INPLASY PROTOCOL

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Support: None.

Review Stage at time of this submission: The review has not yet started.

Conflicts of interest: None.

Physical Therapy and Orthopedic Equipment-induced Reduction in the Biomechanical Risk Factors Related to Knee Osteoarthritis: a Bayesian network meta-analysis of randomized controlled trials

Huang, XM[1]; Yang, ZX[2]; Huang, Y[3].

Review question / Objective: In the past, several systematic reviews and meta-analysis have been published featuring the medical effects of a single KOA treatment. However, only a few of them have focused on multifaceted interventions. Also, only a few reviews have reported the long-term effects of these changes on the biomechanical parameters. This could be attributed to the fact that most of the original research articles reported pain relief and other prognostic factors based on self-coring by the patients. The mechanical changes in the body were not sufficiently investigated. Current reviews on KAM and KAAI have also not compared these changes in the long run. Thus, we performed a network meta-analysis to appraise the long-term benefits of physical treatments and orthopedic equipments in reducing the biomechanical risk factors in KOA patients to overcome these shortcomings. A network meta-analysis has been used in this study since it compared different kinds of treatments and interventions to each other with a small number of trials.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 12 September 2020 and was last updated on 12 September 2020 (registration number INPLASY202090054).

INTRODUCTION

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Condition being studied: This study aims to evaluate the effects of physical therapy and orthopedic equipment in reducing the biomechanical risk factors related to knee osteoarthritis (KOA).

METHODS

Search strategy: Five databases will de searched: PubMed, Web of Science, Cochrane Library, Embase, and MEDLINE.

Participant or population: Patients with knee OA.

Intervention: Physical therapy and orthopedic equipment.

Comparator: Evaluation of a specific intervention against another therapy or a placebo group.

Study designs to be included: Randomized controlled trials.

Eligibility criteria: (1) randomized controlled trial; (2) evaluation of a specific intervention against another physical therapy or a placebo group; (3) patients with KOA ; (4) outcomes should include the KAM and the KAAI.

Information sources: The search will not be restricted by language, date, publication type, or publication status . Additionally, we will perform manual analyses of the published references regarding the use of non-surgical treatments for treating KOA.

Main outcome(s): Outcomes should include the KAM and the KAAI.

Quality assessment / Risk of bias analysis: In this network meta-analysis, we used the Cochrane risk bias tool to assess the risk of bias in randomized controlled trials using the following evaluation indicators: sequence generation, allocation concealment, blinding, incomplete outcome data addressed, selective outcome reporting, and other biases. The judgment of the bias risk of this item was presented as "low," "high," and "unclear." Two authors independently evaluated the risk of bias of the included studies. The authors discussed or referred to the opinion of a senior author to resolve any disagreements.

Strategy of data synthesis: In this network meta-analysis, we used the Cochrane risk bias tool to assess the risk of bias in randomized controlled trials using the following evaluation indicators: sequence generation, allocation concealment, blinding, incomplete outcome data addressed, selective outcome reporting, and other biases. The judgment of the bias risk of this item was presented as "low," "high," and "unclear." Two authors independently evaluated the risk of bias of the included studies. The authors discussed or referred to the opinion of a senior author to resolve any disagreements.

Subgroup analysis: We will do subgroup analysis if necessary.

Sensibility analysis: We will do it if necessary.

Language: English.

Country(ies) involved: China.

Contributions of each author:

Author 1 - Xi-Meng Huang - Conceiving of the study, and participating in its design and coordination and helping to draft the manuscript.

Author 2 - Ze-Xi Yang - Conceiving of the study, and participating in its design and coordination and helping to draft the manuscript.

Author 3 - Ying Huang - Helping perform the analysis with constructive discussions.