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Original Research Article

Effectiveness of fascia iliaca compartment block versus combined pericapsular nerve group and lateral femoral cutaneous nerve block for postoperative analgesia in hip surgeries: A comparative study

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Abstract

Background and Aims: Efficient postoperative pain management is crucial for promoting early mobility and minimizing complications, especially in geriatric patients undergoing hip surgeries for fractures. Regional anaesthesia techniques such as the fascia-iliaca compartment block (FICB) and the pericapsular nerve group block combined with the lateral femoral cutaneous nerve (PENG + LFCN) block have been shown to provide superior pain relief compared to systemic analgesics. This study aimed to assess and compare the effectiveness of these two blocks in terms of postoperative analgesia, focusing on numerical rating pain scores, duration of pain relief, and overall patient outcomes.

Materials and Methods: This prospective, randomized controlled trial included 60 patients undergoing hip fracture surgery under spinal anaesthesia. Patients were randomly assigned to either the PENG + LFCN block group or the FICB group. The primary outcomes included the duration of postoperative analgesia, pain scores, and the need for systemic analgesics. Secondary outcomes assessed the ease of positioning, patient satisfaction, and quadriceps muscle power recovery.

Results: The PENG + LFCN group demonstrated significantly longer postoperative analgesia (916.97 ± 143.52 minutes vs. 662.53 ± 118.70 minutes, $p < 0.001$), lower pain scores, and reduced requirements for rescue analgesia (23.3% vs. 73.3%, $p < 0.001$). Additionally, patients in the PENG + LFCN group reported higher satisfaction (mean score 4.47 ± 0.85 vs. 2.90 ± 1.13, $p < 0.001$) and had better recovery of quadriceps muscle power ($p < 0.01$).

Conclusion: The PENG + LFCN block provided superior postoperative pain relief compared to the FICB, with a longer duration of analgesia, lower analgesic consumption, and higher patient satisfaction. These findings suggest that the PENG + LFCN block may be a more effective technique for managing postoperative pain following hip fracture surgeries.

Keywords: Hip fracture surgery, Pericapsular nerve group block, Fascia iliaca compartment block, Lateral femoral cutaneous nerve block, Postoperative analgesia.

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1. Introduction

Geriatric patients undergoing hip surgery often experience severe pain after the surgery especially in the early post operative period which can lead to respiratory and cardiac complications, prolonged hospital stays and impaired mobility which ultimately results in poor postoperative outcomes. Effective pain management is crucial for optimal recovery and preventing long-term consequences.[1-4] Regional anaesthesia techniques are usually preferred because of their ability to provide superior analgesia that too targeted to the site of pain with least systemic adverse effects and have gained much popularity compared to other systemic analgesic agents. Among these Pericapsular nerve group (PENG) block with added lateral cutaneous nerve of thigh block and fascia iliaca compartment block had shown promising results in managing postoperative pain. However, Facia iliaca compartment block (FICB) may cause motor weakness, hindering early mobilization. PENG block, a novel technique, targets articular branches of key nerves, offering effective pain relief without significant motor impairment.[2,5]

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The addition of lateral cutaneous nerve of thigh block to PENG block may further enhance analgesia.[5] Our study aimed to compare the efficacy of the Fascia iliaca compartment block (FICB) with the combined PENG and LFCN block in providing postoperative analgesia. The primary outcomes assessed included numerical rating pain scores, time to the first request for analgesics (duration of analgesia), and patient satisfaction scores. By identifying the superior technique, this research aimed to improve patient outcomes and contribute to evidence-based practices in post-hip surgery pain management.

2. Materials and Methods

This prospective, randomized, single-blinded trial was conducted to compare the efficacy of the Fascia iliaca compartment block (FICB) with the combined Pericapsular nerve group (PENG) and Lateral femoral cutaneous nerve (LFCN) block for postoperative pain relief after hip fracture surgeries. The study was conducted at a 700-bed multispecialty, NABH-accredited tertiary care medical college hospital in Wayanad district, Kerala, India. The study population consisted of patients admitted to the Department of Orthopaedics for surgical fixation of hip fractures, specifically those with neck of femur, intertrochanteric, and subtrochanteric fractures.

