Opioid Consumption Following Foot and Ankle Surgery

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NO CONFLICT TO DISCLOSE

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• Our disclosures are in the Final AOFAS Mobile App.
• We have no potential conflicts with this presentation.
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Background

- Orthopaedic surgeons prescribe pain medications after surgery
- The efficacy of these medications at alleviating pain after foot/ankle surgery is unknown
- The quantity of medication required to control pain is unknown
- And conversely, the quantity of medication leftover is unknown
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Methods

• Patients that underwent foot/ankle surgery during a three month period and met inclusion criteria were surveyed at their first postoperative visit (4-10 days after surgery).

• Inclusion criteria:
  – Adult (>18yrs of age)
  – English speaking
  – Not currently pregnant
  – Not using any narcotic medications pre-operatively

229 patients eligible

171 completed the survey (75% response rate)

58 did not participate

132 completed all questions (77% of respondents completed survey in entirety)
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Methods
• Information collected from chart review:
  – Gender
  – Age
  – Time elapsed since surgery (post-operative day)
  – Type of procedure (bony vs non-bony)
  – Anatomic region of procedure (hindfoot vs midfoot, etc)
  – Number of prescribed narcotic tablets
  – Use of peri-operative nerve block
  – Worker’s compensation status
  – Payer source
  – History of depression

• Information collected from patient survey:
  – Number of narcotic tablets remaining
    the bottle (leftover)
  – Satisfaction with pain control
  – Side effects of narcotic medication
  – Reasons for not taking pain medication
  – Use of multi-modal pain control
  – Willingness to surrender leftover narcotics to DEA disposal center
Opioid Consumption

Methods

• 132 patients (demographic breakdown below) completed the survey (right)

<table>
<thead>
<tr>
<th>Age (mean +/- Std Dev [range])</th>
<th>53.1 +/- 15.5 [18-81]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>50 (37.9%)</td>
</tr>
<tr>
<td>Female</td>
<td>82 (62.1%)</td>
</tr>
<tr>
<td><strong>Surgery Type</strong></td>
<td></td>
</tr>
<tr>
<td>Bony</td>
<td>91 (68.9%)</td>
</tr>
<tr>
<td>Ankle/Hindfoot</td>
<td>15</td>
</tr>
<tr>
<td>Midfoot</td>
<td>9</td>
</tr>
<tr>
<td>Forefoot</td>
<td>49</td>
</tr>
<tr>
<td>Combo</td>
<td>18</td>
</tr>
<tr>
<td>Nonbony</td>
<td>41 (31.1%)</td>
</tr>
<tr>
<td>Ankle/Hindfoot</td>
<td>23</td>
</tr>
<tr>
<td>Midfoot</td>
<td>6</td>
</tr>
<tr>
<td>Forefoot</td>
<td>11</td>
</tr>
<tr>
<td>Combo</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 1: Demographics and breakdown of procedure type and location.
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Results

• On average, patients
  – Were prescribed 46.7 short acting pills and 11.7 long acting pills
  – Took 21.2 short acting pills and 5.8 long acting pills
  – Had 26.5 short acting pills and 9.8 long acting pills leftover

• 115/132 (87%) of patients had leftover medication

• 72/115 (63%) of patients with leftover medication were willing to return leftover medication to a DEA disposal site

• 99/132 (75%) experienced side effects from the medication

• 19/132 (14%) utilized NSAIDs in addition to opioids

• Average numeric pain score 3

• 97/132 (74%) satisfied or extremely satisfied

• 8/132 (6%) neutral

• 26/132 (20%) somewhat dissatisfied or extremely dissatisfied
### Opioid Consumption Following Foot and Ankle Surgery

- **Bony vs non-bony procedures**
  - No difference in numeric pain scores
  - No difference in short or long acting pills taken or leftover

- **Anatomic region**
  - No difference in numeric pain scores
  - No difference in short acting pills taken
  - Hindfoot/ankle patients took more long acting pills than others ($p=0.046$)
  - No difference in short or long acting pills leftover

