

## **Does Prednisone Dose Affect Rates of Periprosthetic Joint Infection following Primary Total Hip and Total Knee Arthroplasty?**

Amit Satish Piple, Jennifer Canru Wang, Kareem Jamal Kebaish<sup>1</sup>, Emily Mills, Daniel Atherton Oakes, Jay R Lieberman<sup>2</sup>, Alexander Christ, Nathanael D Heckmann

<sup>1</sup>University of Southern California, <sup>2</sup>Keck School of Medicine of USC

### **INTRODUCTION:**

Prednisone use is associated with an increased risk of periprosthetic joint infection (PJI) following total joint arthroplasty (TJA). However, the relationship between daily prednisone dosage and the risk of infection is ill-defined. Therefore, this study aims to assess the relationship between daily prednisone dosage and rates of PJI following TJA.

### **METHODS:**

The Premier Healthcare Database was queried for all patients who underwent primary elective total hip (THA) or total knee arthroplasty (TKA) between 2015-2020. Patients who received oral prednisone following TJA were matched in a 1:2 ratio based on age and sex to patients who did not. Univariate regression analysis was performed to assess the 90-day risk of infectious complications based on prednisone dosage: 0-5mg, 6-10mg, 11-20mg, 21-30mg, and >30mg. Multivariate analyses were performed to control for confounders.

### **RESULTS:**

From 2015-2020, 1,322,043 patients underwent primary, elective TJA (35.9% THA, 64.1% TKA). Of these patients, 16,459 (1.1%) received oral prednisone and were matched to 31,918 patients who did not. Both groups had an average age of 66.8±11.1 years and were 33.6% male. Patients treated with prednisone had higher rates of rheumatoid arthritis (35.8% vs. 3.2%, p<0.001), systemic lupus erythematosus (5.7% vs. 0.4%, p<0.001), renal disease (16.7% vs. 7.2%, p<0.001), and chronic lung disease (27.0% vs. 15.7%, p<0.001). Postoperatively, patients taking prednisone had increased rates of SSI (0.2% vs. 0.1%, p=0.017), sepsis (1.1% vs. 0.3%, p<0.001), and PJI (1.2% vs. 0.5%, p<0.001). After controlling for confounders, prednisone patients were at increased risk for sepsis (aOR 2.94, p<0.001) and PJI (aOR 2.14, p<0.001). No dose-dependent relationship between prednisone and infectious complications was identified.

**DISCUSSION AND CONCLUSION:** Patients who received prednisone following TJA were at increased risk of PJI and sepsis compared to patients who did not. A dose-dependent relationship between prednisone use and infectious complications was not identified.