

The Impact of End Stage Renal Disease on Total Knee Arthroplasty

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INTRODUCTION: Estimates suggest that up to 15% of US adults have chronic kidney disease, and more than 500,000 have End Stage Renal Disease (ESRD). With the rising prevalence of these pathologies, particularly among older adults, it is increasingly important for orthopaedic surgeons to understand how ESRD impacts their patients. The aim of this study is to assess the impact of ESRD on Total Knee Arthroplasty (TKA).

METHODS: This was a cohort retrospective study drawing data from the National Readmissions Database, years 2016-2019. Patients with ESRD undergoing TKA were identified via ICD-10 codes. Multivariate regression was performed to assess outcomes between groups. Negative binomial regression was performed to assess 30-day readmission and discharge disposition. Quasi-Poisson regression was performed to assess length of stay (LOS) and total charges. Demographics and comorbidities, measured via Elixhauser comorbidity index, were controlled for in our analysis.

RESULTS: A total of 1,930,861 patients undergoing TKA were included; 9,345 (0.48%) had ESRD. Patients with ESRD had a greater risk of medical (Odds Ratio (OR) 1.62; $p < 0.001$) and surgical complications (OR 1.973; $p < 0.001$). They also had increased odds of readmission (OR 1.855; $p < 0.001$), longer LOS (OR 1.22; $p < 0.001$), reduced odds of a routine discharge (OR 0.868; $p < 0.001$), and greater total charges (OR 1.094; $p < 0.001$).

DISCUSSION AND CONCLUSION: Patients with ESRD undergoing TKA are at greatly increased risk of complications. Furthermore, they are more likely to require readmission, have longer stays, have adverse discharge, and have greater costs for their procedures. This information can inform orthopaedic surgeons on this growing population and aid in risk stratification.

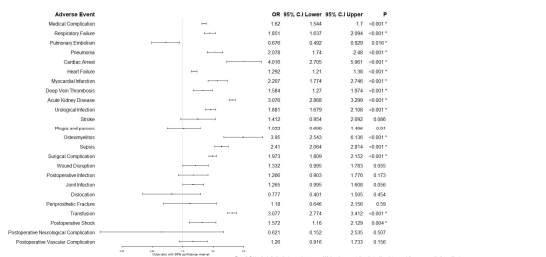


Figure 1 Odds ratios (OR) and 95% confidence intervals (CI) for various comorbidities for patients with and without ESRD undergoing TKA.

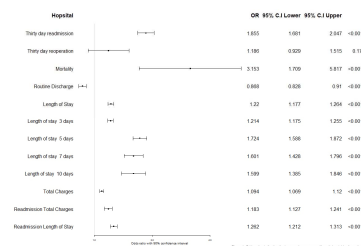


Figure 2 Odds ratios (OR) and 95% confidence intervals (CI) for hospital outcomes for patients with and without ESRD undergoing TKA.