

### **Spinal Fusion Outcomes in Patients with End-Stage Renal Disease (ESRD) vs. Kidney Transplants**

**Introduction:** There is limited literature evaluating the impact of kidney transplant or ESRD on outcomes after spinal fusion. The aim of this study is to compare outcomes and complication rates between kidney transplant and ESRD patients undergoing spinal fusion.

**Methods:** Using the National Inpatient Sample, patients with ESRD/kidney transplant who underwent spinal fusion between 2005-2012 were retrospectively reviewed. Univariate analyses evaluated demographics and complications. Multivariate logistic regression models identified correlations, controlling for sex, age, and race.

**Results:** 625 patients were in the kidney transplant cohort, and 1573 were in the ESRD cohort. The ESRD cohort had a higher mean age (61.4 years vs. 59.5 years,  $p < 0.001$ ), Deyo score (3.7 vs. 1.4,  $p < 0.001$ ), length of stay (15.8 days vs. 5.4 days,  $p < 0.001$ ), and surgical charge (\$207,045 vs. \$105,908,  $p < 0.001$ ). The ESRD cohort had greater rates of surgical, wound, medical and pulmonary complication, blood transfusion, pneumonia, sepsis, pulmonary embolism, cerebrovascular event, and mortality (all  $p < 0.05$ ). Rate of urinary tract infection (UTI) was greater in the kidney transplant cohort ( $p < 0.05$ ). On multivariate logistic regression analysis, ESRD patients had a higher risk for surgical, wound, and medical complications (OR 1.9, 2.9, 2.3, respectively), blood transfusion (OR 1.9), pneumonia (OR 7.9), sepsis (OR 7.9), and cerebrovascular event (OR 5.3) while UTI rates were lower in the ESRD cohort (OR 0.1). ESRD was a predictor of in-hospital mortality (OR 24.1) on univariate logistic regression analysis.

**Conclusion:** Patients with ESRD had greater surgical charges, length of stay, and Deyo score than prior kidney transplant patients undergoing spinal fusion. In summary, ESRD patients had higher risks for surgical and medical complications compared to kidney transplant patients. These results can support the management of postoperative expectations and concerns in this patient cohort.