Opioid-Sparing Perioperative Care

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Learning goals
1. Understand impact of surgery-related opioid use
2. Understand alternatives to opiate medication for surgical pain
3. Case Reports describing multimodal analgesia
4. Review resources to guide pain management and the patient-perioperative physician relationship

Impact of opioid abuse
Age-adjusted rates of drug overdose deaths by drug or drug class and year (USA 1999-2016)

www.cdc.gov

Impact of opioid abuse
There are many factors that impact America's drug overdose crisis.
## Impact of surgery-related opioid use

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Average opiate pills prescribed for postop pain</th>
<th>Newly-persistent users (%), &gt;6 months use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hysterectomy</td>
<td>45</td>
<td>7.5</td>
</tr>
<tr>
<td>Hernia</td>
<td>63</td>
<td>7.2</td>
</tr>
<tr>
<td>Colectomy</td>
<td>65</td>
<td>17.6</td>
</tr>
<tr>
<td>Rotator cuff</td>
<td>95</td>
<td>10.2</td>
</tr>
<tr>
<td>Hip replacement</td>
<td>119</td>
<td>9.9</td>
</tr>
<tr>
<td>Knee replacement</td>
<td>130</td>
<td>16.7</td>
</tr>
<tr>
<td>Sleeve gastrectomy</td>
<td>194</td>
<td>8.5</td>
</tr>
</tbody>
</table>

***Physician behavior (historical prescribing patterns) dictate post-op opiate prescriptions more than patient needs/behavior! Brandal et al. 2017

Surgery-related overprescribing results in >3 billion un-used pills available for diversion and misuse

A 10% ↓ in post-surgery opiate prescribing: could ↓ patients that become persistent users by 300K

save more than $800 million in drug costs alone

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Alternatives to opiate medication for surgical pain

1. Medications:
   - Local anesthetic (IV, infiltration)
   - NSAIDs, COX-2, Acetaminophen
   - Anti-convulsants
   - Anti-depressants
   - Anti-spasmodics
   - NMDA-receptor Ø
   - α-2 receptor +
   - Sympatholytics

2. Regional anesthesia
   - Nerve blocks (single shot, continuous)
   - Neuromuscular (continuous epidural, spinal)
   - Field block, Infiltration
Alternatives to opiate medication for surgical pain

3. Complimentary
   • Heat/Ice
   • Meditation
   • Massage
   • Acupuncture
   • TENS

Enhanced Recovery After Surgery (ERAS)
Evidence-based multimodal perioperative pain management guidelines

Alternatives to opiate medication for surgical pain

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Case #1

45 year old female presents for bilateral mastectomy and flap reconstruction for breast cancer

She is otherwise healthy, and takes ibuprofen occasionally for headaches

Pre-operative analgesia

• Gabapentin (900 mg PO)
• Acetaminophen (975 mg PO)

Intra-operative/PACU multimodal analgesia

• Ketamine (0.25 mg/kg/hour IV)
• Avoid hydromorphone
• Give < 2-4 mcg/kg fentanyl IV for entire surgery
• On-Q catheter and pump with local anesthetic placed for incisional pain
• Ketoroloc (15 mg – 30 mg IV)

Post-operative multimodal analgesia

• Scheduled ibuprofen (800 mg PO TID x 6 doses)
• Scheduled PO acetaminophen (650 mg PO TID x 6 doses)
• Scheduled gabapentin (100 mg TID for 2 weeks)
• Continued On-Q pump (24-48 hours)
• Oxycodone 5-10 mg Q4 hours PRN
• Meditation
Impact of multimodal analgesia on opiate use after breast reconstruction

Case #2

75 year old male presents for open total colectomy for diverticulitis
He has a history of HTN, afib, IDDM, 25 pack-years of smoking and OSA (compliant with CPAP)
He takes HCTZ, coumadin, insulin and a statin

Pre-operative analgesia
- Gabapentin (300 mg PO)
- Acetaminophen (975 mg PO)
- Low-thoracic epidural (local anesthetic and opiate) placed pre-operatively
  (other options include intrathecal morphine, transversus abdominis plane block, or IV lidocaine infusion 2 mg/kg/hour)

Intra-operative/PACU multimodal analgesia
- Ketamine (0.25 mg/kg/hour IV)
- Avoid hydromorphone
- Give <2-4 mcg/kg fentanyl IV for entire surgery
- Continuous epidural infusion (LA + opiate)
Case #2

Post-operative multimodal analgesia

- Scheduled ibuprofen (800 mg PO TID x 6 doses)
- Scheduled acetaminophen (650 mg PO TID x 6 doses)
- Scheduled gabapentin (100 mg TID until discharge)
- Continuous epidural infusion (<72 hours)
- Oxycodone 5-10 mg Q4 hours PRN
- PCA with IV opiates if pain uncontrolled

Case #3

60 year old female presents for TKA

She has a history of chronic pain and CAD (s/p stents x2 placed 5 years ago)

She takes oxycodone (60 daily oral morphine equivalents), and daily aspirin

Sample management strategy for arthroplasty patients on pre-operative opiates

(Adapted from Devin, CJ 2014)

<table>
<thead>
<tr>
<th>Low OME (≤ 20 mg/d)</th>
<th>Medium OME (20-70 mg/d)</th>
<th>High OME (≥ 80 mg/d or severe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referrals to PCPs</td>
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<td>Referrals to Anesthesiologists</td>
</tr>
<tr>
<td>Educate patient on implications of opioid use and postoperative recovery</td>
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</tr>
<tr>
<td>Set goals of postoperative analgesia per week prior to surgery</td>
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<tr>
<td>Clearly define amount of postoperative opioids to be provided</td>
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</tr>
<tr>
<td>Management during preoperative assessment</td>
<td>Pain management during preoperative assessment</td>
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</tr>
<tr>
<td>OMAX: OR opioids prior to surgery</td>
<td>OMAX: ≤ 40 OMEs prior to surgery</td>
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</tr>
</tbody>
</table>

Pre-operative analgesia

- Gabapentin (900 mg PO)
- Acetaminophen 1 g IV
- Celecoxib (400 mg PO)
- Oxycodone (10 mg PO)
- Femoral nerve or Adductor-canal block with catheter placed pre-operatively (local anesthetic)
Case #3

Intra-operative/PACU multimodal analgesia

- Continuous nerve block catheter infusion (local anesthetic)
- Ketorolac (15-30 mg IV)
- Hydromorphone boluses (0.75 mg = 10 mg oxycodone)

Post-operative multimodal analgesia

- Scheduled ibuprofen (800 mg PO TID x 6 doses)
- Scheduled acetaminophen IV (1 g Q6 hours x 4 doses)
- Gabapentin (900 mg PO once 24 hours postop)
- Celecoxib (400 mg PO once 12 hours postop)
- Continue continuous nerve catheter (24-48 hours)
- Ice
- Hydromorphone and oxycodone PRN

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Resources to guide pain management

- PROSPECT (Procedure Specific Postoperative Pain Management Workgroup)
- American Pain Society
- American Society of Regional Anesthesia and Pain Medicine
- American Society of Anesthesiologists’ Committee on Regional Anesthesia Recommendations
Resources to guide the patient-perioperative physician relationship

planagainstpain.com

References