Informed written consent for both the procedure and participation in the study was obtained from all participants prior to inclusion. The study was conducted between September 2022 and January 2024. Institutional Research and Ethics Committee (IEC) approval was obtained (IEC/DMWIMS/JULY/2022-032), and the research proposal was registered with the Clinical Trial Registry of India (CTRI/2023/11/059842).

Sample size calculations were performed using N-master software, based on the study by Jadon et al., with a 95% confidence level and 80% power. The minimum required sample size per group was 27.[1] To account for a 10% dropout rate, 30 participants were included in each group, resulting in a total of 60 patients. Secondary outcomes were not powered in the study. Patients aged >18 years and classified as ASA Physical status class I or II, undergoing surgery for intertrochanteric, subtrochanteric, or neck of femur fractures, were included. Exclusion criteria included contraindications to subarachnoid block (e.g., known allergic reactions to study drugs, chronic pain requiring long-term analgesics, coagulopathy, infection at the site of injection, conversion to general anaesthesia, and pregnant patients).

After Institutional research and ethics committee approvals (IEC/DMWIMS/JULY/2022-032), the research proposal was registered with the Clinical Trial Registry of India (CTRI/2023/11/059842). Sixty participants were randomly divided into two groups containing 30 participants in each using a computer-generated random number table and first 30 allocated to group F and second 30 to group P: Group F received ultrasound guided FICB and group P received ultrasound-guided combined PENG and LFCN block. The patients were blinded with respect to the block technique which they were receiving (Single blinded study). Oral alprazolam 0.25 mg and pantoprazole 40 mg were given on the night before surgery as premedication. 8 hours of fasting for solids and 2 hours for clear liquids were advised for all participants.

Patients were instructed how to read the Numerical rating scale (NRS) for pain on the day prior to surgery and just before administering anaesthesia. Block was administered 15 minutes before sub-arachnoid block using a linear ultrasound probe (GE 8MHz). Group F patients were given 25 ml of 0.25% bupivacaine with 8 mg of dexamethasone while Group P participants received 20 ml of 0.25% bupivacaine with 8 mg of dexamethasone for PENG block and 5 ml of 0.25% bupivacaine for LFCN block. A total amount of bupivacaine and dexamethasone administered were equal in both groups.

Subarachnoid block was given with 25G Quincke spinal needle using 2.8 ml of 0.5% heavy bupivacaine and 60 micrograms of buprenorphine as adjuvant at the L3-L4 intervertebral space with patient in sitting position. Heart rate (HR), blood pressure (BP), mean arterial pressure (MAP) and SpO2 were continuously monitored intraoperatively. In cases where the spinal anaesthesia was failed, general anaesthesia was administered and those participants were excluded from the study.

After the surgery patients were transferred to the postoperative high dependency unit (HDU) where hemodynamic and respiratory parameters were monitored every 15 minutes. All the patients were supplemented with intravenous paracetamol 1 g every 8 hours for baseline analgesia. The rescue analgesics were 1 mg/kg of tramadol and/or diclofenac provided when the NRS > 4 at any time during the assessment or when the patient complained of pain and asked for analgesics in in the post operative period. The NRS, quadriceps muscle weakness score and patient satisfaction scores were recorded at 3, 6, 9, 12, 24 and 48 hours. The Ease of positioning (EOSP) Score was assessed on a scale of 0-3 (0: Unable to position, 1: Abnormal posturing requiring support, 2: Mild discomfort without support, 3: Optimal positioning without pain) during the positioning for spinal anaesthesia.

Data were analysed using SPSS 26.0v and other appropriate statistical tools. Qualitative data were analysed using the chi-square test, and quantitative data were analysed using unpaired Student's t-test. A p-value of <0.05 was considered statistically significant.

