Short-Term Complications and Revision following Unicondylar Knee Arthroplasty

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Introduction: Clinical studies have demonstrated that patients undergoing unicompartmental knee arthroplasty (UKA) have improved outcomes compared to total knee arthroplasty (TKA), e.g., shorter hospital stay, less perioperative complications, faster rehabilitation, and better functional results. However, several European registry studies have reported a seemingly paradoxical higher revision rate for UKA than TKA, despite better short-term outcomes. We evaluated short-term complication and revision rates for UKA patients in the U.S., using two large claims databases.

Methods: UKA patients were identified from the MarketScan dataset (2004-June 2012) and physician files of the 5% Medicare database (2002-2011) for younger (=65 y.o.) patient populations, respectively. Post-operative complications were evaluated within 3 months post-operatively. Generalized linear models were used to evaluate patient risk factors for the complications. Implant survivorship with revision surgery/conversion to TKA was evaluated at up to 10 years follow-up.

Results: 4.9% of the 15,253 younger patients and 8.4% of the 5,235 elderly patients were readmitted within 90 days (Fig. 1) for various procedures, such as arthrocentesis, revision, cartilage/meniscus excision, arthroscopy, and arthrotomy. Post-UKA knee stiffness was diagnosed for 6.8% of the younger patients and 2.7% of the elderly patients, while arthroscopy was performed on 0.1% of the younger patients and 1.1% of the elderly patients. Rates of thromboembolic disease and deep infection were 1.3 and 0.7%, respectively, for the younger patients, and 0.9% and 0.6%, respectively, for the elderly patients. Age and comorbidities were significant risk factors for the vast majority of complications. The Kaplan-Meier risk of implant survival was 98.1%, 91.5%, 81.5%, and 74.4% at 0.5, 2, 5, and 7 years, respectively, for the younger patients with risk of implant survival at 98.1%, 92.6%, 84.5%, 80.9%, and 77.2% at 0.5, 2, 5, 7, and 10 years, respectively. In contrast, TKA survivorship for elderly patients was 99.3%, 98.0%, 96.4%, 95.7%, and 94.3% at 0.5, 2, 5, 7, and 10 years, respectively. Older patients, hospital volume in the top 25th percentile (>=80 procedures), surgeon volume in the top 10th percentile (>=100 procedures), and more recent years were associated with lower risks of revision/conversion to TKA for the elderly patients.

Discussion: The data suggests that UKA patients encounter relatively low rates of short-term complications, though TKA patients appear to have lower risk of revision. Based on the Kaplan-Meier analysis, almost three-quarters of the patients were able to avoid revision or conversion to TKA by the 7 year time-point for younger patients and by 10 years for elderly patients. This suggests that UKA may be effective in delaying the need to resurface both compartments of the knee.
**Significance:** UKA patients had relatively low short-term complication rates. About 3/4 of patients were able to avoid revision/TKA conversion by 10 years for elderly patients and by 7 years for younger patients.

![Graph showing complication rates](image)

*Fig. 1: Mortality, hospitalization, and complication rates following UKA within 90 days follow-up.*
Fig. 2: Kaplan-Meier UKA implant survival curve with revision/conversion to TKA as an endpoint.

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