration at night, and the ability to stay awake during the day, which was considered normal. Sleep quality scores ranged from 0–10, where 0 represented excellent, and 10 represented the worst sleep experience, respectively. Angiography and venography for arterial and venous occlusion, including deep venous thrombosis (DVT) were performed. The cerebral function was assessed using the confusion assessment method for the intensive care unit (CAM-ICU), twice a day between 9–11 am and 5–7 pm. Any complications associated with the nerve block procedure and perioperative complications, such as nausea, vomiting, pneumonia, bedsores, and acute coronary syndrome, were recorded. Finally, all patients included in the study had the rehabilitation data recorded, including the

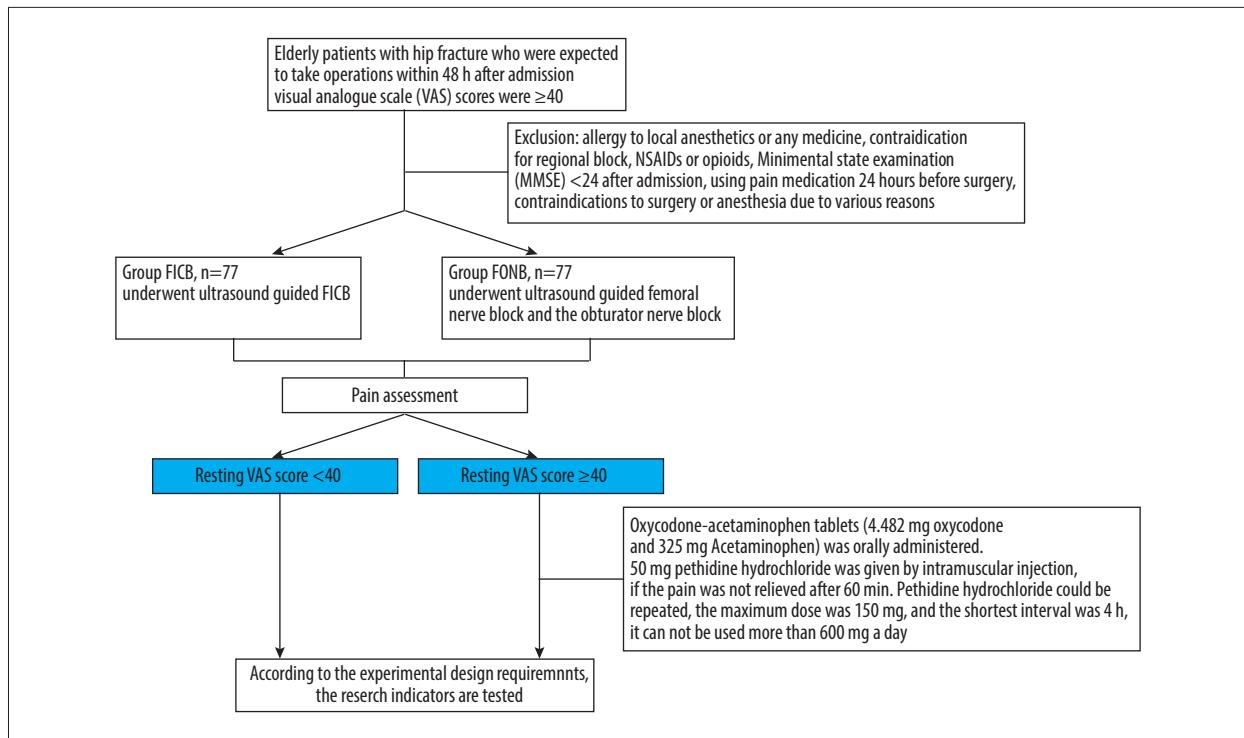


Figure 3. Flow diagram of the study design.

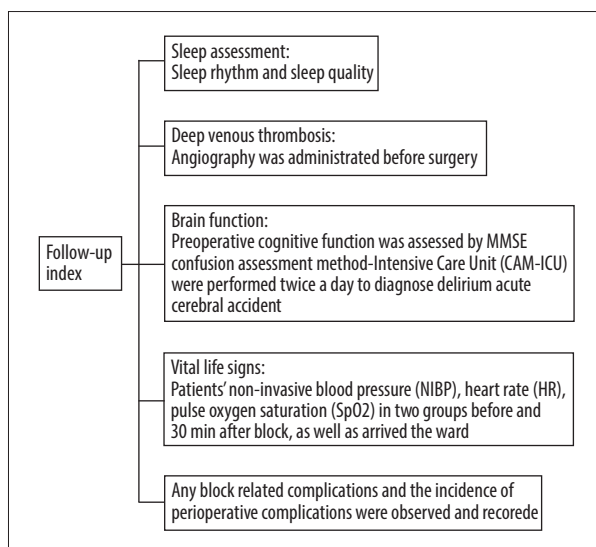


Figure 4. The indices at patient follow-up.

activity of daily living (ADL) scores before hip fracture, and 30 days postoperatively (Figure 4).