3. Results

Sixty patients were included in the study after applying the inclusion and exclusion criteria (**Figure 1**). The two groups

were comparable in terms of age, sex, ASA physical status, and type of surgery, with all p-values exceeding 0.05, indicating no significant differences (**Table 1**).

There was no significant difference in mean intraoperative heart rates between the two groups at all time intervals (5, 10, 20, 30 minutes, and 1 hour), with p-values ranging from 0.17 to 0.57 (**Table 2**). However, a significant difference in Mean arterial pressure (MAP) was observed at 30 minutes ($p = 0.02$), with the PENG + LFCN group exhibiting higher MAP compared to the FICB group (**Table 3**). No statistically significant differences were found in MAP at other time intervals.

The PENG + LFCN group required significantly less time to position the patient for spinal anaesthesia compared to the FICB group ($p < 0.001$). The Ease of spinal positioning (EOSP) scores were not significantly different between the two groups ($p = 0.22$). Additionally, the PENG + LFCN group required fewer attempts for successful spinal anaesthesia than the FICB group ($p = 0.003$) (**Table 4**).

The PENG + LFCN group reported significantly lower pain scores and better quadriceps muscle power at all intervals (3, 6, 9, 12, 24, and 48 hours) compared to the FICB group, with all p-values being less than 0.01 (**Table 5**, **Figure 2**). The PENG + LFCN group also demonstrated a significantly prolonged duration of analgesia ($p < 0.001$) and reduced postoperative analgesic requirements compared to the FICB group ($p < 0.001$) (**Table 6**, **Figure 3**). Additionally, the PENG + LFCN group had a significantly higher mean satisfaction score compared to the FICB group ($p < 0.001$) (**Table 6**).

No adverse events were reported in either the FICB group or the combined PENG + LFCN group.

