The Economic Burden of Opioid Use Disorder in Patients Undergoing Total Joint Arthroplasty

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The authors have no financial conflicts to disclose
• **Summary:** A national database was utilized to evaluate the economic burden and healthcare utilization of opioid use disorder in patients undergoing total joint arthroplasty.
Much emphasis has been placed on understanding hospital cost patterns associated with narcotic abuse.

The purpose of this study was to identify the cost and length of stay (LOS) burdens associated with a pre-operative diagnosis of opioid abuse in those undergoing total joint arthroplasty.

We hypothesize that there would be significantly higher cost of care and LOS in patients with a pre-operative diagnosis of opioid abuse.
• 11,728,585 patients undergoing total hip, knee, and shoulder arthroplasty were identified in the National Inpatient Sample from 2002-2015.

• Patients were identified as having opioid use disorder by the presence or absence of an International-Clinical Modification (ICD-9-CM) code for opioid dependence.

• Coarsened-exact matching was utilized to create comparable cohorts of patients controlling for patient specific factors.

• Linear regression was performed to control for hospital level confounders and identify the contribution of opioid use disorder on LOS and cost. Increased risks of non-home discharge were calculated with binomial logistic regression.
Results

• Overall, 23,443 (0.2%) patients with a pre-operative diagnosis of opioid use disorder were identified.

• The incidence of patients with a diagnosis of opioid use disorder in patients undergoing total joint arthroplasty increased from 2002 to 2015 (0.1% to 0.4%, p<0.001).

• In unmatched cohorts, the average age of a patient with opioid use disorder was 56.89 years old, and 66.16 years old for the control group.
Results

- Opioid use disorder was associated with increased cost in all procedures: THA ($1,689 greater, 8.9% increase, p<0.001), TKA ($1,321 greater, 7.5% increase, p<0.001), and TSA ($2,144 greater, 11.6% increase, p<0.001).

- Opioid use disorder was associated with increased LOS in all procedures: THA (0.47 days longer, 12.7% increase, p<0.001), TKA (0.39 days longer, 13.7% increase, p<.001), and TSA (0.39 days longer, 13.7% increase, p<0.001).

- For patients undergoing total hip and knee arthroplasty there was an increased risk of non-home discharge (OR: 1.21 for THA and OR: 1.34 for TKA, p<0.001). This associated was not seen in shoulder arthroplasty (p=0.221).
Conclusions: Main Take Away Points

• There is a significant increase in LOS and hospital cost in patients receiving joint arthroplasty with a pre-operative diagnosis of opioid abuse disorder.

• Prior literature has looked at chronic opioid use and chronic methadone use prior to TKA, which demonstrate substantial increase in postoperative pain medication demand, prolonged inpatient stays, and worsened clinical outcomes.

• This etiology likely stems from multiple factors including greater medication costs from increased opioid demand and narcotic abuse-associated infectious diseases, longer time to discharge-appropriate pain control, and need for acute pain service consultation.

• Continued efforts to achieve non-opioid analgesia may afford this traditionally challenging patient population a truncated and cost-effective inpatient stay.
References