The Role of Surgeons in Addressing the Opioid Crisis

Friday, April 6, 2018
What is the Surgical Collaborative of Wisconsin?

- A collaborative practice change community that aims to optimize quality and reduce costs by improving surgical care and fostering provider professional development across practice settings.
How to be a part of the conversation

• Today:
  – As you have questions or comments, enter them in the comments box in GoToMeeting.
  – We’d love for you to include your name and community in your comment. If you don’t, we’ll consider the comment anonymous.
  – I’ll present your questions to our panel.

• Tomorrow:
  – Continue the conversation as a member of the collaborative: scwiscconsin.org
Speaker Panel

- Jonathan Kohler, MD – Moderator
- Tom Engels, Deputy Secretary, Department of Health Services
- David Melnick, MD
- Joseph Imbus, MD
- Nathan Rudin, MD
- Elise Lawson, MD
- Caprice Greenberg, MD
Tom Engels
Deputy Secretary
An Introduction to the Opioid Problem

David Melnick, MD, MPH
Clinical Associate Professor of Surgery
UWSMPH
USA oxycodone consumption (mg/capita)
1996-2015

Sources: International Narcotics Control Board; World Health Organization population data
By: Pain & Policy Studies Group, University of Wisconsin/WHO Collaborating Center, 2018

https://ppsg-chart.medicine.wisc.edu/
Figure 1. Age-adjusted drug overdose death rates: United States, 1999–2016

1Significant increasing trend from 1999 to 2016 with different rates of change over time, \( p < 0.001 \).
22016 rate for males was significantly higher than for females, \( p < 0.001 \).

NOTES: Deaths are classified using the *International Classification of Diseases, Tenth Revision*. Drug-poisoning (overdose) deaths are identified using underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. The number of drug overdose deaths in 2016 was 63,032. Access data table for Figure 1 at: https://www.cdc.gov/nchs/data/databriefs/db264_table.pdf#1.

Trends in ED visits for Opioid OD

SOURCE: CDC’s Enhanced State Opioid Overdose Surveillance (ESOOS) Program, 16 states reporting percent changes from July 2016 through September 2017.
Source of Abused Prescriptions

- Obtained free from friend or relative: 55.0%
- Prescribed by MD: 17.3%
- Bought from friend or relative: 11.4%
- Other: 7.1%
- Took from friend or relative without asking: 4.8%
- Got from drug dealer or stranger: 4.4%

https://www.cdc.gov/drugoverdose/data/prescribing.html
Incidence of New Persistent Opioid Use

Figure 3. Incidence of New Persistent Opioid Use by Surgical Condition

Brummett et. Al. JAMA Surgery 2017
50% (% opioid overdose deaths involving Rx opioids)

75% (% heroin users who report first using Rx opioids)

88% (% misused/diverted Rx opioids obtained from friends, family, or personal Rx)

Addressing the epidemic: chronic pain & acute pain

United States Opioid Epidemic
Surgeons and the Opioid Epidemic

Surgeons: 2nd highest opioid prescribing rate
36.5% (1 out of 3 scripts written)

Appropriate post-operative Rx practices have not been established

Little known about how many pills patients use after surgery, & factors that influence use
Opioids after Outpatient General Surgery:
Surgeon Prescribing Practices & Patient Use

J.R. Imbus, J.L. Philip, J.S. Danobeitia, D.F. Schneider, D.M. Melnick
Study Aims

• To characterize prescribing practices of surgeons and opioid use by patients after common outpatient general surgery procedures

• To identify predictors of the number of opioid pills used by patients post-operatively
Methods

Retrospective review of EHR (January – May 2017)

1. Laparoscopic cholecystectomy
2. Inguinal hernia repair
3. Umbilical hernia repair
4. Lumpectomy + sentinel node biopsy
5. Lumpectomy

Excluded: post-op complications, inpatient procedures

Analysis: multivariable linear regression

→ predict number of pills taken (morphine milligram equivalents)

procedure type, patient factors, # pills prescribed

Post-op pain survey
Patient characteristics
Prescriber/prescription data
Morphine milligram equivalents =

Adjusting for different relative strengths

Hydrocodone (1) = Oxycodone (0.66) = Tramadol (10)
Results

Patients (n = 374)

- Hx chronic pain: 19%
- Pre-op opioid Rx: 12%
- Took ≤ 30 pills: 95%
- Took zero pills: 24%

Prescribers (n = 48)

- Six opioid types prescribed
- Norco most common
- Range: 5-80 pills

Procedures

- Lap cholecystectomy
- Inguinal hernia repair
- Umbilical hernia repair
- Lumpectomy + SLNBx
- Lumpectomy
Results

Gallbladder 64% not used
Hernia 54% not used
Breast 77% not used

Factors associated with opioid amount taken
- Age (p<.001)
- Operation type (p<.001)
- BMI (p<0.01)
- Chronic pain (p<0.01)
- Pre-op opioid Rx (p<0.01)
- Regional anesthesia (p<0.001)
- Amount prescribed (p<.001)
Results – linear regression model

**Patient age** (β = -0.03; C.I. -0.042, -0.018), p < 0.001
- As age ↑, opioid use ↓
- For every 10 year increase in age → 30% less pills taken

