Reducing post-operative opioid use after anterior cruciate ligament reconstruction through EPIC order sets

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The goal of this project is to create a data-informed, post-operative pain order set to reduce the amount of opioid-containing medications prescribed for anterior cruciate ligament reconstruction in the HealthPartners system, without compromising patient satisfaction.

AIM Statement:

The number of pills prescribed was:

<table>
<thead>
<tr>
<th>Number of pills taken</th>
<th>Mean</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too Many</td>
<td>26</td>
<td>25</td>
<td>0-70</td>
</tr>
</tbody>
</table>

Adverse Effects of Opioid Medications

<table>
<thead>
<tr>
<th>Adverse Effect(s)</th>
<th>Percent of patients reporting adverse effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constipation</td>
<td>12.4%</td>
</tr>
<tr>
<td>Fatigue</td>
<td>37.1%</td>
</tr>
<tr>
<td>Headaches</td>
<td>37.3%</td>
</tr>
<tr>
<td>Nausea/vomiting</td>
<td>20.2%</td>
</tr>
<tr>
<td>Pruritus</td>
<td>19.1%</td>
</tr>
</tbody>
</table>

Methods

- Included all patients undergoing anterior cruciate ligament reconstruction (ACLR) as part of a quality measure
- Included fourteen surgeons at three outpatient surgery centers
- Patients anonymously completed questionnaires regarding pain control at first post-operative visit
- Collected assessments over 7-month period

### Results

- 94 surveys were collected; none excluded from analysis
- Mean number of pills reported was 26 (n = 82)
- 67% of patients reported taking 30 or fewer pills
- 30% reported they were prescribed too many pills
- Opioid use in two weeks prior to surgery did not statistically impact the amount of pills reported (n = 6)
- Averaged "most intense post-op pain experience" was 7.4/10
- 64.9% of patients reported adverse effects from opioid medications
- Average satisfaction was 4.14/5
  - 80.9% rated a 4 or 5

### Conclusions

- 30 opioid-containing tablets is a reasonable standard prescription
  - Converts to 150-240 MME depending on the medication
- Most patients were satisfied with their pain management using opioid medications, but there is still burden of adverse effects
  - Only 15% of people previously found the amount to be too few
  - Adverse effects also addressed in order set
- Meeting with prescribers to individualize the order set improved adherence

### Next Steps

- Compare patient-reported use with the amount of pills prescribed
- Collect post-intervention pain assessments
- Analyze for primary outcome of reduced reported opioid use
- Analyze for secondary outcome of maintained patient satisfaction
- Potentially lower the number of tablets in the order set based on future results

References: