

Impact of ESRD on Antegrade and Retrograde Intramedullary Nailing for Femoral Shaft Fractures

Introduction: Studies show there will be an 11-18% increase in incidence rates of End Stage Renal Disease (ESRD) from 2015 to 2030. Despite this, there is a lack of literature discussing the effects of ESRD on intramedullary nailing procedures (INPs) for patients who suffer femoral shaft fractures (FSFs). As the preferred method for treating FSFs, it is important to study the demographics and risk factors of patients with ESRD who have undergone INPs.

Methods: The ACS NSQIP database was queried via CPT codes between 2008 and 2016 for antegrade and retrograde INPs (CPT code 27506). Patients were then categorized as with or without ESRD, and 1:1 propensity score matched to control for age, gender, and probability of morbidity. Univariate/multivariate logistic regression model was used to analyze ESRD and risk factors for postoperative complications.

Results: 66 patients with or without ESRD were 1:1 propensity score matched. African American patients were more likely to have ESRD ($p=0.028$). Patients with ESRD were more likely to experience lengthier hospital stays (11.6 vs. 7.6 days; $p=0.023$) and have diabetes (60.6% vs. 36.4%; $p=0.049$). Patients without ESRD were more likely to be smokers (33.3% vs. 12.1%; $p=0.040$) and have disseminated cancer (27.3% vs. 3.0%; $p=0.006$). Adverse postoperative outcomes were not found to differ significantly in rate between Non-ESRD and ESRD patients (51.5% vs 57.6%; $p=0.621$). Using multivariate logistic regression, ESRD is not an independent risk factor for adverse postoperative outcomes (OR 1.4 [0.5-3.8]; $p=0.549$).

Discussion: ESRD patients had an increased likelihood of having diabetes, requiring dialysis, and lengthier hospital stays; however, there were no differences found regarding adverse post-operative outcomes with INP between the groups. More research is needed to further understand these outcomes. Extra caution should be taken when operating on such patients in order to ensure optimal patient care and safety.