### Randomization and blinding

Patient randomization was performed by the computerized generation of a random patient number, which was concealed in a sealed envelope until the intervention had been assigned. Although the anesthetist was not blinded to the treatment

allocation, all data were gathered by an independent physician who was blinded to the patient treatment allocation. A separate independent observer conducted the evaluation. Patients remained blinded to which nerve block procedure they were given.

### Power analysis

The sample size was calculated based on the difference between the VAS score before and after nerve block between the two groups. Data were obtained, as previously described. Seventy-two cases were required in each group to identify significant differences with an 80% power at a significance level of 0.05. Accordingly, this study included 77 patients in each group to accommodate a margin of error.

### Statistical analysis

A normality test was performed for continuous variables, such as demographic data and VAS scores. Data were presented as the mean  $\pm$  standard deviation (SD). When the data followed a normal distribution, such as age, height, body weight, VAS, and ADL scores and vital signs, including NIBP, HR, and SpO<sub>2</sub>, the values between groups were analyzed by an independent sample t-test. A paired-samples t-test was used to analyze the values between different time points in the same group. Otherwise, the Mann-Whitney U test was performed to establish differences between groups for the parameters that

**Table 1.** The comparison of the patients' general condition between 2 groups ( $\bar{x} \pm s$ ).

Group	Gender (M/F)	Age (ys)	Height (cm)	Body weigh (kg)	ASA Classification (II/III/IV)
FONB	20/57	78.0±7.8	162.2±6.4	60.9±10.5	53/24/0
FICB	24/53	79.3±6.0	162.4±7.3	63.7±11.5	53/23/1
P value	0.593	0.254	0.870	0.121	0.600

**Table 2.** The comparison of VAS between 2 groups ( $\bar{x} \pm s$ ).

Group	Time	Resting VAS score	Exercising VAS score
FONB	Before block (evaluating performance)	81±12	91±11
	30 min after block	25±11 <sup>a</sup>	62±14 <sup>a</sup>
	The first day after admission	26±10 <sup>a</sup>	44±13 <sup>ab</sup>
	The second day after admission	34±9 <sup>abc</sup>	51±16 <sup>abc</sup>
FICB	Before block (evaluating performance)	81±10	89±9
	30 min after block	29±12 <sup>*a</sup>	69±12 <sup>**a</sup>
	The first day after admission	31±7 <sup>**a</sup>	52±13 <sup>**ab</sup>
	The second day after admission	35±8 <sup>abc</sup>	52±13 <sup>ab</sup>

\* *P* indicates that  $P < 0.05$  when compared with group FONB; \*\* *P* indicates that  $P < 0.05$  when compared to group FONB; <sup>a</sup> *P* indicates that  $P < 0.01$  when compared with that before block; <sup>b</sup> *P* indicates that  $P < 0.01$  when compared with 30min after block; <sup>c</sup> *P* indicates that  $P < 0.01$  when compared with first day after admission.

included the requirement for pain medication, sleep quality score, and the degree of patient satisfaction with preoperative pain control. These data were expressed as the median and quartile range [M (Q)]. Numerical data, including gender, the incidence of adverse reactions to nerve block and pain medications, nursing quality, and the prevalence of sleep rhythm disorder, or other complications (DVT, pneumonia, bedsores) were analyzed using Fisher's exact test. Data were analyzed using SPSS version 22.0 software (IBM, Chicago, IL, USA). A *P*-value  $< 0.05$  was considered to be statistically significant.

## Results

### Comparison of the patient demographic data between the femoral obturator nerve block (FONB) group and the fascia iliaca compartment block (FICB) group

No significant differences were found in the demographics between the two study groups (Table 1). All patients underwent successful surgery with anatomical structures being visible when guided by ultrasound. There were no nerve block-related complications, such as hemorrhage, hematoma, toxicity from local anesthesia or trauma to the adjacent tissues. All patients underwent preoperative pain management according to study protocol and completed the observational studies.

