

INPLASY

Platelet-Rich Plasma Versus Microfragmented Adipose Tissue for Knee Osteoarthritis: A Meta-analysis and Systematic Review

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ADMINISTRATIVE INFORMATION

Support - No.

Review Stage at time of this submission - Formal screening of search results against eligibility criteria.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2023110089

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 November 2023 and was last updated on 23 November 2023.

INTRODUCTION

Review question / Objective Given the increasing recognition of MFAT as a potential alternative clinical method for treating knee osteoarthritis, it is imperative that clinicians obtain robust evidence. To our knowledge, there are currently no systematic reviews and meta-analyses on this subject. Therefore, this study was conducted to assess the clinical efficacy of MFAT in treating knee osteoarthritis compared to PRP, with the goal of determining its efficacy in pain management and promoting knee function, as well as evaluating the safety of MFAT in adult patients with knee osteoarthritis.

Condition being studied Knee osteoarthritis (KOA) is likely a major degenerative joint disease, characterized by observed cartilage degradation, joint instability, subchondral bone hypertrophy, functional impairment, and knee pain. KOA is the

most prevalent joint disorder globally, exerting a significant impact on quality of life, thus making it one of the most common pathological factors leading to disability. In 2020, an estimated 654 million people worldwide were affected by KOA, requiring substantial global support.

METHODS

Participant or population Patient with knee OA.

Intervention Injection of knee with microfragmented adipose tissue (MFAT).

Comparator Injection of knee with PRP.

Study designs to be included Randomized controlled trials (RCTs).

Eligibility criteria (1) adult patients, the age >40 years old; (2) randomized controlled trials (RCTs) studies with a control group for patients with knee OA treated by MFAT or PRP; (3) MFAT or PRP was

received by injection of joint; (4) the study with at least one of the outcome as follows: pain, function ability, and safety; (5) only studies published, with the full text available and restriction for the English language.

Author 2 - min gong.
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Information sources Three electronic databases, including PubMed, Embase, and Cochrane Library.

Main outcome(s) VAS scores.

Quality assessment / Risk of bias analysis The risk of bias was assessed according to the Cochrane Collaboration risk of bias tool for randomized studies, including an assessment of randomization, blinding, completeness of outcome data, selection of outcomes reported, and other sources of bias.

Strategy of data synthesis While Relative risk (RR) with the 95% CI was applied for dichotomous data (radiological osteoarthritis grade). The heterogeneity of the included studies was estimated by the I² test. A random effects model was used for all meta-analysis in this study. A predefined subgroup analysis was applied, which would also make sense to identify the potential source of heterogeneity. Publication bias was assessed by a funnel plot. RevMan5.3 software was used for all statistical analysis.

Subgroup analysis Subgroup analysis according to OA grade.

Sensitivity analysis Changing the inclusion criteria: Especially for controversial studies, this method can evaluate the reliability of research results.

Excluding low-quality research: By excluding low-quality research, the stability of research results can be evaluated.

Using different statistical methods/models to analyze the same data: for example, using fixed effects models, random effects models, or other models to evaluate the consistency of research results.

The above methods are for reference only. If you need more information, it is recommended to consult a professional.

Country(ies) involved China.

Keywords osteoarthritis, Platelet-rich plasma, microfragmented adipose tissue, Meta-analysis , Systematic Review.

Contributions of each author

Author 1 - bin sun.