**Procedure type** (β = 0.71; CI = 0.11-1.31), p < 0.05
- Lap chole patients took twice as much as umbilical hernia patients

**Amount prescribed** (β = 0.0043; CI = 0.0021-0.0064), p < 0.001
- As prescription amount ↑, opioid use ↑
- For every 10 additional pills prescribed → 24% more pills taken

The following were not predictive after adjustment: BMI, sex, race, regional anesthesia, pre-op opioid Rx, pre-op benzo Rx, Hx chronic pain
### Results

Evaluating age-based prescribing thresholds:

(Ex): inguinal hernia repairs

80%* of all patients **took 15 or fewer pills**

<table>
<thead>
<tr>
<th>Age categories</th>
<th>80% of patients took fewer than:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 40 years</td>
<td>26 pills</td>
</tr>
<tr>
<td>41 to 55 years</td>
<td>20 pills</td>
</tr>
<tr>
<td>56 to 65 years</td>
<td>12 pills</td>
</tr>
<tr>
<td>Greater than 65 years</td>
<td>6 pills</td>
</tr>
</tbody>
</table>

50% of all patients **took 5 or fewer pills**

(*Hill et al., 2017)
Summary

• Variation in prescribing practices
• Overprescribing
• Many patients took few pills
• Prescription amount matters
• Age matters
Limitations

• Single institution study

• Recall bias for number of pills taken

• Over-the-counter analgesia effect unknown
Future directions

• Surgeon education
• Post-operative order set implementation
• Investigate other procedures
• Audit and feedback
• Refine predictions
Conclusions

Opportunity to better align opioid prescriptions with actual patient use

Reduce opioid-related overdoses and heroin use
Acknowledgements

- Project team:
  - Jennifer Philip, MD
  - Sebastian Danobeitia, MD, PhD
  - David Schneider, MD, MS
  - David Melnick, MD, MPH

- Biostatistics: Nick Zaborek, MA
- Funding:
  - Supported by NIH Surgical Oncology T32 grant
Postoperative Pain Management: Alternatives and Adjuncts to Opioids

Nathan J. Rudin, M.D., M.A.
Professor (CHS), Orthopedics and Rehabilitation
University of Wisconsin School of Medicine and Public Health
Start Preoperatively

• Establish expectations
  • How painful is this surgery likely to be?
  • What treatments will be used to control pain?
  • Is there a standard discharge prescription? Tapering protocol?
  • What level of postoperative pain are we aiming for?
    • Able to sleep, transfer, get around house, etc.
Continue Perioperatively

• Pre-emptive analgesia: Start before incision
  • Surgical site infiltration (local anesthetic)
  • Epidural or spinal anesthesia
  • Regional nerve block
  • Medications
• Adequate immediate postoperative analgesics
Gabapentin

• Starting it preoperatively reduces opioid consumption following mastectomy and spinal, abdominal, and thyroid surgeries
• More somnolence
• No change in nausea/vomiting rates
• Safe to continue postoperatively

Pregabalin

• Similar findings to gabapentin but fewer studies
• 75-300 mg x 3 preop: reduced postop pain after lap hysterectomy in placebo-controlled dbRCT
  • Azgari Z et al., J Clin Anesth. 2017 May;38:13-17
• Safe for postoperative use
• Higher doses cause somnolence
Celecoxib

- Frequently added to multi-drug preemptive “cocktails” (with acetaminophen, ketamine, gabapentin, local anesthetics, et al.)
- Use in preemptive analgesia appears to be safe
  Kim et al., Eur Spine J. 2016 May;25(5):1614-1619
- Reduced post-op pain, less opioid use, shorter LOS
  Penprase B et al., AORN J. 2015 January;101: 94-105
- Postoperative continuation – not studied
- In Europe, IV rofecoxib has been helpful preemptively
- Be cautious of NSAID side effects
Ketamine

- NMDA receptor antagonist
- Pre-emptive analgesic effects (given IV)
- Has postoperative opioid-sparing effects (given IV, intranasally, or epidurally)
- Psychotomimetic effects possible; keep doses low
Acetaminophen

• Available oral, rectal, IV
• IV acetaminophen pre-op and intra-op (15 mg/kg) reduced pain scores and time to next analgesic use in lower limb surgery w/spinal anesthesia (placebo-controlled dbRCT)
  • Khalili G et al., J Clin Anesth. 2013 May;25(3):188-92
• Often studied as part of combinations
• Can be continued postoperatively
Antispasm Agents

- Few studies
- Tizanidine: Limited evidence of preemptive efficacy in lap cholecystectomy
  - Talakoub R et al., Adv Biomed Res. 2016 Feb 8;5:19
- Baclofen: Not well studied; epidural baclofen not helpful in children after CP surgery
- Cyclobenzaprine: Not studied
Regional Anesthesia

- Regional nerve blocks, maintained for a time postoperatively, are safe and effective methods for reducing postoperative pain
  - Pediatric patients – Simić D et al., Front Med (Lausanne). 2018 Mar 9;5:57
  - Femoral + sciatic nerve blocks for TKA – Zorrilla-Vaca A et al., J Anesth. 2018 Mar 8
- Bolus blocks versus indwelling catheters
- Continuous versus patient-controlled dosing
Physical Modalities

