INPLASY PROTOCOL

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

Conflicts of interest:
None declared.

Pericapsular nerve group (PENG) block for postoperative pain management in patients undergoing total hip arthroplasty surgery: a systematic review and meta-analysis

Ding, SS[1]; Zhang, J[2]; Qin, XY[3]; Huang, WH[4]; Duan, RR[5]; Lu, XT[6]; Xue, JJ[7].

Review question / Objective: The purpose of this study is to research the effectiveness and safety of peripheral hip capsular nerve (PENG) block in total hip arthroplasty surgery by including relevant randomized controlled trials.

Condition being studied: Postoperative pain management in patients undergoing total hip arthroplasty surgery. In this research, we have been systematically trained for system review/meta-analysis, so we have cultivated strong professional capabilities and accumulated rich experience.We will perform meta-analyses using Review Manager software (version 5.4) and Stata (version 16.0).

INTRODUCTION

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METHODS

Participant or population: Patients undergoing total hip arthroplasty surgery.

Intervention: Pericapsular nerve group (PENG) block.

Comparator: Other types of peripheral nerve block or no block (control group).

Study designs to be included: The randomized controlled trial.

Eligibility criteria: Inclusion Criteria: Patients For hip arthroplasty surgery; Exclusion Criteria: Children (aged <18 years).

Information sources: The Cochrane Library, PubMed, Web of Science, EMbase, VIP, CNKI, WanFang Date, CBM.

Main outcome(s): Primary outcome measure: was maximum pain scores (0–10 numeric rating scale) measured in the first 48 h after surgery; Secondary outcomes: postoperative opioid consumption; patient mobilisation assessments; and length of hospital stay.

Quality assessment / Risk of bias analysis: Assessment of quality and risk of bias will be completed by two independent reviewers using an adaptation of the tool described in the Cochrane Collaboration Handbook (Higgins et al., 2011). Risk of Bias will be assessed using a modified Cochrane risk pf bias tool including the following six domains: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective reporting.

Strategy of data synthesis: The RevMan5.4 software was used to conduct Meta analysis of the literature data in accordance with this research. Select

mean difference (MD) or standardized mean difference (STD Mean Difference, SMD) to perform statistical analysis on continuous variable data; select relative risk (RR) to perform statistical analysis on binary variable data, And both give a 95% confidence interval (CI). P value and I2 value are selected to judge the size of heterogeneity. If more than 10 studies are included for any outcome, we will construct a funnel plot to assess visually for evidence of publication bias.

Subgroup analysis: Subgroup analysis will stratify studies based on other types of peripheral nerve block methods .For continuous data, mean difference (MD) or standardized mean difference (STD Mean Difference, SMD) with 95% confidence interval (CI) will be used; for dichotomous outcomes, odds ratios (OR) with 95% CI will be reported.

Sensitivity analysis: Sensitivity analysis chooses one-by-one exclusion and fixed-effects model.

Country(ies) involved: China.

Keywords: hip arthroplasty surgery; joint capsule; peripheral hip capsular nerve (PENG) block.

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