Incidence and Risk Factors for Prolonged Opioid Use after Arthroscopic Meniscal Surgery: An Analysis of 107,717 Cases

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I (and/or my co-authors) have something to disclose.

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None relevant to the topic of this study
Introduction and Hypothesis

• Orthopedic surgeons have been previous reported as the 3rd highest opioid prescribers among all physicians in the United States

• Recent trends in opioid misuse indicate that identification of risk factors for prolonged opioid use after knee procedures may curtail postoperative opioid use

• However, literature is scarce regarding opioid use after arthroscopic meniscus procedures and adequate dosing of opioids postoperatively

• Hypothesis: Preoperative opioid prescription refills and history of anxiety/depression would be associated with increased postoperative opioid utilization
Methods - Cohorts

• Retrospective cohort study of primary arthroscopic meniscal procedures from the Humana database from 2007-2017

• Patients were categorized as those who filled opioid prescriptions
  • within 3 months (OU)
  • within 1 month (A-OU)
  • between 1 to 3 months (C-OU)
  • never filled opioid prescriptions (N-OU) before surgery

• Rates of opioid use were evaluated preoperatively and longitudinally tracked with prolonged use defined as filling prescription at ≥ 3 months after meniscal procedure
Methods – Statistical Analyses

• Pearson’s Chi-Square test was employed to compare patient characteristics.

• Relative risk (RR) along with 95% confidence intervals (95% CI) were utilized to compare monthly postoperative opioid use between opioid naïve and preoperative opioid use groups.

• All investigated patient characteristics were included in the multiple logistic regression model to identify independent predictors for associated with continued opioid prescription refills at 12 months after surgery.
Patient Characteristics

- There were 107,717 patients (54% female) that underwent arthroscopic meniscal surgery, of which 46.1% (n=49,630) were opioid naïve (N-OU).

- Overall, 2.1% (n=2,244) and 97.9% (n=105,465) underwent meniscal repair and meniscectomy, respectively.
Results

• One year postoperatively, opioid fill rate was significantly higher in the OU (within 3 months) group compared to the N-OU (naïve) group
  • RR: 6.98 (21.1% vs 3.02%; 95% CI: 6.61-7.36; \(p<0.0001\))

• The strongest predictor of opioid use at 12 months was being in the C-OU (between 1 to 3 months) cohort
  • OR: 10.23, 95% CI: 9.74-10.76, \(p<0.0001\)
Results - Multivariate Analysis

- Increased odds of opioid use at 12 months was associated with:
  - A-OU ($p < 0.0001$)
  - Diabetes mellitus ($p < 0.0001$)
  - Hypertension ($p < 0.0001$)
  - COPD ($p < 0.0001$)
  - Anxiety/Depression ($p < 0.0001$)
  - Alcohol abuse ($p = 0.0019$)
  - Tobacco use ($p = 0.0345$)

- Males ($p < 0.0001$) and those < 40 years of age ($p < 0.0001$) had decreased odds of opioid use 12 months postoperatively
Discussion

• Preoperative opioid use is a significant risk factor for opioid use at 12 months postoperatively.

• Diabetes mellitus, hypertension, COPD, smoking status, and psychiatric diagnosis were independent risk factors for opioid use 12 months postoperatively.
Limitations

• The retrospective nature of the study limits its ability to assess causality of postoperative opioid use

• Filling opioid prescriptions was used as a surrogate for opioid utilization
  • It was not possible to determine the exact amount of opioid consumed

• Details regarding the reason for preoperative opioid prescription were not available, and opioid prescriptions may in fact have been filled for use after surgery
  • The multivariate model analyzed A-OU and C-OU in an effort to address this limitation

• Specific clinical and radiographic factors such as chronicity of symptoms, cause of injury, and malalignment were also not available for analysis
Thank You

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