### The efficacy of analgesia of FONB and FICB

The visual analog scale (VAS) scores for pain at rest in the FONB group compared with the FICB group were  $25 \pm 11$  and  $29 \pm 12$  ( $P = 0.016$ ), and on exercise they were  $62 \pm 14$  compared with  $69 \pm 12$  ( $P = 0.001$ ), and the VAS scores in the FONB group were significantly lower than in the FICB group, 30 minutes after nerve blocking. Also, the resting VAS scores in the FONB group and the FICB group were  $26 \pm 10$  and  $31 \pm 7$  ( $P = 0.001$ ) and the exercising VAS scores in the FONB group and the FICB group were  $44 \pm 13$  and  $52 \pm 13$  ( $P < 0.01$ ), which were significantly lower in the FONB group compared with the FICB group on the first day after nerve blocking. However, no statistically significant differences were detected for the resting VAS scores in the FONB group and the FICB group, which were  $34 \pm 9$  and  $35 \pm 8$  ( $P = 0.601$ ) and on exercising, which were  $51 \pm 16$  and  $52 \pm 13$  ( $P = 0.642$ ) at two days after nerve blocking (Table 2). Also, there were no significant differences between the two study groups regarding the mean arterial blood pressure (MAP), heart rate (HR), and peripheral oxygen saturation ( $SpO_2$ ) at any of the time points ( $P > 0.05$ ) (Table 3).

The resting VAS scores and the VAS scores at rest were significantly decreased at all time points after nerve blocking. In the FONB group, no difference in resting VAS scores was found between 30 min and day one after nerve blocking. However,

**Table 3.** The comparison of vital signs between two groups ( $\bar{x} \pm s$ ).

Group	Time	HR	MBP	SpO2
FONB	Before block (evaluating performance)	80±15	91±14	94±2
	30 min after block	77±15 <sup>a</sup>	88±12 <sup>a</sup>	94±2
	Arriving the ward	76±16 <sup>a</sup>	86±12 <sup>ab</sup>	94±3
FICB	Before block (evaluating performance)	78±15	92±15	94±2
	30 min after block	75±14 <sup>a</sup>	89±14 <sup>a</sup>	94±3
	Arriving the ward	73±15 <sup>ab</sup>	87±14 <sup>ab</sup>	94±3

<sup>a</sup> *P* indicates that *P*<0.01 when compared with that before block; <sup>b</sup> *P* indicates that *P*<0.01 when compared with 30 min after block.

**Table 4.** The comparison of analgesic drugs usage between two groups.

Group	Usage case (N)	Percentage (%)	Dosage (mg) [M (Q)]
FONB	5	6.5	2.5/(2.5–2.5)
FICB	14	18.2*	2.5/(2.5–3.125)

\* *P* indicates that *P*<0.05 when compared with group FONB.

**Table 5.** The comparison of drug-related complications occurrences between two groups.

Group	FONB		FICB	
	The number of cases	Percentage (%)	The number of cases	Percentage (%)
Nausea	2	2.6	10*	13.0*
Vomiting	1	1.3	3	3.9
Vertigo	1	1.3	8*	10.4*
Drowsiness	0	0	0	0
Itch	0	0	0	0
Urinary retention	0	0	0	0

\* *P* indicates that *P*<0.05 when compared with group FONB.

the resting VAS scores on the second day were higher than those at 30 min and day one after nerve blocking.

In the FICB group, the resting VAS scores at 30 minutes and day one after nerve blocking were comparable. The resting VAS scores were higher on the second day compared to those at 30 minutes and at day one after nerve blocking. However, the exercising VAS scores were lower on day one and day two when compared with the VAS scores at 30 minutes after nerve blocking (*P*<0.01). There were no significant differences in VAS scores between the first and second days after nerve blocking (Table 2). Changes in the HR and MAP were found, as both were significantly decreased 30 minutes after nerve blocking (*P*<0.01). The MAP was also lower when recorded at the time of hospital admission than at 30 minutes after nerve blocking in both study groups. The HR of patients in the FICB

group was lower at the time of hospital admission when compared with the HR at 30 minutes after anesthesia, but no such difference was noted in the FONB group (Table 3).

