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Effects of different perioperative administration regimens of dexamethasone on clinical outcomes after total joint arthroplasty: A Systematic Review and Meta-Analysis

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ADMINISTRATIVE INFORMATION

Support - 2019XLC3023.

Review Stage at time of this submission - Data analysis.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2023100023

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 06 October 2023 and was last updated on 06 October 2023.

INTRODUCTION

Review question / Objective The aim of this study is to investigate the effects of two different perioperative administration regimens of dexamethasone on postoperative pain, infection rate and blood glucose level in patients undergoing joint replacement surgery.

Condition being studied Total knee arthroplasty (TKA) and total hip arthroplasty (THA) are effective methods for the treatment of severe knee/hip diseases. However, patients are more likely to experience moderate to severe pain after TKA. Improper management of postoperative pain increases the risk of chronic pain, impairs patient recovery, prolongs hospital stay, and increases financial stress. Pain management after joint replacement is crucial.

METHODS

Participant or population There were five participants in this study, all of whom were pharmacists.

Intervention Repeated-dose or split-dose dexamethasone.

Comparator Single-dose dexamethasone.

Study designs to be included RCT.

Eligibility criteria Inclusion criteria : (1) patients undergoing primary unilateral total knee/hip arthroplasty; (2) RCTs that included repeated or split doses of intravenous dexamethasone versus single dose intravenous dexamethasone for pain relief; (3) studies including at least one of the following outcomes: postoperative pain score,

number of patients who needed rescue analgesic after surgery, the length of hospital stay, incidence of PONV, dexamethasone-related adverse reactions such as infection, hyperglycemia, gastrointestinal hemorrhage etc; (4) randomized controlled trial. Exclusion criteria: (1) studies lacking valid data extraction; and (2) case reports, reviews, retrospective studies, cohort studies, letters, and conferences abstracts.

Information sources The Cochrane Library, PubMed, EMBASE, and Medline databases.

Main outcome(s) Postoperative pain score, number of patients who needed rescue analgesic after surgery, the length of hospital stay, incidence of PONV, dexamethasone-related adverse reactions.

Quality assessment / Risk of bias analysis Cochrane Risk of Bias Assessment Tool.

Strategy of data synthesis Statistical analyses were performed using Review Manager (RevMan version 5.2) software. Statistical heterogeneity was assessed using the I² statistic, and an effect model was chosen based on its results. When P_{I²} > 50%, we selected the random-effects model; otherwise, we chose the fixed-effects model.

Subgroup analysis No subgroup analyses were performed.

Sensitivity analysis Sensitivity analysis was performed by excluding the included studies one by one using STATA software.

Country(ies) involved China.

Keywords Dexamethasone, total knee arthroplasty, total knee replacement, postoperative pain, meta-analysis.

Contributions of each author

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