INPLASY PROTOCOL

To cite: Duan et al. A comparison of the efficacy and feasibility of different regional anesthesia modes in cesarean section: A systematic review and network meta-analysis. Inplasy protocol 202250093. doi: 10.37766/inplasy2022.5.0093

Received: 15 May 2022

Published: 15 May 2022

Corresponding author:
Yuanqiong Duan

335901431@qq.com

Author Affiliation:
West China Second Hospital of Sichuan University.

Support: **19ZDYF.**

Review Stage at time of this submission: **Piloting of the study selection process.**

Conflicts of interest:
None declared.

A comparison of the efficacy and feasibility of different regional anesthesia modes in cesarean section: A systematic review and network meta-analysis

Duan, YQ[1]; Huang, X[2]; Liang, AL[3]; Yin, RT[4]; Zhang, MP[5].

Review question / Objective: **To investigate the efficacy and feasibility of different regional anesthesia techniques in patients who received cesarean section.**
Condition being studied: **The current study aims to perform a network meta-analysis to comprehensively compare the regional anesthesia methods for postoperative pain in patients scheduled for elective cesarean section and try to find an optimal method that can serve as a reference in clinical practice.**
Information sources: **Two investigators (YY and SS) independently extracted the data. Information was extracted about participant characteristics (age, gestational week, American society of Anesthesiologist grade (ASA), body mass index(BMI), etc.), study design, anesthesia methods, and analgesic efficacy outcomes. The data were extracted from the text, tables, and graphs of each study.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 May 2022 and was last updated on 15 May 2022 (registration number INPLASY202250093).

INTRODUCTION

Review question / Objective: **To investigate the efficacy and feasibility of different regional anesthesia techniques in patients who received cesarean section.**

Rationale: **There is no established analgesia method in the management of cesarean section pain, and the postoperative pain remains challenging. Inadequate control of pain not only delayed the postoperative rehabilitation of patients but also tending to a negative impact on the quality of life and mental status.**

Furthermore, leading to a high risk of chronic post-surgical pain (CPSP). Thus, reasonable analgesia mode is critical to early recovery and rehabilitation in patients undergoing cesarean section.

Condition being studied: The current study aims to perform a network meta-analysis to comprehensively compare the regional anesthesia methods for postoperative pain in patients scheduled for elective cesarean section and try to find an optimal method that can serve as a reference in clinical practice.

METHODS

Search strategy: We systematically searched PubMed, the Cochrane Library, Web of Science citation index, and Embase from inception to March 2022 for randomized controlled trials (RCTs) meeting the listed inclusion criteria. The search strategy was as follows: "Cesarean Section", "Cesarean delivery", "Regional Anesthesia", "Nerve Block", "Transversus abdominis plane block", "epidural analgesia", "erector spine plane block", "Analgesia". We also searched the grey literature by supplementary hand searching.

Participant or population: Patients who schedule for elective cesarean section.

Intervention: Patients received different regional anesthesia methods under spinal anesthesia(SA), combined spina and epdural anaglgesia(CSEA), epdural analgesia(EA).

Comparator: Other analgesic methods used.

Study designs to be included: Randomized controlled study

Eligibility criteria: All published full-article RCTs comparing the analgesic efficacy of different types of regional anaesthesia methods in patients undergoing casearean section were eligible for inclusion.

Information sources: Two investigators (YY and SS) independently extracted the data. Information was extracted about participant characteristics (age, gestational week, American society of Anesthesiologist grade (ASA), body mass index(BMI), etc.), study design, anesthesia methods, and analgesic efficacy outcomes. The data were extracted from the text, tables, and graphs of each study

Main outcome(s): The primary outcome was the pain score at rest and movement at 8 different time points postoperatively either using the visual analog scale (VAS) score or numeric rating scale (NRS).

Additional outcome(s): The secondary outcomes were opioid consumption, postoperative vomiting, and nausea, adverse events, length of hospitalization, and patient satisfaction.

Data management: Two investigators (YY and SS) independently extracted the data and transferred it into Microsoft Excel 2019 without interposing each other until both of their tasks were completed. STATA 17.0 (StataCorp, College Station, TX), Review Manager, version 5.4 (Copenhagen: The Nordic Cochrane Centre), and R software 4.1 version were used to carry out all statistical analyses for this network meta-analysis. The odds ratio (OR) and standardized mean difference (SMD) were calculated for binary and continuous variables, respectively and the corresponding 95% CI was calculated.

Quality assessment / Risk of bias analysis: After independent data extraction, the tool based on the Cochrane risk of bias was adopted to evaluate the quality of individual RCTs. The quality was evaluated using the following potential sources of bias: sequence generation, allocation concealment, blinding of participants or outcome assessor, incomplete data, and selective reporting. The methodology for each study was graded as 'high', 'low.

Strategy of data synthesis: According to previous studies, a random-effect model was performed if I 2 > 5 0 %, suggesting

the existence of high heterogeneity, whereas if I2≤50%, a fixed-effect model was performed.

Subgroup analysis: The subgroup analysis was only performed on the primary outcomes.

Sensitivity analysis: In this network meta-analysis, sensitivity analyses were performed via the leave-one-out approach to find possible sources of heterogeneity.

Language: English.

Country(ies) involved: China.

Keywords: Cesarean section; Regional anesthesia; Network meta-analysis; Postoperative pain.

Contributions of each author:

Author 1 - Yuanqiong Duan - Concept design; Data analysis; Drafting article; Critical revision of the article.
Email: 335901431@qq.com
Author 2 - Xin Huang - Concept design; Data analysis; Drafting article; Critical revision of the article.
Email: 604680675@qq.com
Author 3 - Ailing Liang - Concept design; Data analysis; Drafting article; Critical revision of the article.
Email: 28877110@qq.com
Author 4 - Rutie Yin - Concept design; Data analysis; Drafting article; Critical revision of the article.
Email: yinrutie@motherchildren.com
Author 5 - Mengpei Zhang - Concept design; Data analysis; Drafting article; Critical revision of the article.
Email: 1006300978@qq.com