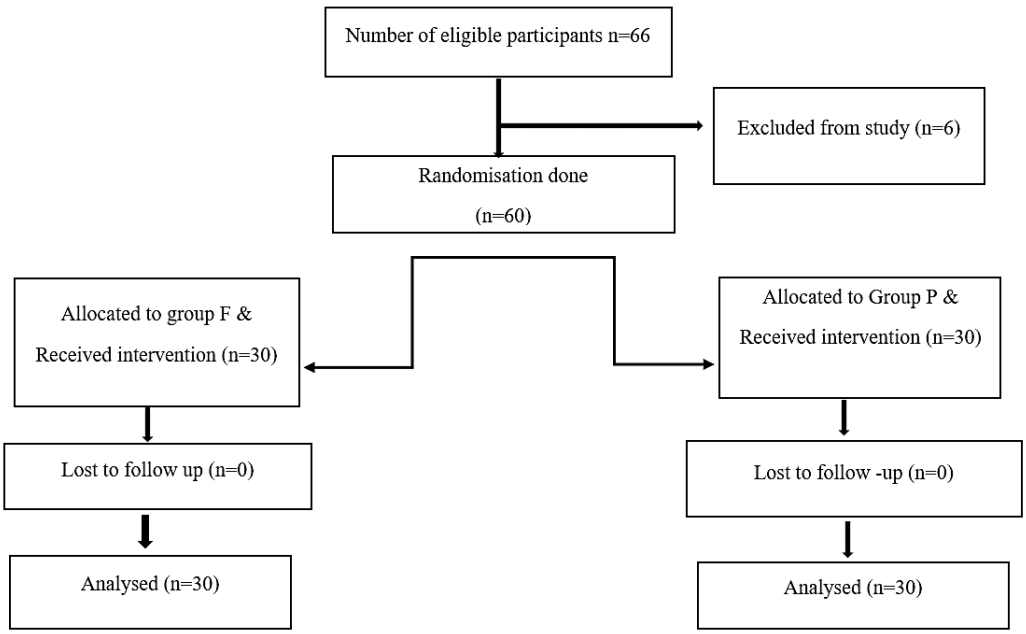
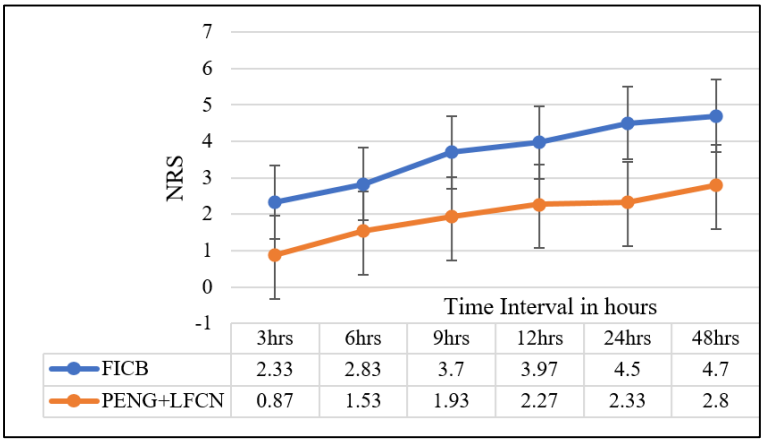
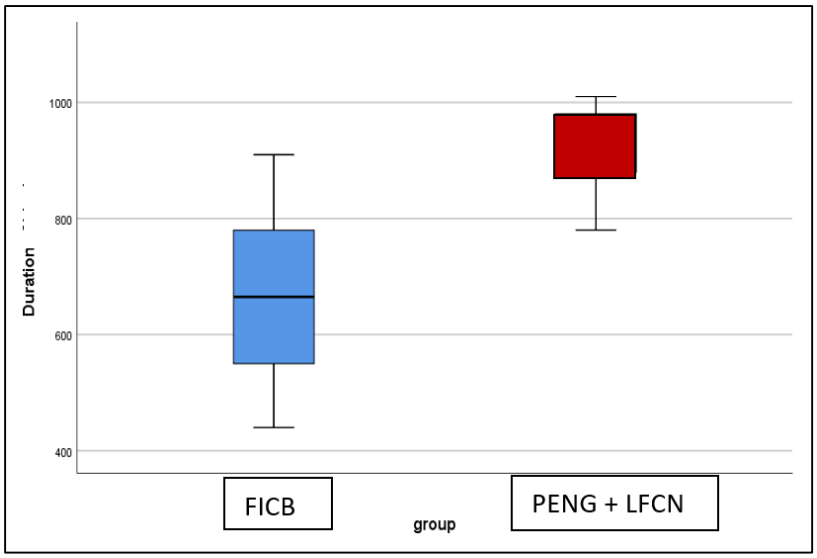


Figure 1: CONSORT flow diagram



PENG: Pericapsular nerve group block, LFCN: Lateral femoral cutaneous nerve block, FICB: Fascia iliaca compartment block.

Figure 2: Comparison of numerical rating scale for pain at different time intervals



PENG: Pericapsular nerve group block, LFCN: Lateral femoral cutaneous nerve block, FICB: Fascia iliaca compartment block. Y axis duration in minutes

Figure 3: Mean duration of analgesia in both the study groups

Table 1: Demographic variables, site of fracture in the both groups

Variable	FICB (n=30)	PENG+LFCN(n=30)	p-value
Age (years)	73.70	74.00	0.91
Male/female	4/26 16.3/83.7 (%)	8/22 26.7/73.3(%)	0.19 (Chi-square value- 1.67)
ASA 1/2(number)	4/26 (13.3/86.7 %)	3/27 (10/90%)	0.21
Site of Fracture (IT/NOF)	24/6 (80% / 20%)	17/13 (56.6 % / 43.33%)	0.1397

ASA: American society of anaesthesiologists, IT: Inter-trochanteric, NOF: Neck of femur, PENG: Pericapsular nerve group block; LFCN: Lateral femoral cutaneous nerve block, FICB: Fascia iliaca compartment block.

