

Total Elbow Arthroplasty Complication, Reoperation, and Revision Rates: A Comparison Between Arthroplasty for Arthritis Versus Fracture

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INTRODUCTION: Total elbow arthroplasty (TEA) is used to treat various elbow joint issues such as distal humerus fractures (DHF) and arthritic degeneration (AD). This study aims to compare complication, reoperation, and revision rates following TEA between these two common indications.

METHODS:

A retrospective review of all cases performed at a single large orthopaedic practice was queried for all patients who had undergone a TEA between 2016 and 2020, yielding 96 TEA cases for analysis. Cases were categorized by indication into arthritic degeneration (AD group; $n = 54$) and distal humerus fracture (DHF group; $n = 42$). Demographic and clinical data, complications, reoperations, and revisions were recorded over a four-year follow-up period. Reoperations were classified as component-sparing or component-related. Bivariate and multivariate analyses were performed to identify associated risk factors.

RESULTS: A total of 96 patients with a mean age of 70.3 ± 12.4 years were screened, among which 78.1% were female (75/96). Patients in the AD group were significantly younger than those in the DHF group (64.8 ± 10.9 vs. 77.5 ± 10.5 years, $p < 0.0001$). The overall complication rate was 41.7%, and the reoperation rate was 22.9%. Although not statistically significant, the AD group had higher rates of complications (44.4% vs. 38.1%) and reoperations (29.6% vs. 14.3%). Male sex was significantly associated with higher rates of both complications (76% vs. 33%, $p = 0.001$) and reoperations (43% vs. 19%, $p = 0.045$). No significant predictors were identified on multivariate analysis of comorbidities.

DISCUSSION AND CONCLUSION: In our cohort, approximately one in four patients required reoperation within four years post-TEA. Despite advances in technique and implant design, TEA remains associated with substantial complication and reoperation rates. Surgical indication and patient sex may influence postoperative outcomes.