# INPLASY

## Pericapsular Nerve Group (PENG) Block for preoperative Analgesia and ease of positioning during spinal anesthesia in Patients with Hip Fractures: A Systematic Review and Meta-Analysis

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## ADMINISTRATIVE INFORMATION

**Review Stage at time of this submission -** Data analysis.

**Conflicts of interest -** None declared.

**INPLASY registration number:** INPLASY202490126

**Amendments -** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 28 September 2024 and was last updated on 28 September 2024.

## INTRODUCTION

*Review question / Objective* To compare the analgesic efficacy of PENG block with non-block care or other blocks in patients with hip fractures during preoperative period. To compare the EOSP for hip fracture patients.

**Condition being studied** PENG block is emerging regional blocks for hip surgery. However, we have no idea whether PENG block's effect of analgesia for hip fracture patients preoperative period is superior to non-block care or other blocks. Some RCTs had been published, it is time to conduct a meta-analysis to answer the question.

## METHODS

**Search strategy** ("intertrochanteric fracture*"[All Fields] OR "subtrochanteric fracture*"[Title/ Abstract] OR "trochanteric fracture*"[All Fields] OR "femoral neck fracture*"[Title/Abstract] OR "proximal femoral fracture*"[Title/Abstract] OR "hip fracture*"[Title/Abstract]) AND "pericapsular nerve group block"[Title/Abstract] inPubmed

(Intertrochanteric FractureC) OR (Subtrochanteric Fracture*) OR (Trochanteric Fracture*) OR (Femur Trochlear Fracture*) OR (Femoral Neck Fracture*) OR (Proximal Femoral Fracture*) OR (hip fracture*) (Abstract) and Pericapsular nerve group block (Abstract) and Preprint Citation Index(Exclude – Database) in Web of science

(Intertrochanteric Fracture*) OR (Subtrochanteric Fracture*) OR (Trochanteric Fracture*) OR (Femur Trochlear Fracture*) OR (Femoral Neck Fracture*) OR (Proximal Femoral Fracture*) OR (hip fracture*) in Title Abstract Keyword AND pericapsular nerve group block in Title Abstract Keyword - (Word variations have been searched) in Cochrane

('intertrochanteric fracture*':ti,ab,kw OR 'subtrochanteric fracture*':ti,ab,kw OR

'trochanteric fracture*':ti,ab,kw OR 'femur trochlear fracture*':ti,ab,kw OR 'femoral neck fracture*':ti,ab,kw OR 'proximal femoral fracture*':ti,ab,kw OR 'hip fracture*':ti,ab,kw) in Embase.

**Participant or population** Patients with hip fractures , >18 years old, ASA1-3.

**Intervention** Pericapsular Nerve Group (PENG) Block is conducted in preoperative period.

**Comparator** non-books care, sham block, FNB, FICB, SFICB.

**Study designs to be included** Random controlled trials.

**Eligibility criteria** The criteria for inclusion in our study were as follows: (1) randomized controlled trials (RCTs) for the effect of the PENG block in patients with hip fractures; (2) patients aged ≥18 years (American Society of Anesthesiologists (ASA) physical status classification system grades I–III) undergoing elective surgery under general anesthesia; (3) all patients can understand the pain score scale and cooperate with the researchers to get it, such as the Numerical Rating Scale (NRS) and Visual Analogue Scale (VAS), and manage evaluate the analgesic effects.
The exclusion criteria included: (1)the study do not include the pain score preoperatively; (2) animal or cadaver experiments; (3) studies without access to original articles; (4) unfinished or ongoing studies; (5) studies published as a meeting abstrsct.(5)the nerve block was conducted without ultrasound (6)pain was not estimated by NRS or VAS.

**Information sources** The following database will be used: Pubmed,Embase,Cochrane library,web of science.

**Main outcome(s)** The primary outcome was the dynamic pain scores 30minites after the PENG block and positioning pain score.

**Additional outcome(s)** The secondary outcome included EOSP, static pain score 30mintes after PENG block, dynamic and static pain score of 6 hours after the PENG block ,heart rate and mean artery pressure during positioning, and analgesic time.

**Quality assessment / Risk of bias analysis** Two reviewers independently assessed the quality of the included studies according to the Cochrane Collaboration's tool for assessing the risk of bias in RCTs. Items were evaluated in three categories: high, low, and unclear risk of bias. In addition, the following characteristics were assessed: random sequence generation (selection bias), allocation concealment (selection bias), blinding of participants and personnel (performance bias), incomplete outcome data (attribution bias), and selective reporting (reporting bias). Other preferences resulting from these questions were assessed using the Review Manager 5.4 (Cochrane Collaboration) software.

**Strategy of data synthesis** Review Manager5.4.1 will be used to manage data.If there is datas can not be managed, Stata 15 vision and R will be used.Two researchers independently extracted data from the included trials. Any disagreements were resolved either through consensus or by consulting the third author.

**Subgroup analysis** Subgroup analysis was done by different comparative method.

**Sensitivity analysis** Review Manager5.4.1 will be used to manage data.

**Country(ies) involved** China.

**Keywords** pericapsular nerve group block, preoperative analgesia, Introduction, dynamic pain, positioning pain, ease of positioning during spinal anesthesia.

**Contributions of each author**
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