

Impact of End Stage Renal Disease on Postoperative Outcomes of Total Knee Arthroplasty Patient

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INTRODUCTION:

Patients with end-stage renal disease (ESRD) are at an increased risk of knee joint osteoarthritis and osteonecrosis and therefore undergo total knee arthroplasty (TKA). This study compared the postoperative outcomes and complications of TKA on patients with and without ESRD.

METHODS:

A retrospective study of New York's Statewide Planning and Research Cooperative System (SPARCS) database between 2009 and 2013 was performed. A total of 92,627 patients that completed TKA and had a minimum two-year follow up were isolated. A 1:1 propensity score-match by sex and age was conducted to split the patients with and without ESRD (n=170 each; 340 total). Univariate analysis compared demographics, post-operative complications, reoperation, readmission, revisions of TKA and hospitalized mortality between the ESRD and non-ESRD cohorts. Multivariate binary logistic regression models that controlled for sex and age were used to evaluate the ESRD as an independent predictor of postoperative outcomes for patients undergoing TKA.

RESULTS:

The ESRD cohort had a longer length of stay (8.3 days vs 4.0 days; $p < 0.001$) and higher surgical charges (\$75,555.21 vs \$43,532.27; $p < 0.001$). Multivariate logistic regression models revealed that ESRD patients had higher frequencies of surgical complications, wound complications, postoperative blood transfusions, medical complications, acute myocardial infarctions (MI), pneumonias, sepsis, readmissions, and hospitalized mortalities after surgery (all, $p < 0.05$).

DISCUSSION AND CONCLUSION: ESRD patients undergoing TKA have higher surgical costs, longer hospital stays, and higher rates of complications and mortalities. The impact of ESRD on postoperative outcomes of TKA should be strongly considered when deciding to operate.

Postoperative Outcome	Non-ESRD N (%)	ESRD N (%)	P-value	Adjusted OR (95% CI); P-value (non-ESRD = ref)
Surgical Complications	32 (18.8%)	88 (51.8%)	<0.001	9.907 (5.979 - 16.415); <0.001
Wound	6 (3.5%)	27 (15.9%)	<0.001	5.465 (2.173 - 13.747); <0.001
Transfusion of blood	36 (21.2%)	120 (70.6%)	<0.001	9.338 (5.651 - 15.432); <0.001
Medical Complications	40 (23.5%)	126 (74.1%)	<0.001	4.677 (2.866 - 7.633); <0.001
Acute MI	4 (2.4%)	13 (7.6%)	0.025	3.508 (1.117 - 11.011); 0.032
Pneumonia	8 (4.7%)	40 (23.5%)	<0.001	6.340 (2.859 - 14.062); <0.001
Sepsis	6 (3.5%)	46 (27.1%)	<0.001	10.230 (4.229 - 24.742); <0.001
Readmission	89 (52.4%)	139 (81.8%)	<0.001	4.298 (2.601 - 7.101); <0.001
Mortality (in-hospital)	2 (1.2%)	25 (14.7%)	<0.001	15.200 (3.524 - 65.567); <0.001