

**Impact of End Stage Renal Disease on Postoperative Outcomes of Spinal Fusion ( $\geq$  level 2) on Patients with Adult Spinal Deformity**

**Introduction:** End-stage renal disease (ESRD) often complicates the medical management of surgical patients and carries an increased risk of complications in orthopedic surgery. There is limited literature evaluating the impact of ESRD on long-term outcomes after spinal fusion. This study aims to compare outcomes between adult spinal deformity (ASD) patients with and without ESRD undergoing multilevel spinal fusion surgery.

**Methods:** Using New York State's Statewide Planning and Research Cooperation System, ASD patients admitted from 2009-2011 with diagnoses of ESRD who underwent spinal fusion ( $\geq$ level 2) surgery with a minimum 2-year follow-up surveillance were retrospectively reviewed. A 1:1 propensity score-match (PSM) by age, sex, and obesity status was performed before analyzing data. Univariate analysis was used to evaluate demographics, complications, and revisions.

**Results:** A total of 84 propensity score-matched patients with ASD were identified (ESRD: n=42; non-ESRD: n=42). Both cohorts were nearly identical in age (ESRD: 63.21 years, non-ESRD: 62.93 years,  $p=0.921$ ), sex (both 45.2% female,  $p=1.000$ ), and obesity status (ESRD: 7.1%, non-ESRD: 4.8%,  $p=0.645$ ). The ESRD cohort had higher surgical charges (\$179,040.98 vs. \$56,826.17,  $p=0.001$ ), Deyo score (3.40 vs. 0.95,  $p<0.001$ ) and length of stay (18.38 vs. 3.76 days,  $p<0.001$ ). With a 1:1 PSM, patients with ESRD had higher rates of medical complications than non-ESRD patients ( $p=0.003$ ).

**Conclusion:** Among patients undergoing multilevel spinal fusion surgery, those with ESRD had higher surgical charges, Deyo score, and rate of medical complications than patients without ESRD. These results may support management of postoperative expectations and concerns in this patient cohort.