EDITORIAL

Unicompartmental Knee Arthroplasty: Mobile-bearing or Fixed-bearing?

E. Carlos Rodriguez-Merchan, MD, PhD[1]

[1] Department of Orthopedic Surgery, Hospital Universitario La Paz, Madrid, Spain

Unicompartmental knee arthroplasty (UKA) is a well-known surgical technique for the management of unicompartmental knee osteoarthritis.[1-3] There are two basic prosthetic designs for UKA: fixed-bearing (FB) and mobile-bearing (MB). There is still debate in the literature regarding which of the two is more recommendable, FB UKA or MB UKA.[4] This Editorial presents important data extracted from publications about UKA. The aim is to obtain answers to a still controversial question: which of the two (FB or MB) is more recommendable? To this end, on September 8, 2025, a bibliographic search was conducted in PubMed using the keywords "UKA mobile-bearing versus fixed-bearing." Fifteen articles were found, of which only thirteen were analyzed because they were directly related to the title of this Editorial.[1-13]

The following is a description of the relevant information on comparative studies between MB UKA and FB UKA based on various parameters analyzed.

Clinical Results

In the study by Zhang et al, clinical outcomes were similar between FB UKA and MB UKA.[5]

Radiological Results

Zhang et al found similar radiological results between FB UKA and MB UKA.[5]

Knee Function

Li et al reported that knee function (assessed using Knee Society Scores, Western Ontario and McMaster Universities Arthritis Index (WOMAC), and SF-36 scores) was similar between FB UKA and MB UKA.[6] The same conclusion was reached by Migliorini et al, after a mean follow-up of 4 years.[7]

Restoration of Gait

The gait analysis by Catani et al showed that both MB and FB achieved good gait restoration. The minimum follow-up of the study was 1 year.[8]

Muscle Activity around the Knee after Surgery

According to Catani et al, in both designs (FB and MB), a few defects in knee muscle activity persisted after surgery.[8]

Kinematics

According to Li et al, at 2 years of follow-up, MB UKA showed superior kinematics than FB UKA.[6] Gu et al observed that MB UKA restored the natural kinematics of the knee better than FB UKA.[9]

Knee Stability

Gu et al observed that FB UKA provided greater knee stability than MB UKA, although it may limit rotation and increase stress at the patellofemoral level.[9]

Radiolucency at the Bone-Implant Interface

According to Li et al, at 2 years of follow-up, MB UKA had an inferior prevalence of radiolucency at the bone-implant interface than FB UKA (8% vs. 37%, $p < 0.05$).[6]

Modes and Timing of Failure

In the report by Parrate et al. types of failure in the MB UKA were aseptic loosening, dislocation, and osteoarthritis worsening; however, in the FB UKA, types of failure were wear and osteoarthritis worsening.[10]

In the meta-analysis by Zhang et al., there were differences between FB UKA and MB UKA in the mode of failure and the timing of failure (MB UKA failed earlier due to bearing dislocation, while FB UKA failed later because of polyethylene wear).[5]

Revision Rates

In the systematic review and meta-analysis by Peersman et al, after an average follow-up of about 9 years for FB and about 6 years for MB prostheses, revision rates were similar: Revision rate for FB UKA was 0.90 per 100 component years, while revision rate for MB UKA was 1.51 per 100 component years.[11] In the meta-analysis by Migliorini et al, the rates of revision were similar.[7]

In the study by Tay et al. the risk of revision was higher for cemented MB UKA than for cemented FB UKA at 15 years. Younger patients (< 60 years) had a higher risk of revision.[12]

In the study by Fricka et al, FB UKA had fewer component

Corresponding Author: E. Carlos Rodriguez-Merchan, Department of Orthopedic Surgery, La Paz University Hospital, Madrid, Spain

Email: ecrmerchan@hotmail.com

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revisions (0.6% vs 1.8%) and conversion arthroplasties (1.6% vs 3.5%) than MB UKA.[13]

Rates of Other Complications

In the meta-analysis by Migliorini et al, the rates of aseptic loosening, deep infection, and periprosthetic fracture were similar.[7]

In the study by Fricka et al, the rates of early periprosthetic tibia fractures were 0.6% in FB UKA and 0% in the MB UKA.[13]

Survivorship

Parratte et al observed that after a mean follow-up of 17 years, the prosthetic survival of MB UKA and FB UKA were not different (15% vs. 12%, respectively).[10]

According to Tay et al, 15-year prosthetic survival for cemented FB UKA was 92%; the rate of survival was 91% for uncemented MB UKA, and 80% for cemented MB UKA.[12]

In the study by Fricka et al, it was observed that at 5 years, utilizing revision arthroplasty for any cause as an endpoint, FB UKA showed slightly higher prosthetic survival than MB UKA (97.2% vs. 96%).[13]

Conclusion

It seems that orthopedic surgeons should consider using cemented FB UKA or uncemented MB UKA due to their better long-run implant survivorship compared with cemented MB UKA. However, this conclusion should be taken with caution since the level of evidence is not optimal. Future studies with a high level of evidence should confirm this conclusion.

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E. Carlos Rodriguez-Merchan MD, PhD[1]

1 Department of Orthopedic Surgery, Hospital Universitario La Paz, Madrid, Spain

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