INPLASY PROTOCOL

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None declared.

Comparing the efficacy and safety of bicompartmental knee arthroplasty and total knee arthroplasty in the management of bicompartmental knee osteoarthritis: a meta-analysis

Hao, DS[1]; Wang, JJ[2]; Zuo, LY[3].

Review question / Objective: **To compare the efficacy and safety of bicompartmental knee arthroplasty (BKA) and total knee arthroplasty (TKA) for knee osteoarthritis (KOA) by performing a comprehensive meta-analysis of published data from randomized controlled trials (RCTs) and other comparative controlled trials (CCTs).**
Condition being studied: **Knee osteoarthritis (KOA) is a common chronic degenerative disease; common symptoms include pain, swelling, stiffness, and malformation and muscular weakness of the knee. KOA mainly affects senescent individuals, and the incidence varies by sex: for people more than 60 years old, the incidence is approximately 5% to 15% in males, while the incidence is approximately 10% to 25% in females. The final stage of KOA can result in disability in the lower limbs, which significantly reduces the quality of life of elderly people.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 04 November 2022 and was last updated on 04 November 2022 (registration number INPLASY2022110016).

INTRODUCTION

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METHODS

Participant or population: Individuals who suffered from knee disease.

Intervention: Bicompartmental knee arthroplasty and total knee arthroplasty.

Comparator: Range of motion, postoperative haemoglobin, safety, Knee Society Score, KSS-knee, KSS-function, Western Ontario and McMaster Universities Osteoarthritis Index-pain, Oxford Knee Score, University of California, Los Angele activity score, hip-knee-ankle angle, Short-Form 36 physical and mental scores, timed-up-and-go test, surgical time and hospital time.

Study designs to be included: Randomized controlled trials and retrospective controlled trials.

Eligibility criteria: Articles were included if they met the following criteria: (1) target population: individuals suffered from severe knee joint disease; (2) intervention: bicompartmental knee arthroplasty and total knee arthroplasty; (3) outcome: parameters that evaluate the hospitalization condition, postoperative functional parameters, revisions and complications; (4) type of studies: although randomized controlled trials were desirable, comparative controlled trials were also accepted; and (5) language: published in English.

Information sources: PubMed, EMBASE, the Web of Science, and Cochrane Central.

Main outcome(s): Range of motion, postoperative haemoglobin, safety, Knee Society Score, KSS-knee, KSS-function, Western Ontario and McMaster Universities Osteoarthritis Index-pain, Oxford Knee Score, University of California, Los Angele activity score, hip-knee-ankle angle, Short-Form 36 physical and mental scores, timed-up-and-go test, surgical time and hospital time.

Quality assessment / Risk of bias analysis: The quality of randomized controlled trials was assessed using the Cochrane risk of bias tool, while the Newcastle–Ottawa Scale (NOS) was used to assess the quality of comparative controlled trials.

Strategy of data synthesis: RevMan 5.3 software was used to conduct statistical analyzes. The odds ratio (OR) and 95% confidence interval (CI) were computed as summary statistics for the dichotomous variables, and pooled summary statistics were calculated with the use of a random-effects model. The mean difference (MD) and 95% CI were presented as summary statistics for continuous variables, and pooled summary statistics were calculated with the use of a fixed-effects model if the heterogeneity was not significant; otherwise, a random-effects model was applied. $P < 0.05$ was regarded as statistically significant. Statistical heterogeneity was quantified with the use of chi-square ($\chi 2$) and I2 tests, and heterogeneity was considered to exist based on a statistically significant $P < 0.05$ or I2> 50%. Subgroup analyzes and sensitivity analyzes were conducted to identify the sources of heterogeneity. If the included studies provided the median and interquartile range or median and range instead of the MD and 95% CI, an online tool that has been verified was applied to calculate the MD and 95% CI (https://www.math.hkbu.edu.hk/~tongt/papers/median2mean.html).

Subgroup analysis: None.

Sensitivity analysis: None.

Country(ies) involved: China.

Keywords: bicompartmental knee arthroplasty; total knee arthroplasty; patellar resurface; meta-analysis; knee osteoarthritis.

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