Excellent Long-Term Survivorship of 2,200 UKAs, Especially with Technology and Fixed Bearings

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INTRODUCTION:
Unicompartmental knee arthroplasty (UKA) offers a viable alternative to total knee arthroplasty (TKA) for patients with isolated compartment disease, providing benefits such as faster recovery and lower complication rates. Despite these advantages, concerns remain about long-term durability. The purpose of this study was to evaluate implant survivorship, risk factors for revision, and clinical outcomes in a large consecutive series of UKAs of several designs.
METHODS: We identified 2,234 UKAs performed between 2000 and 2021 at a single tertiary care academic center. Fixed-bearing designs were used in 78% of cases. Technology assistance was employed in 59% of procedures, including intraoperative fluoroscopic guidance (44%), robotic-assistance (13%), and computer navigation (1%). Mean age was 65 years, mean BMI was 31 kg/m^2, and 49% were female. Kaplan-Meier survivorship curves were calculated and Cox proportional hazards models evaluated risk factors for revision. Knee Society Scores (KSS) were recorded. Mean follow-up was 7 years.
RESULTS: Survivorship free of any revision was 92% at 10 years and 85% at 15 years. A total of 118 UKAs were revised, 93% to TKA. The most common indications for revision were progression of arthritis in adjacent compartments (43%), aseptic loosening (24%), unexplained pain (9%), polyethylene liner wear (8%), and PJI (5%). Median time to revision was 5 years. Increased risk of revision was associated with manual instrumentation (HR 2.5; $p<0.001$), mobile-bearing design (HR 1.9; $p<0.001$), and younger age (HR 1.2 per 5 years; $p<0.001$). Mean KSS improved from 48 preoperatively to 75 at 5 years ($p<0.001$).
DISCUSSION AND CONCLUSION:
UKA demonstrated excellent long-term survivorship, with a 1% annual revision rate out to 15 years. Absence of technology-assisted techniques, use of a mobile-bearing design, and younger patient age were associated with increased revision risk. These findings highlight the importance of surgical technique, implant selection, and patient factors in achieving durable outcomes.