INPLASY PROTOCOL

To cite: Xu et al. Dual mobility total hip arthroplasty versus bipolar hemiarthroplasty in treating patients with displaced femoral neck fractures: A Systematic Review and Meta-Analysis. Inplasy protocol 202040085. doi: 10.37766/inplasy2020.4.0085

Received: 15 April 2020

Published: 15 April 2020

Corresponding author:
Keteng Xu

xuketeng1994@163.com

Author Affiliation:
Clinical Medical College, Yangzhou University

Support: **NSFC**

Review Stage at time of this submission: **Preliminary searches.**

Conflicts of interest: **The authors declare that they have no competing interests.**

Dual mobility total hip arthroplasty versus bipolar hemiarthroplasty in treating patients with displaced femoral neck fractures: A Systematic Review and Meta-Analysis.

Xu, K[1]; Zhang, J[2]; Zhanga, P[3]; Lianga, Y[4]; Wang, J[5].

Review question / Objective: **We conduct this meta-analysis to investigate the clinical outcomes of THA with DMC compared to BHA in the treatment of DFNFs.**
Condition being studied: **Surgical treatments for DFNFs are intended to acquire early mobilization, decreased complications, and clinical improvement. However, optimal treatment for DFNFs remains controversial. Arthroplasty is a generally accepted treatment for elderly patients with DFNFs. This treatment, including bipolar hemiarthroplasty (BHA) and total hip arthroplasty (THA), is an effective treatment that allows early patient mobilization. HA is a preferred treatment because of its quick and relatively simple procedure compared to THA, and nearly 45% of elderly patients with DFNFs were performed with BHA.**
Information sources: **We searched Embase, Medline, Web of Science, and Cochrane databases thoroughly to retrieve related studies published until March 2020.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 April 2020 and was last updated on 22 October 2025 (registration number INPLASY202040085.

INTRODUCTION

Review question / Objective: **We conduct this meta-analysis to investigate the clinical outcomes of THA with DMC compared to BHA in the treatment of DFNFs.**

Condition being studied: **Surgical treatments for DFNFs are intended to acquire early mobilization, decreased complications, and clinical improvement. However, optimal treatment for DFNFs remains controversial. Arthroplasty is a generally accepted treatment for elderly patients with DFNFs. This treatment,**

including bipolar hemiarthroplasty (BHA) and total hip arthroplasty (THA), is an effective treatment that allows early patient mobilization. HA is a preferred treatment because of its quick and relatively simple procedure compared to THA, and nearly 45% of elderly patients with DFNFs were performed with BHA.

METHODS

Search Strategy We searched Medline, Embase, the Cochrane Library, and Web of Science thoroughly to retrieve related studies published before June 2025. The following key terms were used: "dual-mobility," "dual mobility," "tripolar," "double-mobility," "double mobility," "dual mobility cup", "double mobility cup", "Hemiarthroplasty" and "Hemi Arthroplasty".

Participant or population: Patients with displaced femoral neck fractures.

Intervention: Patients have undergone Dual mobility total hip arthroplasty.

Comparator: Patients have undergone bipolar hemiarthroplasty.

Study designs to be included: Controlled Trials.

Eligibility criteria: (1) Conference, review, abstract, case report, sawbones or cadaver knees studies. (2) Studies with insufficient data. (3) Duplicate publication. (4) Studies not published in English.

Information sources: We searched Embase, Medline, Web of Science, and Cochrane databases thoroughly to retrieve related studies published until March 2020.

Main outcome(s): (1) Dislocation rate; (2) Re-operation rate; (3) Length of surgery; (3) Transfusion rate; (4) Perioperative blood loss; (5) one-year mortality.

Quality assessment / Risk of bias analysis: The quality of the non-RCTs studies was assessed according to the Downs and Black and the Newcastle-Ottawa Scale (NOS) quality assessment method. A total NOS score was 9* and if the NOS score was over 6*, it would be considered higher quality. A higher score was recognized better quality. The 12-item scale was used to assess the quality of RCTs. Each item was scored "Yes", "Unclear", or "No". If a trial with a score of more than 7 "Yes" was considered high quality, more than 4 but no more than 7 was considered moderate quality, and no more than 4 was considered low quality. Any different opinions were resolved by a third reviewer.

Strategy of data synthesis: The Cochran's Q statistic was applied to assess statistical heterogeneity of the data. If statistical Q statistic ($P < 0.10$), significant heterogeneous was considered existed in studies, and a random-effects model was performed, otherwise a fixed-effects model was utilized. If the detected heterogeneity was over 85%, the meta-analysis of the related data would not be conducted. For continuous data, the mean difference (MD) with 95% confidence interval (CI) were applied, and for dichotomous data, the Odd ratio (OR) was calculated using the Mantel-Haenszal method, MD was considered statistically significant at the $P<0.05$ level. The meta-analysis was conducted using Review Manager 5.3. Sensitivity analysis were conducted to evaluate the stable of our results by successively eliminating eligible studies.

Subgroup analysis: none.

Sensibility analysis: One study was individual deleted each time to observe its influence on the pooled MD or OR. The results showed that no study could substantially affect the pooled MD or OR in the present meta-analysis.

Language: English.

Country(ies) involved: China.

Keywords: Displaced femoral neck fractures; Dual mobility cup; Hip arthroplasty; Rewiew.