

Impact of ESRD on Postoperative Outcomes of Upper Extremity Amputations: A Propensity Score-Matched Analysis

Introduction: Growing prevalence of end stage renal disease (ESRD) demands analysis of outcomes associated with upper extremity amputations (UEA) in those patients with this comorbidity. This study aims to address the impact of ESRD on postoperative outcomes following UEA and associated risks.

Methods: Query of The American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) database isolated 1447 patients with UEA between 2008-2016. Patients with ESRD, defined as having a GFR ≤ 15 (n=251), were compared to those without ESRD (n=1196). 1:1 propensity score matching controlled for age, gender, BMI, and estimated probability of morbidity. Univariate analysis and multivariate logistic regression models were used to analyze ESRD and risk factors for 30-day postoperative complications.

Results: African Americans were more likely to have ESRD (p ≤ 0.001). Patients with ESRD were more likely to have diabetes (p ≤ 0.001), hypertension requiring medications (p ≤ 0.001), renal failure (p ≤ 0.001), open wound (p=0.039), or anemia (p ≤ 0.001). Post-operatively, patients with ESRD had greater rates for any adverse events (36.8% vs 27.2%; p=0.027). ESRD was an independent predictor of any postoperative complication (OR 1.7 [1.1-2.6]; p=0.028), superficial surgical site infections (SSI) (OR 3.8 [1.0-13.8]; p=0.022), and sepsis-related complications (OR 2.0 [1.0-3.8]; p=0.040) such as sepsis (OR 2.7 [1.1-6.8]; p=0.031). There were no significant differences in readmission, reoperation, or mortality between those with and without ESRD.

Conclusion: ESRD is a risk factor for superficial SSI and sepsis following UEA. No significant risks are associated with ESRD and rates of reoperation, readmission, or mortality after UEA.