Table 2: Mean intraoperative heart rate of the study subjects at different time interval in both groups

Intraoperative heart rate	Group	N	Mean	Std. Deviation	p-value
5 min	FICB (F)	30	80.77	12.979	0.57
	PENG +LFCN(P)	30	78.90	12.842	
10 min	FICB(F)	30	80.87	12.670	0.31
	PENG +LFCN(P)	30	77.63	11.669	
20 min	FICB(F)	30	79.53	11.512	0.38
	PENG +LFCN(P)	30	77.03	10.598	
30 min	FICB(F)	30	80.07	10.869	0.17
	PENG +LFCN(P)	30	76.03	11.772	
1 hour	FICB(P)	30	79.57	11.258	0.22
	PENG +LFCN(P)	30	75.97	11.503	

PENG: Pericapsular nerve group block, LFCN: Lateral femoral cutaneous nerve block, FICB: Fascia iliaca compartment block

Table 3: Mean intraoperative MAP of the study subjects at different time interval

Intra- operative MAP	Group	N	Mean (mmHg)	Std. Deviation	p-value
MAP - 5min	FICB(F)	30	70.67	6.472	
	PENG+ LFCN(P)	30	74.17	11.426	0.15
MAP -10 min	FICB(F)	30	70.50	5.476	0.16
	PENG+ LFCN(P)	30	73.60	10.702	
MAP -20 min	FICB (F)	30	70.13	4.470	0.18
	PENG+ LFCN(P)	30	72.90	10.293	
MAP- 30 min	FICB(F)	30	69.20	5.561	0.02
	PENG+ LFCN(P)	30	73.40	8.394	
MAP- 1 hour	FICB(F)	30	70.40	6.145	0.18
	PENG+ LFCN(P)	30	72.67	6.748	

PENG: Pericapsular nerve group block, LFCN: Lateral femoral cutaneous nerve block, FICB: Fascia iliaca compartment block, MAP: Mean arterial pressure in mmHg

Table 4: Comparison of time to position for CNB, EOSP, and Number of attempts for SAB in FICB and PENG+LFCN group patients

Parameters	FICB (n=30)	PENG+LFCN (n=30)	p-value
Time to position for CNB (Mean ± SD)	12.20 ± 3.448	8.63 ± 2.846	<0.001
EOSP (0,1,2,3 score) (number)	1,9,11,9	0,4,11,15	<0.22 (Chi-square value- 4.22)
Number of attempts for SAB (1,2,3,4) (number of patients)	11, 8,8,3	21,9,0,0	<0.003 (Chi-square value 14.18)

EOSP: Ease of spinal positioning, SD: Standard deviation, PENG: Pericapsular nerve group block, LFCN: Lateral femoral cutaneous nerve block, FICB: Fascia iliaca compartment block.

Table 5: Comparison of ouadriceps muscle power scores in the FICB and PENG +LFCN group patients at various time points

Time point	FICB (n=30)	PENG+LFCN (n=30)	p-value
3 hrs	1.17±0.461	1.77±0.568	<0.01
6 hrs	2.20±0.484	2.80±0.551	<0.01
9 hrs	3±0.643	3.90±0.548	<0.01
12 hrs	3.40±0.621	4.83±0.379	<0,01
24 hrs	4.07±0.450	4.90±0.305	<0.01
48 hrs	0.47±0.466	5±0.000	<0.01

NRS: Numerical rating scale, PENG: Pericapsular nerve group block, LFCN: Lateral femoral cutaneous nerve block, FICB: Fascia iliaca compartment block.

Table 6: Postoperative parameters, postoperative analgesia requirement, duration of analgesia, total analgesia requirement, satisfaction score in FICB and PENG +LFCN Block group patients

Postoperative parameters	FICB (F group) n=30	PENG+LFCN(P) (n=30)	p-value
Postoperative Rescue analgesia required	73.3%	23.3%	<0.001 (Chi-square value - 15.01
Duration of analgesia (mean ± SD) in minutes	662.53 ± 132.538	916.97 ± 65.391	<0.001
Total analgesia requirement in mg (Mean ± SD)	80 ± 58.13	11.67 ± 21.50	<0.01
Satisfaction score (mean ± SD)	2.90 ± 0.960	4.47 ± 0.629	<0.001

SD: Standard deviation), PENG: Pericapsular nerve group block, LFCN: Lateral femoral cutaneous nerve block, FICB: Fascia iliaca compartment block.