#### Comparison of the use of analgesics and associated adverse reactions in the two study groups

The average doses of analgesic drugs required were indistinguishable between the two study groups. However, the use of oxycodone and acetaminophen tablets was significantly increased in the FICB group (*P*=0.048) (Table 4). No patient in this study used pethidine hydrochloride for pain management in either study group. Although no differences were found in the incidence of vomiting, episodes of nausea and vertigo were significantly increased in the FICB group compared with the FONB group (*P*=0.031, and *P*=0.034, respectively). None of

**Table 6.** The comparison of general conditions during hospitalization between two groups [M(Q)].

Group	FONB (n=77)	FICB (n=77)
Sleep rhythm disorder (Number/%)	13/16.9	15/19.5
Sleep quality		
The first day	3 (2–6)	3 (2–5)
The second day	4 (2–8)	4 (3–8)
DVT (number/%)	7/9.1	7/9.1
Delirium (number/%)	4/5.2	3/3.9
Other complications (number/%)	2/2.5	4/5.2

**Table 7.** Comparison of ADL score between FONB and FICB groups ( $\bar{x} \pm s$  or N/%).

Group	ADL score before injury (evaluating performance)	ADL score 30 days postoperatively	Lost to follow up (N/%)	T value	P value
FONB	92.8±7.9 (n=77)	85.9±11.2 (n=70)	7/9.1	11.605	<0.01
FICB	90.9±7.2 (n=77)	84.2±10.7 (n=68)	9/11.7	9.414	<0.01
Statistical value	1.548	0.894	0.279		
P value	0.124	0.373	0.793		

the patients complained of drowsiness, itching, or urinary retention (Table 5).

#### Comparison of nursing quality, sleep profile, and adverse effects during hospitalization before surgery in the two study groups

Patients in the FONB group were more likely to be able to turn over and sit up in bed independently. There were no differences in the number of patients who were able to initiate a request for food and water. Similarly, sleep quality and complications such as DVT, pneumonia, and bedsores between the groups on the first and second days after hospital admission did not differ significantly (Table 6).

#### Rehabilitation and preoperative pain control in the two study groups

The postoperative activity of daily living (ADL) score after 30 days was lower when compared with the ADL scores before hip fracture between the two study groups, although this difference was not statistically significant (Table 7). There was no significant difference in the degree of reported preoperative analgesia between the two study groups, with the FONB group being 9 (range, 8–9) and the FICB group being 9 (range, 7–9) ( $Z=2.048$ ) ( $P=0.041$ ).

## Discussion

In this study, femoral obturator nerve block (FONB) was compared with standard fascia iliaca compartment block (FICB) in the management of acute preoperative pain in elderly patients with hip fracture. The results were that both FONB and FICB resulted in effective pain control, but when compared with FICB, FONB provided better analgesic effects and reduced complications. Patients in the FONB group required less postoperative opioid analgesics, which was an indicator of superior pain control. As a result, these patients may be expected to suffer less from the adverse effects of opioid use when compared with patients who received FICB.

The use of nerve block is a preferred alternative for analgesia in patients with fracture of the femoral neck, especially when the use of oral analgesics such as non-steroidal anti-inflammatory drugs (NSAIDs) is contraindicated or predicted to be ineffective [6]. For example, NSAIDs can increase the risk of cardiovascular adverse events, coagulopathy, and peptic ulcers, which are of particular concern in elderly patients. The 2014 guidelines for the American College of Cardiology (ACC) and American Heart Association (AHA) indicated that cyclooxygenase-2 (COX-2) inhibitors should not be recommended as a first-line medication for pain management in patients at increased risk of cardiovascular disease [7]. Although opioids offer superior preoperative analgesic efficacy compared with NSAIDs, adverse effects associated with the use of opioids that include nausea, vomiting, dizziness, respiratory depression,

and hypotension, limit their clinical use. Also, opioid use can increase the incidence of delirium and other severe adverse events, which can be fatal, especially in elderly patients with comorbidities [8,9].

Previously recommended nerve block techniques for achieving preoperative analgesia include fascia iliac compartment block, femoral nerve block, lumbar plexus block, or combinations of these methods [10]. In FICB, the local anesthetic is injected into the interfascial space between the iliac fascia and iliopsoas muscle. FICB has been widely used with large volumes of local anesthetic, which diffuses through the interfascial space, blocking the femoral, obturator, and lateral femoral cutaneous nerves. This procedure has been reported to provide good preoperative and postoperative analgesia for hip surgery. Our previous study showed that FICB could provide up to 36–48 hours of effective analgesia and fewer complications in elderly patients with hip fractures who were expected to undergo surgery within 48 hours [11,12].

