Preoperative Contralateral Joint Pain and Back Pain May Influence 90-Day Outcomes Following Primary Total Knee Arthroplasty

Ahmed Emara, Khaled A Elmenawi, Shujaa T Khan, Yuxuan Jin, Kim L Stearns, Michael R Bloomfield, Nicolas Santiago Piuzzi

INTRODUCTION: Persistent pain and functional limitations after primary total knee arthroplasty (TKA) remain significant concerns, particularly in patients with coexisting musculoskeletal conditions. Preoperative pain in the contralateral lower extremity or the spine may influence postoperative recovery and healthcare utilization. However, their full impact remains poorly understood. This study evaluates the association between preoperative contralateral joint and/or back pain and healthcare utilization following primary TKA.

METHODS: A prospective cohort of Medicare patients who underwent primary TKA (n=6819) between 2016–2023 from a single healthcare system was analyzed. Patients were grouped based on preoperative contralateral joint and/or back pain measured by Total Painful Joints and Oswestry index questions into contralateral joint and back pain (n=2716, 48%), contralateral joint pain only (n=1117, 20%), back pain only (n=1014, 18%), and no contralateral joint pain or back pain (n=806, 14%) groups. Multivariable logistic regression models were used to compare healthcare utilization parameters between patients with and without respective pain using odds ratio (OR) and 95% confidence interval (CI). Outcomes assessed included length of stay (LOS), discharge disposition (DD), 90-day readmission, 90-day emergency department (ED) visits, and 1-year reoperations. The models were controlled for pre-specified demographics, baseline PROMS, and surgical confounding variables. A p-value <0.05 was considered statistically significant.

RESULTS: On univariate analyses, patients with both back and contralateral joint pain had the highest rates of adverse outcomes compared to those with no pain, back pain only, or contralateral pain only, respectively. The rates increased progressively across these groups for prolonged LOS ≥2 days (26.5%, 28.5%, 31.2%, 34.7%; p<0.001), non-home discharge (6.7%, 8.5%, 10.4%, 12.2%; p<0.001), 90-day readmissions (6.8%, 6.5%, 7.8%, 8.9%; p=0.03), 90-day ED visits (13.3%, 13.8%, 15.6%, 17.0%; p<0.01), and 1-year reoperations (2.3%, 3.2%, 3.6%, 4.6%; p<0.01). Upon multivariate analyses comparing patients with and without respective pain type, those with contralateral joint pain had a higher risk of non-home discharge (OR=1.46, 95% CI 1.05-2.03, p=0.02). Also, patients with both contralateral joint pain and back pain had a higher risk of 1-year reoperations (OR=1.86, 95% CI 1.15-3.01, p=0.01). The remaining groups were not associated with any of the endpoints analyzed (p>0.05)

DISCUSSION AND CONCLUSION:

Preoperative pain in the back and/or contralateral joint, regions unrelated to the operative joint, were associated with increased healthcare utilization after TKA, including longer hospital stays, higher rates of non-home discharge, and more frequent readmissions, ED visits, and reoperations. Patients reporting both pain types had the highest risk, highlighting the need for comprehensive preoperative assessment and optimization of coexisting musculoskeletal conditions to improve postoperative outcomes and reduce resource use. These findings are particularly important in the context of value-based care, where unmanaged comorbid pain may increase costs and negatively impact bundled reimbursement metrics.