Comparison of clinical and functional outcomes between unicompartmental knee arthroplasty and high tibial osteotomy in patients with unicompartmental knee osteoarthritis: a systematic review

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Reference list

Introduction

- Knee osteoarthritis (OA) is a degeneration of the knee joint and a leading cause of disability in adults.[1]
- Unicompartmental knee arthroplasty (UKA) and high tibial osteotomy (HTO) are great options for patients with unicompartmental knee OA.[2] But, the difference in outcome and indications remain unclear.[3]
- The purpose of this systematic review was to compare UKA and HTO to determine if the outcomes favored either procedure.

Table 1. Current indications of UKA and HTO and the overlapping indications[3]

Category	UKA	UKA or HTO	HTO
Age (years)	>55	55-65	<65
Activity level	Low	Moderate	High
Body Mass Index (kg/m^2)	<30	<30	<30
Alignment (degrees)	0-5	5-10	5-15
Antero-Posterior instability	None to grade I	None to grade I	Any
Medio-Lateral instability	None to grade I	None to grade I	None to grade II
Range of Motion (degrees)	Any	Arc 100 and <5 flexion contracture	Arc 120 and <5 flexion contracture
Osteoarthritis grade	Ahlback II	Ahlback II	Ahlback I-II

Method

- Three stage screening process of duplicates, title and abstract, and full-text
- Excluded rheumatoid, traumatic, patellofemoral joint arthritis, non-Indonesian or English language, and case series/ reports
- Quality assessment using Cochrane risk of bias tool *(RCT)* and ROBINS-I *(nRCT)*
- Comparison of outcomes of HTO and UKA were summarized

Results

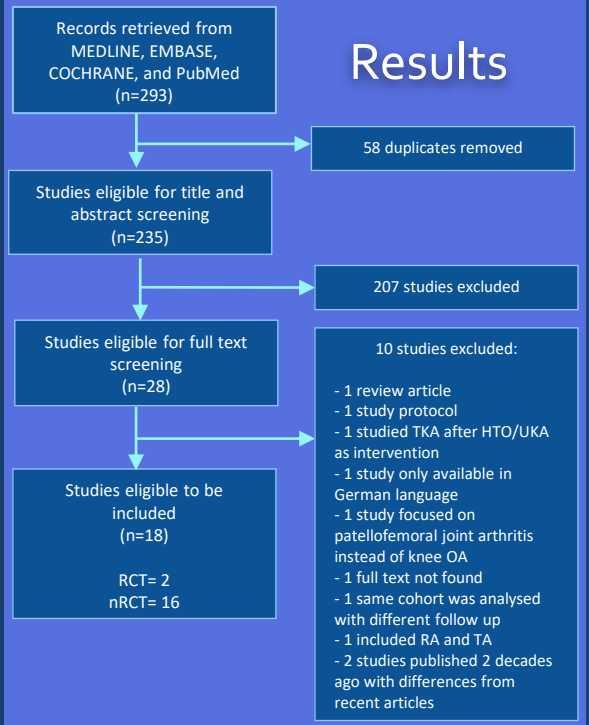

Figure 1. PRISMA Flowchart of study selection process

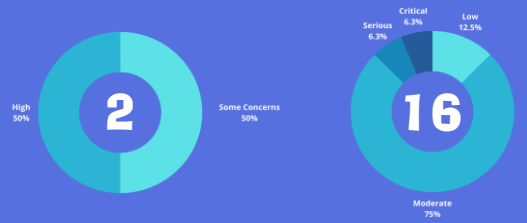

Figure 2. Overall risk of bias in RCT (left) and nRCT (right) studies

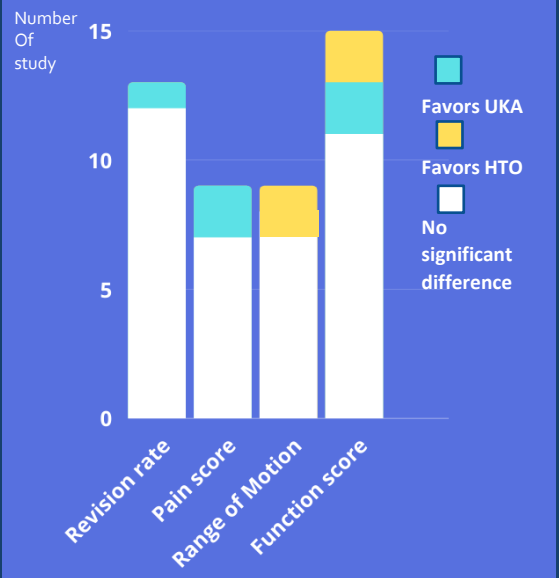

Figure 3. Results of the studies in relation to revision rate, postoperative pain score, range of motion (ROM), and function score

Table 2. The complications found in UKA and HTO

UKA	HTO
Infection	Infection
Deep vein thrombosis	Deep vein thrombosis
Delayed union	Delayed union
Meniscal bearing dislocation	Hinge fracture
Subluxation of liner	Leg length discrepancy

Key Findings

- A majority of studies did not find significant differences in revision rate, complication rate, postoperative pain score, ROM, and functional score. These findings align with the 2016 AAOS guideline.[4]
- Most studies had small sample sizes and moderate risk of bias.
- Some studies reported significantly better revision rate, postoperative pain score, and function score in UKA. While significantly better postoperative ROM in HTO. Similar to other meta-analyses.[5,6]
- Few studies reported significantly better functional score of UKA than HTO at 6 months and earlier. Similar to the findings of Cao et al.[6]

Conclusion

- Lack of evidence that UKA and HTO differ significantly in terms of long-term clinical outcome but some evidence of superior short term functional outcomes for UKA
- High-quality prospective studies are recommended to reach definitive a conclusion