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Increased Revisions in Conversion TKA After ORIF Compared to Primary TKA: A Matched Cohort Analysis

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Introduction: Conversion total knee arthroplasty (cTKA) has been increasingly studied in efforts to determine appropriate billing for this procedure. Due to the relative infrequency of cTKA, much of the previous work has been low-powered and lacked stratification by subtype of conversion procedure. The purpose of this study was to compare two-year postoperative complication/revision rates between patients undergoing cTKA after prior periarticular open reduction and internal fixation (ORIF) and those undergoing primary total knee arthroplasty (TKA).

Methods: Patients who underwent cTKA after prior periarticular ORIF of the ipsilateral knee (cTKA-ORIF cohort) were identified in a national insurance claims database (PearlDiver Technologies) using CPT and ICD codes. This cTKA-ORIF cohort was propensity matched to patients undergoing primary TKA based upon age, sex, Charlson Comorbidity Index, and obesity status. Univariate analysis was performed to analyze differences in two-year complications/revisions between cohorts.

Results: Following propensity matching, 823 patients were included in the cTKA-ORIF cohort, and 1,640 patients were included in the primary TKA cohort. Both cohorts were successfully matched, with no differences in demographics or comorbidities between cohorts. Relative to the primary TKA cohort, the cTKA-ORIF cohort was significantly more likely to experience revision for any cause (5.47% vs. 2.47%, $p=0.001$), periprosthetic joint infection (PJI; 4.74% vs. 1.34%, $p<0.001$), and intraoperative/postoperative periprosthetic fracture (1.58% vs. 0.55%, $p=0.01$) at two years postoperatively. There was also a non-significant trend towards increased rates of aseptic loosening (1.82% vs. 0.91%, $p=0.052$) in the cTKA-ORIF cohort at two years postoperatively.

Conclusions: Relative to primary TKA, cTKA after periarticular ORIF is associated with significantly increased rates of all-cause revision, PJI, and periprosthetic fracture at two years postoperatively. Clinicians should counsel these patients about their increased risk of postoperative complications and consider treating them as “high risk” for PJI in the perioperative period.

Notes