However, a recent clinical study found that FICB could not completely relieve hip fracture pain, and some patients still required analgesic drugs to relieve pain [12]. Nociceptive hip joint capsule fibers have previously been shown to be primarily present in the anterior and superolateral regions, while those in the posterior and inferior areas are mainly mechanoreceptors [13]. This finding suggests that femoral and obturator nerves are involved in pain sensation in patients with hip fracture. There is evidence that blockade of the femoral, obturator, and lateral femoral cutaneous nerves can relieve a significant amount of pain after hip surgery [14,15]. Capdevila and Swenson reported that FICB could not block the obturator nerve [5,16]. Further clinical findings showed that FICB could not completely relieve resting pain or pain on movement, and it has been recommended that combined obturator, femoral, and lateral femoral cutaneous nerve blockade is the most effective approach to postoperative analgesia in hip surgery [17].

The anatomy of the obturator nerve and the positioning of the needle while administering the anesthesia are crucial factors in determining the efficacy of the analgesia [18–22]. Ultrasound-directed analgesic administration enhances precision and limits damage to the surrounding tissues. In the present study, the ultrasound probe and the puncture needle pointed to the opening of the obturator canal. The target point was the site before the branching of the main obturator nerve, which meant that both branches of the obturator nerve could be successfully blocked in all patients.

Also, the findings of the present study did not show a difference in sleep quality or in the incidence of delirium between the two study groups on the first and the second day after hospital admission. In previous studies, the quality of sleep

in patients treated for acute pain by emergency FICB was better than for patients without nerve block on the first and the second day after hospital admission. Also, in this study, the incidence of delirium was lower in the patients treated with FICB. Therefore, these observations, indicate that FICB could improve the quality of sleep with adequate pain management supported by low dose opioid analgesics, low oxygen consumption, and reduced risk of delirium [12,23,24].

Nursing quality is an essential part of rehabilitation for elderly patients with hip fracture. The incidences of bedsores, pneumonia, deep vein thrombosis (DVT), and hypovolemia can be prevented if the patient can turn over, sit up in bed independently, and initiate requests for food and water [25]. In the FONB group in this study, patients were more likely to turn over and sit up in their beds due to better pain control.

Regarding rehabilitation indicators, bedside muscle isometric contraction training was performed on the first day, and walker-assisted ambulation was initiated on the second day after surgery. The number and duration of daily activities differed between patients. However, due to different preoperative patient conditions, some could not complete the scheduled rehabilitation monitoring cycle before leaving the hospital. On discharge from hospital, patients had the option of transferring to a rehabilitation hospital or going home, with the choice being influenced by patient-specific factors, including cost. Therefore, postoperative outcomes varied greatly. A previous study reported that only 50% of ADL scores could be restored to the preoperative level [26], suggesting that only some patients could return to the pre-injury functional state. In the current study, there was a one-month follow-up, an restoration of the preoperative ADL score was 90%. It was apparent that the recovery of functional status among patients after injury mainly depended on the quality of rehabilitation treatment and the preoperative physical condition of the patients. Importantly, the design and focus of this study were to address how to control preoperative pain and not to evaluate the rehabilitation outcomes following the different methods of nerve block.

Although the findings from this study support the superior benefits of FONB, this study had several limitations. Firstly, the study sample size was small, making it impossible to compare some rare complications between the study groups. Secondly, due to the application of different nerve blocking techniques, the anesthetist could not be blinded to the procedure, which may have introduced study bias. The effects of the obturator nerve block have previously been shown to be mainly linked to the reduction in adductor muscle strength [27]. Therefore, patients in this study were not evaluated for adductor muscle strength, which meant that the study compared the efficacy of the two nerve block procedures based on their analgesic effects.



## Conclusions

This study aimed to compare femoral obturator nerve block (FONB) with fascia iliaca compartment block (FICB) in the management of acute preoperative pain in elderly patients with hip fracture. The findings showed that both FONB and FICB resulted in effective pain control, but when compared with FICB, FONB provided better analgesic effects and reduced

the need for systematic analgesic drugs, and reduced complications. Large-scale, controlled, multicenter studies are needed to confirm the efficacy of the FONB in the management of acute preoperative pain in elderly patients with hip fracture.

## Conflict of interest

None.

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