INPLASY PROTOCOL

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None declared.

Pericapsular Nerve Group block versus fascia iliaca compartment block for analgesia after hip surgical procedures

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Review question / Objective: **To determine whether Pericapsular Nerve Group block orfascia iliaca compartment block is the better analgesic optionafter hip surgical procedures.**
Condition being studied: **The Ultrasound-guided pericapsular nerves group (PENG) is is a novel ultrasound-guided regional anaesthesia technique derived from recent anatomic studies detailing the sensory innervation of the hip. Targeting these terminal sensory branches, the PENG block was originally developed as a potentially more effective block for perioperative hip fracture anaesthesia, with the added benefit of preserving motor function. This meta-analysis aimed to determine whether Pericapsular Nerve Group block orfascia iliaca compartment block is the better analgesic option after hip surgical procedures.Finally, trial sequential analysis was performed on the primary outcome to confirm whether firm evidence was reached or not (TSA software version 0.9.5.10 Beta;Copenhagen Trial Unit, Center for Clinical Intervention Research, Rigshospitalet, Copenhagen, Denmark).**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 03 May 2022 and was last updated on 03 May 2022 (registration number INPLASY202250013).

INTRODUCTION

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METHODS

Participant or population: Patients with hip disease (such as fracture, Osteoarthritis) needs surgery treatment (such as fracture fixation surgery, hip arthroplastysurgery).

Intervention: Pericapsular Nerve Group block was used for perioperative pain management (including preoperative and postoperative analgesic).Pericapsular Nerve Group block.

Comparator: Fascia iliaca compartment block was used for perioperative pain management (including preoperative and postoperative analgesic).Pericapsular Nerve Group block.

Study designs to be included: Randomized controlled trial.

Eligibility criteria: Published RCTs meeting the following criteria were included: (1) population: patients and prepared for hip surgical procedures, (2) intervention: single administration Pericapsular Nerve Group block for pain control, (3) comparison: fascia iliaca compartment block, (4)≥ 1 of the following outcomes: visual analog scale (VAS) or Numeric Rating Scale(NRS) after bock total morphine consumption; occurrence of nausea; The rate of rescue analgesia after analgesic, including preoperative or postoperative rescue analgesia after analgesic. The first pressing time of patient-controlled intravenous analgesia; Perioperative complications.

Information sources: The following electronic sources were queried : Pubmed, Embase, Cochrane Central Register of Controlled Clinical Trials and Web of Science, Embase, Cochrane Central Register of Controlled Clinical Trials and Web of Science, CBM (Chinese Biomedical Literature Database), WanFang and CNKI (China National Knowledge Infrastructure).In addition, Google Scholar was queried for any remaining relevant publications. Furthermore, authors who had unpublished clinical trials registered on clinicaltrials.gov were contacted.

Main outcome(s): Pain intensity [measured by Visual Analogue Scale (VAS) scores or numeric rating scale (NRS) scores] after analgesic, including preoperative pain intensity after analgesic or postoperative pain intensity after analgesic.

Additional outcome(s): (1) The rate of rescue analgesia after analgesic, including preoperative or postoperative rescue analgesia after analgesic. (2)The first pressing time of patient-controlled intravenous analgesia; (3) Perioperative consumption of analgesic; (4) Perioperative complications.

Quality assessment / Risk of bias analysis: Two reviewers will independently assess the risk of bias in the included studies with the guidance of the Cochrane risk of bias tool. The quality of evidence for all the outcomes will be assessed using the GRADE approach through risk of bias, consistency, objectivity, accuracy and reported bias.

Strategy of data synthesis: Data synthesis will be performed using Review Manager version 5.4 and Stata/MP 16.0. Group differences in dichotomous data will be expressed as risk ratio (RR) with a 95% confidence interval (CI) and group differences in continuous data as mean differences (MDs) with 95% confidence intervals (CIs). Heterogeneity will be quantified using the I^2 statistic, and I^2>50% indicated the presence of heterogeneity. If heterogeneity was significant, the random-

effects model will used. Otherwise, the fixed-effects model will be used. P<0.05 is considered statistically significant. Publication bias will be assessed by visual judgement of the funnel plots asymmetry and more objectively through Egger's regression test. The level of P <0.05 is considered statistically significant and indicated potential publication bias. We will use the observed SD and a relative risk reduction according the clinical value in the trial sequential analysis.

Subgroup analysis: If sufficient trials are available, subgroup analysis will be performed according to the type of surgery (such as fracture fixation surgery and hip arthroplasty surgery), different perioperative periods (such as preoperative , and postoperative periods) , and different type of analgesic technique without-Encapsulated nerve group (PENG) block (such as nerve block or intravenous analgesic drugs).

Sensitivity analysis: Sensitivity analysis was performed by excluding one trail in turn and recalculating the pooled WMD for the remaining trials

Country(ies) involved: China.

Keywords: Pericapsular Nerve Group Block fascia iliaca compartment block hip fractures.

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