

Association Between Perioperative Opioid Type and Diagnosis of Opioid Use Disorder Following Total Joint Arthroplasty: An EHR-Based Case Control Study

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Background:

The opioid epidemic remains a major public health concern in the United States. Total joint arthroplasties (TJA), including total knee, total hip, and total shoulder replacements, are common procedures associated with substantial perioperative opioid use. Prior research suggests that perioperative opioid prescriptions may increase the likelihood of developing opioid use disorder (OUD). This study aims to assess whether the type of opioid prescribed perioperatively influences the odds of developing OUD following TJA.

Methods:

This study was a retrospective case-control study using the IU School of Medicine-Evansville RWEdataLab (CRC/Sidus Insights), a real-world EHR-based psychiatric database. Patients who underwent a TJA were identified using CPT codes. OUD diagnosis after TJA was identified using ICD-10 codes. Two cohorts were created: patients with an OUD diagnosis after TJA (N = 294) and those without (N = 3,572). Odds ratios were calculated based on the specific opioid each patient was first prescribed in the perioperative period.

Results:

All opioids analyzed were associated with elevated odds of developing OUD following TJA. Hydrocodone (OR: 3.38; 95% CI: 2.54-4.51), oxycodone (OR: 2.24; 95% CI: 1.64-3.07), and tramadol (OR: 3.75; 95% CI: 2.81-5.00) showed similar associations with no statistically significant differences observed between them. No type of arthroplasty (knee, hip, or shoulder) was associated with a higher likelihood of subsequent OUD.

Conclusions:

Although differences between opioid types were not significant, the findings show a trend that contrasts from existing literature, which often identifies oxycodone as more commonly associated with misuse and tramadol as less commonly associated. These results highlight the need for further investigation into prescriptive patterns. Limitations include the use of a psychiatric-specific database, which may not fully reflect the general TJA population. Future studies should use broader or orthopedic-specific datasets and control for potential confounders such as dosage, comorbidities, and impact of previous psychiatric diagnoses.