

## **Posttraumatic Arthritis in Total Joint Arthroplasty: An Analysis of Risk and Valuation**

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### **INTRODUCTION:**

The purpose of this abstract is to compare the perioperative resource use and risk after total knee arthroplasty (TKA) or total hip arthroplasty (THA) for posttraumatic arthritis (PTA) relative to osteoarthritis (OA). We hypothesize PTA patients have a higher incidence of perioperative complications.

### **METHODS:**

The National Surgical Quality Improvement Program Dataset Years 2015-2019 was used for this analysis. Cases were filtered for TKA or THA by current procedural terminology code. Two groups were formed from ICD-10 codes: a PTA group and an OA group. Primary outcomes were readmission and reoperation within 30 days of surgery. Secondary outcomes were operative time, length of hospital stay, and relative value units.

### **RESULTS:**

There were 3,249 patients in the PTA group and 253,413 patients in the OA group that underwent TKA. PTA patients had significantly more frequent readmissions (3.6% vs. 3.0%,  $p=0.046$ ) and reoperations (2.2% vs. 1.0%,  $p<0.001$ ). Operative time was 20 minutes longer on average in PTA patients (109.1 vs. 89.6). When normalized by operative time, TKAs for OA receive 14 RVUs per hour while TKAs for PTA receive 12 RVUs per hour.

There were 1,003 patients in the PTA group and 139,231 patients in the OA group that underwent THA. PTA patients trended toward higher rates of readmission (4.1% vs. 3.1%,  $p=0.07$ ) and reoperation (2.1% vs. 1.7%,  $p=0.33$ ). Operative time was approximately 30 minutes longer on average in PTA patients (119.2 vs. 87.9). When normalized by operative time, THAs for OA receive 14 RVUs per hour while THAs for PTA receive 11 RVUs per hour.

### **DISCUSSION AND CONCLUSION:**

Total joint arthroplasty for posttraumatic arthritis is associated with a higher risk of perioperative complication and longer operative times relative to patients with osteoarthritis. Reimbursements do not reflect the increased risk and work required in TJA performed for PTA and should be reevaluated.