INPLASY PROTOCOL

To cite: Dong et al. Efficacy and safety of pericapsular nerve group (PENG) block in hip surgeries: A systematic review and meta-analysis of randomized controlled trials. Inplasy protocol 202270005. doi: 10.37766/inplasy2022.7.0005

Received: 01 July 2022

Published: 01 July 2022

Corresponding author:
Chunke Dong

1021235338@qq.com

Author Affiliation:
Beijing Hospital of Traditional Chinese Medicine, Capital Medical Universit.

Support: **None.**

Review Stage at time of this submission: **Preliminary searches.**

Conflicts of interest:
None declared.

Efficacy and safety of pericapsular nerve group (PENG) block in hip surgeries: A systematic review and meta-analysis of randomized controlled trials

Dong, CK[1]; Zhu, YT[2]; Zhou, J[3]; Dong, L[4].

Review question / Objective: **To evaluate the efficacy and safety of pericapsular nerve group (PENG) block in hip surgeries.**
Eligibility criteria: **Studies were considered eligible if they met the following criteria: (1) Randomized control trials (RCTs) (2) Patients undergoing hip surgery, the intervention group received PENG block and control group received lumbar plexus peripheral nerve block, fascia iliaca compartment block, or femoral nerve block; (3) Reported outcomes, including visual analogue scale (VAS) scores OR Numeric Rating Scale(NRS), opioid consumption, rescue analgesia, length of stay, and postoperative adverse effects. Non-RCTs, duplicated publications, in vitro studies, and animal studies.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 01 July 2022 and was last updated on 01 July 2022 (registration number INPLASY202270005).

INTRODUCTION

Review question / Objective: **To evaluate the efficacy and safety of pericapsular nerve group (PENG) block in hip surgeries.**

Condition being studied: **Recently, pericapsular nerve group (PENG) block has been used as a good alternative for pain management following hip surgeries. For evaluating the efficacy and safety of PENG block on patients undergoing hip surgery,**

we will conducte a systematic review of the current literature.

METHODS

Participant or population: Patients undergoing hip surgery.

Intervention: Pericapsular nerve group bock.

Comparator: Lumbar plexus peripheral nerve block, fascia iliaca compartment block, femoral nerve block.

Study designs to be included: randomized controlled trials.

Eligibility criteria: Studies were considered eligible if they met the following criteria: (1) Randomized control trials (RCTs) (2) Patients undergoing hip surgery, the intervention group received PENG block and control group received lumbar plexus peripheral nerve block, fascia iliaca compartment block, or femoral nerve block; (3) Reported outcomes, including visual analogue scale (VAS) scores OR Numeric Rating Scale(NRS), opioid consumption, rescue analgesia, length of stay, and postoperative adverse effects. Non-RCTs, duplicated publications, in vitro studies, and animal studies.

Information sources: A systematic search of electronic databases including Pubmed, Embase, and Cochrane Library.

Main outcome(s): Visual Analogue Scale (VAS) scores or numeric rating scale (NRS) scores.

Quality assessment / Risk of bias analysis: Cochrane risk of bias tool will be used.

Strategy of data synthesis: All calculations were performed using RevMan 5.3 for Windows (Cochrane Collaboration, Oxford, UK). Continuous data were calculated through the mean difference (MD) or standardized mean difference (SMD) with 95% CI. We calculated risk ratio (RR) with 95% CI to evaluate the adverse events. Heterogeneity across studies was assessed using Cochran's Q and I2 statistics, and $P < 0.1$ and $I2 > 50\%$ was considered statistical heterogeneity . A fixed-effects model was conducted when $I2 \leq 50\%$; otherwise, a random-effects model was selected. Sensitivity analysis was introduced to detect the result's stability. The results of this meta-analysis were considered statistically significant if $P < 0.05$.

Subgroup analysis: Subgroup analysis will be performed according to the type of surgery, preoperative and postoperative periods, and different types of analgesic techniques.

Sensitivity analysis: The sensitivity analysis was performed by omitting one study in each round to examine the impact on the overall result.

Country(ies) involved: China.

Keywords: pericapsular nerve group block, hip surgery, anesthesia, analgesia, meta-analysis.

Contributions of each author:
Author 1 - Chunke Dong.
Email: 1021235338@qq.com
Author 2 - Yuting Zhu.
Email: zytchn@126.com
Author 3 - Jun Zhou.
Author 4 - Liang Dong.