

Differences in Short Term Complications Between Unicompartmental and Total Knee Arthroplasty: A Propensity Score Matched Analysis

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Introduction: Total knee arthroplasty (TKA) and unicompartmental knee arthroplasty (UKA) have emerged as effective treatments for end-stage disease in the appropriately indicated patient. Differences in short-term complications after TKA and UKA have not been well described. We sought to identify differences in 30-day complication rates between TKA and UKA using a large, heterogeneous national database provided by the ACS NSQIP.

Methods: Patients undergoing TKA and UKA between 2005 and 2011 were identified from the ACS NSQIP database. CPT codes were used to select cases of elective primary knee arthroplasty. Short-term 30-day incidences of morbidity and mortality were calculated in the two cohorts. Statistical models employing univariate and multivariate logistic regression identified risk factors for complication after TKA and UKA. Propensity matching addressed demographic differences between TKA and UKA cohorts.

Results: In total, 29,333 patients were identified; 27,745 (94.6%) had TKA, and 1588 (5.41%) had UKA. Females comprised 63.7 and 55.3% of the TKA and UKA cohorts, respectively. The average BMI in the TKA and UKA cohorts was 32.7 ± 7.3 and 31.5 ± 6.5 kg/m², respectively ($p < 0.0001$). A well-developed propensity score matching algorithm was used to address significant demographic differences in the two cohorts. Following matching, composite complications (16.6% vs 5.2%; $p < 0.0001$), DVT (1.5% vs 0.50%; $p < 0.02$), blood transfusions (11.7% vs 1.1%; $p < 0.001$), operative time (91.4 vs 89.0 mins; $p = 0.019$), and length of hospital stay (LOS) (3.4 vs 2.2 days; $p < 0.0001$) were all significantly higher in the TKA cohort.

Conclusion: Although TKA and UKA are performed in different patient populations, addressing these differences with propensity matching in a heterogeneous cohort provided by the ACS NSQIP database revealed lower short-term morbidity and mortality following UKA.