

## **Impact of Chronic Kidney Disease on Postoperative Outcomes Among Total Knee Arthroplasty Patients**

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**INTRODUCTION:** Comorbidities in patients undergoing total knee arthroplasty (TKA) may increase the risk of postoperative complications. This study aims to identify the effect of chronic kidney disease (CKD) on postoperative outcomes among patients who underwent TKA.

**METHODS:** Patients diagnosed with CKD (stages 1-5 as well as end-stage renal disease) who also underwent a TKA procedure from 2009 to 2013 were identified from the Statewide Planning and Research Cooperative System database. Data of patient demographics, mortality, postoperative medical complications, and postoperative surgical complications were analyzed using multivariate linear regression.

**RESULTS:** A total of 3272 patients with CKD underwent a TKA procedure. Stratification by race and payment yielded significant differences among patients with CKD and TKA as compared to those without CKD, with TKA ( $P < 0.001$  and  $P = 0.01$ , respectively). Significant postoperative complications include urinary tract infection (UTI) ( $P = 0.03$ ), deep vein thrombosis (DVT) ( $P = 0.018$ ), acute renal failure ( $P < 0.001$ ), and blood transfusion reactions ( $P < 0.001$ ) (Table 1). Length of stay was increased among these patients ( $OR = 4.8 \pm 4.3$ ,  $P = 0.001$ ). Deyo index predicted all medical and surgical complications ( $OR = 3.1 \pm 1.1$ ,  $P < 0.001$ ). Crude logistic regression revealed significant increase in odds of overall surgical complications ( $OR = 1.4$  [1.3, 1.6]), overall medical complications ( $OR = 1.4$  [1.3, 1.6]), blood transfusion reactions ( $OR = 1.5$  [1.3, 1.6]), UTIs ( $OR = 1.4$  [1.0, 1.9]), acute renal failure ( $OR = 2.4$  [2.2, 2.7]), and DVT ( $OR = 1.4$  [1.1, 1.8]). Multivariate regression, when controlled for demographic factors, revealed significant increase in odds of overall surgical complications ( $P < 0.001$ ), overall medical complications ( $P < 0.001$ ), transfusion of blood ( $P < 0.001$ ), UTIs ( $P = 0.04$ ), and acute renal failure ( $P < 0.001$ ). No significant differences were seen among re-operation, revision, readmission and mortality between CKD and non-CKD patients.

**DISCUSSION AND CONCLUSION:** Total knee arthroplasty is associated with an increase in overall medical and surgical complications in patients with chronic kidney disease. Specifically, odds of urinary tract infection, DVT, acute renal failure and blood transfusion reactions are increased among these patients.