4. Discussion

Hip fractures in the elderly require effective pain management for optimal recovery and reduced hospital stays. This study was to compare the efficacy of the PENG block combined with LFCN block versus the FICB in managing postoperative pain after hip fracture surgeries. The average age was around 73-74 years which shows that the elderly population are commonly affected by hip fractures as evidenced in prior studies.[6] Intertrochanteric fractures were the most prevalent type with predominance of females (80%), reflecting the higher incidence of hip fractures in women in consistent with previous such studies.[7,8] This indicates that both PENG + LFCN and FICB techniques are applicable across different fracture types without specific bias. There are different factors which affect the degree of pain after the hip surgery which include the type of fracture, the duration of surgery, functional status of patient, age, the analgesics that the patient is getting, tissue/nerve injury, implant related issues, pain tolerance of patient and many other patient related factors including social factors.

Aliste et al., compared ultrasound guided PENG block and suprainguinal FICB in 40 patients who underwent total hip arthroplasty. In another study by Senthil et al. to compare the efficacy of (PENG) block and fascia iliaca compartment block (FICB) as postoperative pain management in hip surgeries revealed stable hemodynamics in both the FICB and PENG groups.[2,9] Our study was also consistent with these findings with regard to the intraoperative heart rate and mean arterial pressures except at 30mins. This suggests neither technique significantly affects hemodynamic stability of patient when used for postoperative analgesia and hence both can be used as postoperative analgesic technique.

The PENG + LFCN group exhibited significantly lower NRS for pain at all intervals when compared to FICB group. This may be because of the large volume of drug being accurately deposited very close to the desired site of action in PENG block group. This result was also supported by many studies such as those by Jadon et al. and Senthil et al.[1,2] Although there was no significant difference in total duration of analgesia or dynamic pain grades between the blocks, a notable difference was observed in the NRS and quadriceps femoris motor power. This indicates that the PENG block demonstrated greater potency in sensory blockade and a more pronounced reduction in motor sparing compared to FICB. The difference may be because the PENG block covers the main sensory articular branches of hip joint giving good pain relief at rest and also during movement, like sitting upright without affecting muscle power. In facia iliaca block the nerve fibres are blocked more proximally which includes the motor branches also which can result in motor weakness which can affect the mobilization postoperatively.

In the study conducted by Natarajan et al in 24 patients scheduled for hip surgery were given PENG block and FICB for postoperative analgesia. In addition to the numerical rating scales the duration of pain relief and the total amount of rescue analgesic requirement were significantly less in PENG block group. A randomized controlled trial by Mosaffa et al done on 52 patients to assess the efficacy of PENG block and FICB 15 minutes after blockade and 12 hours post-surgery proved superior efficacy for PENG block in providing postoperative analgesia. In our study the PENG + LFCN group had a longer duration of analgesia (917 minutes) compared to the FICB group (663 minutes), consistent with findings by Mosaffa et al. and Natarajan et al.[8,10] Additionally, fewer patients in the PENG + LFCN group required rescue analgesia for breakthrough pain, which indicates its superior efficacy in providing post operative analgesia compared to FICB.

Facilitation of optimal positioning is very important for performance and success of the CNB in addition to reducing the patient discomfort and satisfaction during hip surgeries. In a prospective randomized double blinded study conducted by Shankar et al on 60 patients for assessing the effectiveness of PENG block and FICB for ease of positioning proved superior efficacy in PENG block even though there was no significant difference in postoperative analgesia compared to FICB.[11] In our study patients in the PENG + LFCN group required less time for positioning for spinal anaesthesia compared to FICB. Specifically, the average number of attempts for central neuraxial blocks (CNBs) was lower in the PENG + LFCN group (1.2 attempts) compared to the FICB group (2.1 attempts). The positioning time for spinal anaesthesia was also shorter in the PENG + LFCN group (12 minutes) compared to the FICB group (19 minutes). The addition of lateral femoral cutaneous nerve block may the reason for increase in duration of analgesia compared to the above studies.[12]

