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 declared.

Single-radius versus multi-radius femoral components in primary total knee arthroplasty: protocol for a systematic review and meta-analysis

Zhang, W[1]; Zhang, J[2]; Zhang, Y[3]; Chen, L[4].

Review question / Objective: **Whether single-radius femoral design is superior than multiple-radius femoral design was controversial. This meta-analysis aimed to compare the single-radius versus multi-radius femoral components in primary total knee arthroplasty.**
Condition being studied: **TKA patients.**
Information sources: **Pubmed, Cochrane library, Embase databases, China National Knowledge Infrastructure (CNKI) database, Wanfang Chinese database, and VIP Chinese database.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 01 February 2021 and was last updated on 01 February 2021 (registration number INPLASY202120003).

INTRODUCTION

Review question / Objective: **Whether single-radius femoral design is superior than multiple-radius femoral design was controversial. This meta-analysis aimed to compare the single-radius versus multi-radius femoral components in primary total knee arthroplasty.**

Condition being studied: **TKA patients.**

METHODS

Search strategy: **The search criteria were as follows: (single radius OR constant radius OR Triathlon OR Scorpio OR NRG) AND (TKA, TKR, total knee arthroplasty,**

total knee replacement) were used in key words for search.

Participant or population: TKA.

Intervention: Single-radius femoral components.

Comparator: Multi-radius femoral components.

Study designs to be included: RCTs.

Eligibility criteria: 1.Patients: Diagnosis of knee OA was defined using the American College of Rheumatology (ACR) criteria of classification of OA of the knee; 2.Intervention: single-radius femoral components; 3. Control: multi-radius femoral components; 4.Outcomes: Knee Society Score for the knee (KSS-knee), KSS-function, knee flexion, range of motion, complications, isometric peak torque of knee, and survival rate; 5.Study design: randomized controlled trials.

Information sources: Pubmed, Cochrane library, Embase databases, China National Knowledge Infrastructure (CNKI) database, Wanfang Chinese database, and VIP Chinese database.

Main outcome(s): Knee Society Score for the knee (KSS-knee), KSS-function, knee flexion, range of motion, complications, isometric peak torque of knee, and survival rate.

Quality assessment / Risk of bias analysis: Two researchers (Yuan Zhang and Lu Chen) independently assessed the quality of the included trials based on Cochrane risk of bias assessment tool. This tool mainly including 7 items: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective reporting and other bias.

Strategy of data synthesis: The statistical analysis was performed using Review Manager 5.1 for Windows System (Cochrane Collaboration, Nordic Cochrane Centre, Copenhagen, Denmark). Categorical dichotomous variables were analyzed with relative risks (RRs), continuous variables were assessed with the weighted mean difference, and $P < 0.05$ was considered statically significant; the 95% confidence intervals (CIs) were reported. Heterogeneity was considered significant if the P value was less than 0.1. The value of I2 statistics was used to assess the degree of heterogeneity (I2 < 25%, no heterogeneity; I2 = 25–50%, moderate heterogeneity; I2 > 50%, large or extreme heterogeneity); if I2 > 50%, a fixed-effects model was used. The presence of publication bias was assessed by a visual inspection of a funnel plot and the Begg and Egger tests (with $P < 0.05$ considered statistically significant).

Subgroup analysis: None.

Sensitivity analysis: None.

Country(ies) involved: China.

Keywords: meta-analysis, single-radius, multi-radius; protocol, total knee arthroplasty.

Contributions of each author:
Author 1 - Wei Zhang.
Author 2 - Jianguang Zhang.
Author 3 - Yuan Zhang.
Author 4 - Lu Chen.