A Multimodal Approach to Optimize Postoperative Recovery and Analgesic Prescribing

Prisma Health Opioid Symposium 2020

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Disclosures

Intuitive Surgical
W.L. Gore
Ethicon
Outline

Information

Inspiration!
Enhanced Recovery After Surgery

Patient / Preop
- Comorbidities
- Medications
- Expectations

Perioperative
- Surgical complexity
- Choice of approach
- Perioperative Management

Hospital
- Pain management
- Bowel function
- Mobility
- LOS
- Complications

Discharge
- Pain management
- Education
- Complications
- Return to normal activity
- Return to work
Enhanced Recovery after Surgery

What does this actually mean?

Protocol-driven pathways designed to decrease perioperative risk, minimize recovery time, and improve outcomes.
Patient / Preop

Comorbidities

Expectations
ERAS: Preoperative Preparation

Comorbidities / Medications

- Preoperative weight loss
- Cardiopulmonary risk stratification
- Optimize nutrition
- Optimize diabetes management: HbA1c <7.5?
- Smoking cessation
- “Prehabilitation”

Orenstein SB, *Plast Reconstr Surg* 2018
Managing Patient Expectations

- Positive preoperative expectations
- Psychological expectancy
- Forecasting

Alokozai A, *Clin Orthop Rel Dis* 2019
Waljee J, *Surgery* 2014
Benson Sven, *Pain* 2019
ERAS: Preoperative Preparation

Managing Patient Expectations

Perioperative / Postoperative

Perioperative Management
Pain Management
LOS
Enhanced Recovery After Surgery

Preoperative Cocktail
Acetaminophen 1000mg
Celebrex 400mg
Lyrica 75mg

Intraoperative
Ketamine infusion
Lidocaine infusion
Eliminate Fentanyl
Limit narcotic
Regional anesthesia

Postoperative
Ketamine infusion
Acetaminophen
Ketorlac
PO meds
IV for breakthrough only
No PCA

Target multiple pain pathways

Nociception

Spinal Cord
- Spinothalamic tract
- Spinoreticulothalamic tract

Brain
- Somatosensory cortex
- Cingulate gyrus
- Prefontal cortex
- Cerebellum

ERAS: Perioperative Management

Effect of Multimodal Analgesia on Opioid Use After Open Ventral Hernia Repair

- Eliminated PCA
- Reduced total MME by 60-75% over POD 0 - 2
- No difference in LOS

ERAS: Perioperative Management

Length of Stay and Opioid Dose Requirement with Transversus Abdominis Plane Block vs Epidural Analgesia for Ventral Hernia Repair

• Reduction in LOS with TAP Block

• Reduction in MME by about 20% over POD 1 and 2

Do we *KNOW* how much opioid our patients need?

How were we trained to prescribe?
Wide Variation and Excessive Dosage of Opioid Prescriptions for Common General Surgical Procedures

Maureen V. Hill, MD,* Michelle L. McMahon, BS,† Ryland S. Stucke, MD,* and Richard J. Barth Jr., MD*

Common General Surgical Procedures
• Wide variation in prescribing
• 28% of pills used
Prescribing Guidelines: Outpatient

Outpatient Procedures: Simple

First Line: non-opioid
Ibuprofen 800mg
Acetaminophen 1000mg

Second Line: opioid
40 MME
Tramadol 50mg x 8 pills
Hydrocodone 5/325mg x 8 pills
Oxycodone 5mg x 6 pills

Outpatient Procedures: Simple

First Line: non-opioid
Ibuprofen 800mg
Acetaminophen 1000mg

Second Line: opioid
75 MME
Tramadol 50mg x 15 pills
Hydrocodone 5/325mg x 15 pills
Oxycodone 5mg x 10 pills
Guideline for Discharge Opioid Prescriptions after Inpatient General Surgical Procedures

Maureen V Hill, MD, Ryland S Stucke, MD, Sarah E Billmeier, MD, MPH, Julia L Kelly, MS, Richard J Barth Jr, MD, FACS

88% took <15 pills
Guideline for Discharge Opioid Prescriptions after Inpatient General Surgical Procedures

Maureen V Hill, MD, Ryland S Stucke, MD, Sarah E Billmeier, MD, MPH, Julia L Kelly, MS, Richard J Barth Jr, MD, FACS

Table 3. Univariate and Multivariate Analysis of Variables Associated with Outpatient Opioid Use for Questionnaire Respondents Discharged on Postoperative Day 2 or Later

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Pills taken after discharge, median (IQR)</th>
<th>Pills taken after discharge, mean (SD)</th>
<th>Univariate p Value</th>
<th>Multivariate p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of pills taken 24 h before discharge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>63</td>
<td>0 (0,1)</td>
<td>1.5 (3.9)</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>1–3</td>
<td>51</td>
<td>4 (0.12)</td>
<td>7.6 (9.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥4</td>
<td>41</td>
<td>13 (8.25)</td>
<td>21.2 (21.4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Prescribing Guidelines: Inpatient

**Inpatient Postoperative Discharge:** *Based on last 24hr MME*

- **0-5 MME**
  - 15 MME (Tramadol x 3; Hydrocodone x 3; Oxycodone x 2)

- **6-15 MME**
  - 40 MME (Tramadol x 8; Hydrocodone x 8; Oxycodone x 6)