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<table>
<thead>
<tr>
<th></th>
<th>Bony</th>
<th>Non-bony</th>
<th>p-value</th>
<th>Hindfoot/Ankle</th>
<th>Midfoot</th>
<th>Forefoot</th>
<th>Combo</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average Numeric Pain Score</strong></td>
<td>3.37</td>
<td>2.57</td>
<td>.059</td>
<td>2.85</td>
<td>2.67</td>
<td>3.15</td>
<td>3.92</td>
<td>.4100</td>
</tr>
<tr>
<td># Short-acting Pills Taken</td>
<td>21.55</td>
<td>19.68</td>
<td>.491</td>
<td>21.74</td>
<td>24.47</td>
<td>18.65</td>
<td>24.00</td>
<td>.3560</td>
</tr>
<tr>
<td># Short-acting Leftover</td>
<td>26.91</td>
<td>25.48</td>
<td>.638</td>
<td>24.38</td>
<td>24.73</td>
<td>28.52</td>
<td>25.47</td>
<td>.5670</td>
</tr>
<tr>
<td># Long-acting Pills Taken</td>
<td>6.42</td>
<td>5.02</td>
<td>.358</td>
<td>8.36</td>
<td>5.20</td>
<td>4.45</td>
<td>6.68</td>
<td>.0466</td>
</tr>
<tr>
<td># Long-acting Pills Leftover</td>
<td>9.78</td>
<td>9.68</td>
<td>.951</td>
<td>7.68</td>
<td>8.44</td>
<td>11.46</td>
<td>10.07</td>
<td>.1270</td>
</tr>
</tbody>
</table>

Table 2: Results regarding type of procedure and anatomic location of procedure
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Discussion

- At the first post-operative visit, most patients
  - Had taken half of prescribed pain medications
  - Were satisfied or extremely satisfied with pain control

- In total, for all 132 patients, there were 810 leftover long acting pills and 3468 leftover short acting pills.

- No difference in consumption between bony/non-bony procedures
- No difference in short acting opioid consumption based on anatomic region
- Slight difference in long acting opioid consumption based on anatomic region of surgery
  - Hindfoot/ankle (8)
  - Combination procedures (7)
  - Midfoot (5)
  - Forefoot (4)

- Weaknesses of study
  - Not all post-operative patients filled out the survey
  - Number of pills taken was measured by the patient (not counted by physician or office staff)
  - Date of the first post-operative visit (on which data was collected) varied between 4-10 days
  - Data were collected at one point in time
    - No follow up to check pill consumption at subsequent appointments
  - No follow up to confirm how many patients actually returned medication to DEA disposal centers
  - No record of total prescriptions over post-operative course
  - No record of refills requested/given
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- Other studies on the topic
  - There are no other studies published in the orthopaedic foot and ankle literature on the topic.
  - There are several studies in the orthopaedic upper extremity literature and several others out of the general surgery, urology, and oral surgery literature.
  - In summary, surgeons
    - Do not know how much pain medicine is required after routine procedures
    - Tend to overprescribe
    - Often fail to give instructions on what to do with leftover medication
  - Several studies indicate that surgeons could decrease the amount of pills prescribed while meeting their patients’ pain management needs (and without increasing the number of requests for refills)
Conclusions

• On average, patients consumed less than half of the opiate pills that were prescribed to them, indicating that we overprescribe.

• Most patients (74%) were satisfied with their pain control post-operatively, indicating that a short course of opiate medications post-operatively can be an effective component of post-operative pain management.

• Only a minority of patients (14%) utilized NSAIDs, indicating we could improve the multi-modal therapy offered.

• More than half (63%) of patients with leftover medication said that they would be willing to return it to a nearby DEA disposal site, indicating that we should educate patients about this service and encourage them to utilize it.

https://apps.deadiversion.usdoj.gov/pubdispsearch/spring/main?execution=e1s1

This website makes it easy to search with zip code or city/state for the closest disposal center.
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References


