

## **Comparison of Total Knee Arthroplasty Outcomes Between Hemodialysis and Renal Transplant Patients**

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**INTRODUCTION:** Total knee arthroplasty (TKA) in end stage renal disease (ESRD) patients is associated with increased complications. Controversy exists whether elective TKA should be performed while these patients are on hemodialysis (HD) or following renal transplant (RT). The purpose of this study is to evaluate relative TKA outcomes in HD versus RT patients.

**METHODS:** The Nationwide Readmissions Database was retrospectively reviewed using ICD codes to identify all HD and RT patients who underwent primary TKA from 2010-2018. Demographics, comorbidities, and hospital factors were compared between cohorts using Wald and Chi-squared tests. The primary outcome was in-hospital mortality, while secondary outcomes included length of stay (LOS), non-home discharge, cost, readmission, and medical/surgical complications. Multivariate regression was used to determine independent associations. Significance was determined with a two-tailed p-value of 0.05.

**RESULTS:** 13,611 patients underwent TKA, 61.1% HD and 38.9% RT patients. RT patients were younger, had fewer comorbidities, and more likely to have private insurance. After adjusting for these differences, RT patients had a lower rate of mortality (OR 0.23,  $p < 0.01$ ), complications (OR 0.63,  $p < 0.01$ ), cardiopulmonary complications (OR 0.44,  $p = 0.02$ ), sepsis (OR 0.22,  $p < 0.001$ ), and blood transfusion (OR 0.35,  $p < 0.001$ ) during the index hospitalization. RT was associated with decreased LOS (-2.0 days,  $p < 0.001$ ), non-home discharge (OR 0.57,  $p < 0.001$ ), and hospital cost (-\$5,300,  $p < 0.001$ ). RT had a lower rate of readmission (OR 0.54,  $p < 0.001$ ), periprosthetic joint infection (OR 0.50,  $p < 0.01$ ), and surgical site infection (OR 0.37,  $p < 0.001$ ) within 90 days.

**DISCUSSION AND CONCLUSION:** These findings suggest HD patients are a high-risk population in TKA compared to RT patients, and warrant stringent perioperative monitoring.