

## **Ninety-Day and Ten-Year Outcomes of Unicompartmental Knee Arthroplasty Based on Surgical Indication in Patients Under 50 Years of Age**

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**INTRODUCTION:** Unicompartmental knee arthroplasty (UKA) is less frequently considered in patients under 50 years of age. Prior single-institution studies have noted inferior outcomes of UKA in younger patients, however, the potential correlation of surgical indication on such outcomes remains poorly characterized.

**METHODS:** Patients less than 50 years of age undergoing UKA were identified from the 2010-Q1 2023 PearlDiver M170Ortho database. Patients were stratified by surgical indication including primary osteoarthritis (OA), post-traumatic osteoarthritis (PTOA), and avascular necrosis (AVN). The odds of 90-day adverse events (AEs), emergency department (ED) visits, readmissions, and 10-year implant-related AEs including periprosthetic fracture, aseptic loosening, stiffness, revision, and prosthetic joint infection (PJI) were independently compared for PTOA and AVN, relative to primary OA, by multivariable logistic regression.

### **RESULTS:**

Among 21,443 UKA patients, indication was primary OA for 12,929 (60.3%), PTOA for 7,816 (36.5%), and AVN for 698 (3.3%). Relative to primary OA, PTOA demonstrated higher odds of 90-day surgical site infection (SSI) (odds ratio [OR] 1.32,  $p=0.036$ ), venous thromboembolism (VTE) (OR 1.49,  $p<0.001$ ), and wound complication (OR 1.65,  $p=0.004$ ). At 10-years, PTOA demonstrated higher odds of PJI (OR 1.36,  $p=0.003$ ), aseptic loosening (OR 1.54,  $p<0.001$ ), stiffness (OR 1.41,  $p<0.001$ ), and revision (OR 1.29,  $p<0.001$ ).

Relative to primary OA, AVN demonstrated higher odds of 90-day SSI (OR 1.81,  $p=0.037$ ), VTE (OR 1.49,  $p=0.029$ ), and transfusion (OR 3.59,  $p=0.002$ ). At 10-years, AVN demonstrated higher odds of aseptic loosening (OR 1.61,  $p=0.002$ ).

**DISCUSSION AND CONCLUSION:** In the largest ever cohort of UKA patients under 50 years of age, the current study found that the indications of PTOA and AVN were associated with inferior 90-day and 10-year outcomes relative to primary OA. This highlights the importance of indication in patient counseling and care pathway refinement.