A Surgeon-Volume Comparison of Opioid Prescribing Patterns to Adolescents Following Outpatient Shoulder, Hip and Knee Arthroscopy

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Disclosures may be found at the AAOS Organization Website.
Objective

- Wide variation exists in the amount and duration of postoperative opioid medication prescribed by orthopedic surgeons.

- The current study analyzed prescribing patterns at our institution for adolescent patients undergoing outpatient sports medicine procedures.
Materials & Methods

Study Design

• Retrospective EMR query
• Inclusion: Patients 13-18 years old who underwent outpatient shoulder, hip or knee arthroscopy (including ACL reconstruction) between 2016 and 2018
• Post-operative opioid prescriptions converted to morphine milligram equivalents (MME) for direct comparison
• High-dose prescriptions defined as ≥300 MME and low-dose prescriptions were defined as < 300 MME
  • = 40 tabs oxycodone/acetaminophen [Percocet] 5/325 mg
• Compared prescribing patterns of 44 treating with respect to procedures performed and overall surgical volume
Materials & Methods

Statistical Analysis

- 468 Adolescent patients (13-18 years old) who underwent outpatient arthroscopic procedures between 2016-2018 were identified

- Narcotic prescriptions following surgery were converted to morphine milligram equivalents (MME) for direct comparison

- Prescribing patterns of the 44 surgeons included in our cohort were evaluated with respect to procedures performed, overall surgical volume, and longitudinally throughout study period.

- High-dose prescriptions were defined as ≥300 MME (equivalent to 40 tabs of oxycodone 5 mg) and low-dose prescriptions were defined as < 300 MME.
Results

- There were significant positive correlations between surgeon-volume and MME prescribed following shoulder arthroscopy ($r=0.387$, $p<0.001$) and knee arthroscopy, ($r=0.350$, $p<0.001$).

- Average MME at discharge was $299.8\pm271$ (Figure 1)

- Logistic regression demonstrated that for each additional case performed, the odds that a given surgeon would prescribe $\geq 300$ MME postoperatively increased by a factor of 1.013 ($P <0.001$). (Figures 2 & 3)

- There was a significant decrease in average opioids prescribed among all surgeons for hip arthroscopy, ACL reconstruction, knee arthroscopy, and shoulder arthroscopy over the course of the study period (Figure 4)
Demographic & Case-Based Data

<table>
<thead>
<tr>
<th>Patient Demographic Information (N=468)</th>
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<tbody>
<tr>
<td><strong>Age</strong></td>
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<tr>
<td><strong>Sex (Female)</strong></td>
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<tr>
<td><strong>BMI (kg/m²)</strong></td>
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</tbody>
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- 37 Hip Arthroscopy
- 29 Meniscal Repair
- 15 "Other"
- 161 Knee Arthroscopy
- 143 ACL Reconstruction
- 83 Shoulder Arthroscopy

Total=468
Figure 1: Comparison of Discharge MME

- Hip Arthroscopy
- Shoulder Arthroscopy
- Knee Arthroscopy
- Meniscal Repair
- ACL Reconstruction
- Other
Figures 2 & 3

**Figure 2: Linear Regression of Shoulder Arthroscopy**

**Figure 3: Linear Regression of Knee Arthroscopy**
Figure 4: MME at Discharge vs. Date of Surgery

- Knee
- Shoulder
- Hip
- ACL
Surgeons who perform a greater volume of outpatient shoulder and knee arthroscopies on adolescent patients were more likely to prescribe high opioid dosages postoperatively.

Awareness of existing variation in narcotic prescribing patterns to this age group is important for quality of care and safety improvement amidst the opioid epidemic.

The adoption of procedure-specific postoperative pain medication recommendations can lead to significant decreases in the amount and type of opioid medication adolescents are given following surgery and should be strongly considered.

Conclusion