Early recovery of muscle power facilitates early mobilization of patients which in turn reduce the postoperative complications and improves patient satisfaction.[13] Higher satisfaction scores and better muscle power recovery was observed in the PENG + LFCN group compared to FICB. Less volume given at 2 different sites (20+5ml) may be the reason for early weaning of muscle power in PENG+ LFCN group. These findings were consistent with studies by Álvarez and Bauiomy, which reported enhanced patient satisfaction and muscle power with PENG-based techniques.[14,15]

Our findings align with those of a meta-analysis conducted by Shukai Li et al., which included 15 articles comprising 890 patients.[16] This analysis found that the PENG block, when combined with spinal anaesthesia for hip surgeries, reduced pain scores during positioning and at 12, 24, and 48 hours postoperatively. Furthermore, the incidence of postoperative hypokinesia was lower in the PENG block group, with improved time to first walking, consistent with the improved postoperative outcomes observed in our PENG + LFCN group. Additionally, our results are in agreement

with the findings of a systematic review by Lian Yu et al., which highlighted reduced morphine consumption in the PENG group, despite no significant differences in pain scores.[17] In our study, the PENG + LFCN group required fewer rescue analgesics and demonstrated improved pain control, further supporting the efficacy of this combined block technique for postoperative pain management in hip fracture surgeries.

No adverse events were reported in either the FICB group or the combined PENG + LFCN group.

This study has several limitations. Firstly, it was conducted exclusively on ASA physical status I and II patients, while the majority of hip fractures occur in elderly patients with multiple comorbidities, where the role of regional anaesthesia becomes even more crucial for optimal recovery. The results, therefore, may not be fully generalizable to the elderly population. Additionally, the study used a single bolus injection for both the PENG + LFCN and FICB techniques, whereas a continuous catheter technique would provide prolonged analgesia and could potentially yield different results. The patient-controlled analgesia (PCA) technique, which is known to provide more consistent and effective postoperative pain management compared to demand doses, was not employed in this study, which could have influenced the assessment of postoperative analgesia. As the duration of analgesia depends on the dose of local anaesthetic, further studies are required to assess minimum effective volume of drug required to provide best analgesia in both the groups.

5. Conclusion

The PENG block combined with LFCN block provides superior postoperative analgesia compared to FICB with longer duration of action, reduced total analgesic consumption, fewer attempts at central neuraxial blockade, shorter time for positioning, higher patient satisfaction, and improved muscle power recovery. These results suggest that the PENG + LFCN technique is superior in improving overall patient outcomes after hip surgery by providing excellent analgesia compared to FICB and can be used regularly for positioning and post operative analgesia in hip surgeries.

6. Source of Funding

Nil.

7. Conflicts of Interest

There are no conflicts of interest.

