INPLASY PROTOCOL

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

Comparison of computer navigated and conventional Unicompartmental Knee Arthroplasty for the treatment of Knee Osteoarthritis: a meta-analysis

Xu K[1]; Zhang J[2].

Review question / Objective: **Whether the navigation system could show more benefits in clinical outcomes and radiological positioning precision of the prosthesis.**
Condition being studied: **Though unicompartmental knee arthroplasty (UKA) is a useful procedure to correct the malalignment, it still a great controversy whether navigated system can achieve better accuracy of target alignment and greater clinical outcomes. The current meta-analysis was conducted to investigate whether better clinical and radiographic outcomes could be acquired in the navigated system when compared with conventional procedures.**
Information sources: **Embase, Medline, Web of Science, Cochrane databases were searched to retrieve related studies updated on October 2019.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 07 April 2020 and was last updated on 07 April 2020 (registration number INPLASY202040034).

INTRODUCTION

Review question / Objective: **Whether the navigation system could show more benefits in clinical outcomes and radiological positioning precision of the prosthesis.**

Condition being studied: **Though unicompartmental knee arthroplasty (UKA) is a useful procedure to correct the malalignment, it still a great controversy whether navigated system can achieve better accuracy of target alignment and greater clinical outcomes. The current meta-analysis was conducted to investigate whether better clinical and radiographic outcomes could be acquired in the navigated system when compared with conventional procedures.**

METHODS

Participant or population: **Patients have undergone computer navigated or conventional Unicompartmental Knee Arthroplasty.**
Intervention: **Patients have undergone computer navigatedUnicompartmental Knee Arthroplasty.**

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Comparator: Patients have undergone conventional Unicompartmental Knee Arthroplasty.

Study designs to be included: Controlled Trials.

Eligibility criteria: ((1) Studies compared the clinical or radiographic outcomes in patients who underwent navigated UKA and conventional UKA ;(2) Clinical or radiographic outcomes were not limited to pool; (3) Published studies in Engllish were eligible.

Information sources: Embase, Medline, Web of Science, Cochrane databases were searched to retrieve related studies updated on October 2019.

Main outcome(s): Inliers of the mechanical axis, Kennedy's central zone, coronal femoral prosthesis, sagittal femoral prosthesis, coronal tibial prosthesis and sagittal tibial prosthesis.

Additional outcome(s): Hospital for special surgery knee score (HSS score); Oxford Knee Score(OKS score); American knee society knee score (KSS score); the Western Ontario and McMaster universities osteoarthritis index(WOMAC score); Range Of Motion (ROM) ; complications, Surgical Time (minutes); Pain scale (Visual Analogue Scale/Score, VAS).

Data management: 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 as higher quality research. A higher score was recognized as better quality research. The 12-item scale was used to assess the quality of the 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.

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 as higher quality research. A higher score was recognized as better quality research. The 12-item scale was used to assess the quality of the 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: Statistical heterogeneity of data was evaluated by using Cochran’s Q statistic. If statistical Q statistic ($P < 0.10$) was considered to be significant heterogeneous among studies, a random-effects model was performed, if not, a fixed-effects model was used. If the heterogeneity of a parameter was over 85%, the meta-analysis was not performed. The results of continuous data were applied to the mean difference with 95% confidence interval (CI). For dichotomous data, the Odd ratio (OR) was calculated using the Mantel-Haenszal method, mean difference and standardized mean difference were considered statistically significant at the $P<0.05$ level. Data analysis was carried out by using Review Manager 5.3. Sensitivity analysis was performed to assess the results through the exclusion of eligible studies once time.

Subgroup analysis: None.

Sensibility analysis: An individual study was deleted each time to investigate its influence on the pooled results.

Countries involved: Korea, China, Italy, USA, Austria, Australia.

Keywords: Navigation; Knee Osteoarthritis; Unicompartmental arthroplasty; Meta-analysis.

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