

Impact of ESRD on Postoperative Outcomes of Tibia Shaft Repairs: An ACS NSQIP Analysis 2008-2016

Introduction: End stage renal disease (ESRD) has been implicated in the pathogenesis of bone fractures and poor bone health. This study investigates the impact of ESRD on post-operative outcomes and risk factors in recovery from tibial shaft repairs.

Methods: The ACS NSQIP database was queried between 2008 and 2016 for tibia shaft repairs (CPT 27759, 20690). Patients were subsequently categorized into ESRD status. 1:1 propensity score matching controlled for age and gender. Univariate analysis and multivariate logistic regression analyzed ESRD and risk factors for postoperative complications following tibia shaft repair.

Results: 2,439 patients underwent tibia shaft repair between 2008 and 2016. 32 patients with ESRD were identified, and aforementioned matching isolated 32 patients without ESRD. Patients with ESRD tended to have longer hospital stays (9.25 days vs. 4.09 days; $p < 0.001$) and a higher estimated probability of mortality (2.3% vs. 0.36%; $p < 0.001$) and morbidity (2.3% vs 3.8%; $p < 0.001$). A statistically different number of adverse outcomes were not indicated based on ESRD status (31.3% vs 12.5%; $p = 0.07$). Multivariate logistic regression showed ESRD not to be associated with higher risk for adverse events (OR 4.4 [0.7-29.6]; $p = 0.127$) or readmission (OR 4.1 [0.3-54.1]; $p = 0.290$).

Discussion: In previous literature, ESRD has generally been shown to be a risk factor for post-operative complications of lower limb surgery. Due to the limited available sample size ($n = 32$) of ESRD patients who have had a tibia shaft repair, we cannot definitively comment on prevalence of post-operative complications in ESRD patients. Further investigation is warranted.