

INPLASY

Nonsteroidal anti-inflammatory versus corticosteroid injections in orthopedic conditions

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 01 August 2023 and was last updated on 01 August 2023.

INTRODUCTION

Review question / Objective The purpose of this review is to compare nonsteroidal anti-inflammatory (NSAID) and corticosteroid injections in orthopedic conditions.

Rationale Corticosteroid injections are commonly used in patients with orthopedic conditions such as osteoarthritis and shoulder impingement syndrome. However, corticosteroid injections are associated with both local and systemic reactions such as reduced bone strength, tendon atrophy or rupture, cartilage necrosis, and hyperglycemia which limit their frequent or prolonged use. Oral NSAIDs have been also a mainstay in the management of acute and chronic orthopedic injuries but can cause gastrointestinal bleeding, cardiovascular complications, and renal impairment. An alternative to oral NSAIDs can be NSAID injections which have been reported to be safer and pose minimal risks on articular cartilage or long-term joint function. Previous research has shown comparable efficacy between NSAID and

steroid injections in certain orthopedic conditions. It would be important to conduct systematic review comparing NSAID and steroid injections to help clinicians make evidence-based decisions. If there is limited number of studies, scoping review will be performed instead.

Condition being studied Orthopedic conditions including knee osteoarthritis, hip osteoarthritis, shoulder impingement syndrome, and other finger, wrist, elbow, shoulder, hip, knee, foot, and ankle pathologies.

METHODS

Search strategy Search terms including NSAID, ketorolac, lornoxicam, tenoxicam, corticosteroid, triamcinolone, betamethasone, and methylprednisolone and/or finger, wrist, elbow, shoulder, hip, knee, ankle, and foot will be used. A librarian affiliated with the primary authors will help build search terms.

Participant or population Patient with above orthopedic conditions.

Intervention NSAID injections (ketorolac, lornoxicam, tenoxicam).

Comparator Steroid injections (triamcinolone, betamethasone, and methylprednisolone).

Study designs to be included Randomized controlled trials and prospective/retrospective comparative studies.

Eligibility criteria We will include randomized controlled trials as well as prospective/retrospective comparative studies.

Information sources Medline, Embase, Web of Science, and Cochrane Center Register of Controlled Trials for RCTs.

Main outcome(s) patient reported outcome measures for each pathology.

Additional outcome(s) Adverse events associated with each injection; economic evaluation associated with each injection.

Data management The data including demographic information of patients (number of patients, age, gender, BMI, symptom duration, comorbidity, etc), dose and type of NSAID/steroid injections, patient-reported outcome measures, main findings, and adverse events will be extracted by two authors and collected in the google spreadsheet.

Quality assessment / Risk of bias analysis The risk of bias will be independently assessed by two authors using the Cochrane risk of bias tool for randomized controlled trials and ROBINS-I tool or Newcastle Ottawa Scale for non-randomized controlled trials.

Strategy of data synthesis We expect small number of studies for each pathology and heterogeneity across the studies that would limit pooling the data. If possible, meta-analyses will be performed to compare NSAID and steroid injections in particular conditions. Otherwise, a narrative synthesis of the available evidence by pathologies will be conducted.

Subgroup analysis If meta-analysis were to be performed, it will be performed for each pathology.

Sensitivity analysis If both randomized controlled trials and observational studies are included for

meta-analysis, sensitivity analysis will be performed including only the randomized controlled trials.

Language restriction English or other languages that could be translated into English.

Country(ies) involved United States.

Keywords NSAID; corticosteroid; ketorolac; triamcinolone; osteoarthritis; shoulder pain.

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