References

1. Jadon A, Mohsin K, Sahoo RK, Chakraborty S, Sinha N, Bakshi A. Comparison of supra-inguinal fascia iliaca versus pericapsular nerve block for ease of positioning during spinal anaesthesia: A randomised double-blinded trial. *Indian J Anaesth*. 2021;65(8):572–8.
2. Senthil KS, Kumar P, Ramakrishnan L. Comparison of Pericapsular Nerve Group Block versus Fascia Iliaca Compartment Block as Postoperative Pain Management in Hip Fracture Surgeries. *Anesth Essays Res*. 2021;15(4):352–6.
3. Ilango G, Saravanan R, Karthik K. Fascia Iliaca Compartment block using Ropivacaine 0.5% for postoperative analgesia in lower limb orthopaedic surgeries. *Indian J Clin Anaesth*. 2021;2(4):209–12.
4. Prem K, Thamizhmathi T, Monica D. Evaluation of local anaesthetic with adjuvants for postoperative analgesia through ultrasound-guided Fascia Iliaca compartment block in hip procedures. *Indian J Clin Anaesth*. 2024;11(4):538–45.
5. Talawar P, Tandon S, Tripathy DK, Kaushal A. Combined pericapsular nerve group and lateral femoral cutaneous nerve blocks for surgical anaesthesia in hip arthroscopy. *Indian J Anaesth*. 2020;64(7):638–40.
6. Hua H, Xu Y, Jiang M, Dai X. Evaluation of Pericapsular Nerve Group (PENG) Block for Analgesic Effect in Elderly Patients with Femoral Neck Fracture Undergoing Hip Arthroplasty. *J Healthc Eng*. 2022;2022:7452716.
7. Liang L, Zhang C, Dai W, He K. Comparison between pericapsular nerve group (PENG) block with lateral femoral cutaneous nerve block and supra-inguinal fascia iliaca compartment block (S-FICB) for total hip arthroplasty: a randomized controlled trial. *J Anesth*. 2023;37(4):503–10.
8. Mosaffa F, Taheri M, Manafi Rasi A, Samadpour H, Memary E, Mirkheshti A. Comparison of pericapsular nerve group (PENG) block with fascia iliaca compartment block (FICB) for pain control in hip fractures: A double-blind prospective randomized controlled clinical trial. *Orthop Traumatol Surg Res.* 2022;108(1):103135.
9. Aliste J, Layera S, Bravo D, Jara Á, Muñoz G, Barrientos C, et al. Randomized comparison between pericapsular nerve group (PENG) block and supra-inguinal fascia iliaca block for total hip arthroplasty. *Reg Anesth Pain Med*. 2021;46(10):874–8.
10. Natrajan P, Bhat RR, Remadevi R, Joseph IR, Vijayalakshmi S, Paulose TD. comparative study to evaluate the effect of ultrasound-guided pericapsular nerve group block versus fascia iliaca compartment block on the postoperative analgesic effect in patients undergoing surgeries for hip fracture under spinal anesthesia. *Anesth Essays Res.* 2021;15(3):285–9.
11. Shankar K, Rangalakshmi S, Ashwin AB, Nandini U, Chandra M, Kadlimatti DV. Comparative study of ultrasound guided peng [pericapsular nerve group] block and fib [fascia iliaca block] for positioning and postoperative analgesia prior to spinal anaesthesia for hip surgeries: prospective randomized comparative clinical study. *Indian J Anesth Analg.* 2020;7(3):798–803.
12. Pascarella G, Costa F, Strumia A, Ruggiero A, Remore LM, Lanteri T, et al. lateral femoral cutaneous nerve block or wound infiltration combined with pericapsular nerve group (peng) block for postoperative analgesia following total hip arthroplasty through posterior approach: A randomized controlled trial. *J Clin Med*. 2024;13(9):2674.
13. Bravo D, Atton R, Mora D, Aliste J. Pericapsular nerve group block in hip surgery: a narrative review. *J Anesthesiol Pain Ther*. 2023;4(2):1–14.
14. Álvarez LB, González JML, Miramontes GL, Gómez BMJ, Colon M, Aguirre A, et al. Pericapsular nervous group block versus suprainguinal fascia iliaca block using the same injection volume in primary hip arthroplasty: prospective observational study. *Int J Clin Pract*. 2024;1–8.
15. Bauiomy H, Kohaf NA, Saad M, Abosakaya AM. Comparison between pericapsular nerve group and supra-inguinal fascia iliaca block for analgesia and ease of positioning during neuraxial anesthesia in hip fracture patients: A randomized double-blind trial. *Egypt J Anaesth*. 2024;40(1):193–200.
16. Li S, An J, Qian C, Wang Z. Efficacy and safety of pericapsular nerve group block for hip fracture surgery under spinal anesthesia: A meta-analysis. *Int J Clin Pract.* 2024;2024:6896066.

17. Yu L, Shen X, Liu H. The efficacy of pericapsular nerve group block for postoperative analgesia in patients undergoing hip surgery: A systematic review and meta-analysis of randomized controlled trials. *Front Med (Lausanne)*. 2023;10:1084532.

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