- **16-30 MME**
  - 80 MME (Tramadol x 16; Hydrocodone x 16; Oxycodone x 12)

- **>30 MME**
  - 100 MME (Tramadol x 20, Hydrocodone x 20; Oxycodone x 15)
Preliminary Results

Prisma Health-Upstate Incisional Hernia Procedures
Total Discharge MME Burden of Opioid Prescriptions by Quarter

Cumulative total reduction in MME burden of 69% (P<0.001)

# of Incisional Hernias with an Opioid Rx at D/C | 58 | 47 | 40 | 52 | 26 | 48
Results:
Actual Opioid Utilization

179 cases: 101 had documentation of opioid use

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Overall pill average</th>
<th>Tramadol use (pills / MME)</th>
<th>Hydrocodone (pills / MME)</th>
<th>Oxycodone (pills / MME)</th>
<th>Refills (n)</th>
<th>Patients taking NO narcotic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inguinal</td>
<td>36</td>
<td>2.1</td>
<td>5.9 / 29.3</td>
<td>n/a</td>
<td>n/a</td>
<td>1</td>
<td>23 (63.9%)</td>
</tr>
<tr>
<td>Umbilical/Epigastric</td>
<td>10</td>
<td>2.2</td>
<td>5.5 / 27.5</td>
<td>n/a</td>
<td>n/a</td>
<td>1</td>
<td>6 (60%)</td>
</tr>
<tr>
<td>Ventral/Incisional</td>
<td>61</td>
<td>4.75</td>
<td>7.8 / 40</td>
<td>8.5 / 45</td>
<td>17.1 / 203</td>
<td>8</td>
<td>12 (20%)</td>
</tr>
</tbody>
</table>
Key Factors

**Multidisciplinary:**
Anesthesia, Surgery, Pharmacy, Nursing
Interdisciplinary Opioid Stewardship Committee
IT solutions

**Prescribing Guidelines / Protocols**
There’s evidence out there - Use it
Design practice specific pathways.
Physician champion(s)
Key Factors

Physician Education
   Current data on opioid use, abuse, diversion
   Alternatives

Nursing Education
   Protocols
   Patient expectations
   Alternatives

Patient Education
   Multimodal analgesia, opioid alternatives
   Expectations
   Opioid risks
Leveraging a Quality Collaborative

Safely store your opioids & dispose of any unused pills!

- Lock your pills in a safe place.
- Try to keep a count of how many pills you have.
- Do not store your opioids in places that allow easy access to your pills (Example: bathrooms, kitchen).

SAFELY dispose of unused opioids:
- Medication Take-Back Drives
- Pharmacy & police station drop boxes
- Mix drugs (do not crush) with used coffee grounds or kitty litter in a plastic bag, then throw away.

To find a list of local places that take back your unused opioids, visit: https://www.deadiversion.usdoj.gov/pubsdispersch/

Do you know the facts about opioid pain medications?

Common names of opioids:
- Hydrocodone (Vicodin, Norco)
- Oxycodeone (Oxycontin, OxyContin)
- Morphine
- Codeine (Tylent #3, Tylent #4)
- Fentanyl
- Tramadol (Ultra)
- Methadone
- Hydromorphone (Dilaudid)
- Oxymorphone (Opana)

Only use your opioids for the reason they were prescribed.

What is an opioid?

An opioid is a strong prescription pain medication. Some possible side effects include nausea, vomiting, sleepiness, and nausea.

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Only use your opioids for the reason they were prescribed.

Using opioids safely:

- Ask your surgeon if it is okay to use over-the-counter antihistamines (Tyleonol or Ibuprofen) (Matri, Advil).
- Use your opioids if you still have severe pain that is not controlled with the over-the-counter medications, or other non-opioid prescriptions.
- Let your doctor know if you are currently taking any benzodiazepines (e.g. Valium, Xanax).
- Do not mix opioids with alcohol or other medications that can cause drowsiness.
- As your pain gets better, wait longer between taking opioids.
- Only use your opioids for your surgical pain. Do not use your pills for other reasons.
- Your opioids are only for you. Do not share your pills with others.
- Diversion (sharing or selling) of opioids is considered a felony.
- Please discuss with your doctor if you are pregnant and considering opioid use.

Know the facts about opioid addiction

You are at higher risk of developing a dependence or an addiction to opioids if you:
- Have a history of depression or anxiety.
- Have a history of using or abusing alcohol, tobacco or drugs (including prescription or street drugs).
- Have a history of long-term (chronic) pain.
- Take opioids for longer than a week.
- Take more pills, more often, than your doctor prescribed.

Opioid use puts you at risk of dependence, addiction or overdose!

Understanding pain goals aftersurgery

Our goal is to control your pain enough to do the things you need to do to walk, sleep, eat & breathe deeply.

Things to know:
- Pain after surgery is normal.
- Everyone feels pain differently.
- Pain is usually worst for the first 2-3 days after surgery.
- Most patients report taking less than half of their opioid pills.

Other things to try for pain relief:
- Relaxation, meditation, and music can help control your pain.
- Talk to your doctor if your pain is not controlled.

Surgery:

Phone Number:
Key Factors

“Pharmacologic Engineering”
   Set up for success

Quality Improvement / Research:
   What are your actual outcomes?
   Measure, track, adapt
   QI projects
   Grant funding

Culture Change:
   This will take some time!