• Elevation
• Edema control: massage, compression
• **Cold**: Reduced pain and morphine use post-op in spinal fusion patients
• **TENS**: Moderate evidence for reduced pain and reduced opioid use
  • In TKA: Zhu Y *et al.*, *J Rehabil Med*. 2017 Nov 21;49(9):700-704
Cognitive-Behavioral Therapy (CBT)

- Pain catastrophizing is associated with worse postsurgical pain outcomes
  - Riddle DL et al., *Clin Orthop Relat Res.* 2010 Mar;468(3):798-806
- Goals: Improve coping, reduce catastrophizing and anxiety
- Postoperative CBT improved pain coping following lumbar spinal fusion
- Preoperative CBT reduced time to independent mobility and slightly reduced analgesic use following lumbar spinal fusion
  - Rolving N et al., *BMC Musculoskelet Disord.* 2016 May 20;17:217
Rehabilitation

• Postoperative rehab is important to restore mobility, function and independence
• Paucity of evidence that rehab reduces postoperative pain
• Prehabilitation may reduce LOS and postop rehab admissions, but no solid evidence that it reduces pain
What if Pain Persists?

- Validate the presence of pain
- Reevaluate for complications and treat as appropriate
- Adjust analgesic taper or regimen
- Refer early to pain specialist if additional help is needed
Thank you!
How can SCW help?

1. Create benchmarked reports on opioid prescribing

2. Provide guidance for changing practice

3. Platform for collaborative learning
How can SCW help?

1. Create benchmarked reports on opioid prescribing
   - Hospital and surgeon level
   - Average # pills prescribed by procedure, refills
   - Benchmark to other surgeons/hospitals
   - Use existing data from WHIO
How can SCW help?

2. Provide guidance for changing practice
   - Patient education materials to set expectations
   - Strategies for non-opioid postoperative pain management
   - Address over-prescribing at discharge with suggested default orders for opioids
   - Options for safe opioid disposal
Patient Education Materials

Do you know the facts about opioid pain medications?

**What is an opioid?**
An opioid is a strong prescription pain medication. Some possible side effects include nausea/vomiting, sleepiness/sedation/loss of consciousness, and constipation.

*Common names of opioids:*
- Hydrocodone (Vicodin, Norco)
- Oxycodone (OxyContin)
- Morphine
- Codeine (Tylenol #3, Tylenol #4)
- Fentanyl
- Tramadol (Ultram)
- Methadone
- Hydrocodone (Vicodin)
- Hydrocodone (Opioids)

*Only use your opioids for the reason they were prescribed.*

**Using opioids safely**
- Ask your surgeon if it’s okay to use the over-the-counter analgesic (Tylenol) or ibuprofen (Motrin, Adult).
- Use your opioid if you still have severe pain, that is not controlled with the over-the-counter medications, or other non-opioid medications.
- Let your doctor know if you are currently taking any benzodiazepines (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 medical conditions.
- Your opioids are only for you. Do not share your pills with others.

**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 after surgery**
Our goal is to control your pain enough to do the things you need to do: walk, sleep, eat, and breathe deeply.

**Things to know:**
- Pain after surgery is normal.
- Everyone feels pain differently. Pain is usually worse for the first 2-3 days after surgery.
- Most patients report using less than half of their opioids. Many patients do not use any of their pills.

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

**Surgical Collaborative of Wisconsin**

**Talking to your doctor about pain control**

**Phone Number:**
## Opioid Prescribing Recommendations

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Hydrocodone (Norco)</th>
<th>Oxycodone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 mg tablets</td>
<td></td>
</tr>
<tr>
<td>Codeine (Tylenol #3)</td>
<td>30 mg tablets</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tramadol</td>
<td></td>
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<tr>
<td></td>
<td>50 mg tablets</td>
<td></td>
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<tr>
<td></td>
<td>Hydromorphone</td>
<td></td>
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<tr>
<td></td>
<td>(Dilaudid)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 mg tablets</td>
<td></td>
</tr>
<tr>
<td>Laparoscopic Cholecystectomy</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Laparoscopic Appendectomy</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Inguinal/Femoral Hernia Repair (open/laparoscopic)</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Open Incisional Hernia Repair</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Laparoscopic Colectomy</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Open Colectomy</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Ileostomy/Colostomy Creation, Re-siting, or Closure</td>
<td>40</td>
<td>25</td>
</tr>
<tr>
<td>Open Small Bowel Resection or Enterolysis</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Thyroidectomy</td>
<td>10</td>
<td>5</td>
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<tr>
<td>Hysterectomy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaginal</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Laparoscopic &amp; Robotic</td>
<td>25</td>
<td>15</td>
</tr>
<tr>
<td>Abdominal</td>
<td>35</td>
<td>25</td>
</tr>
<tr>
<td>Breast Biopsy or Lumpectomy Alone</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Lumpectomy + Sentinel Lymph Node Biopsy</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Sentinel Lymph Node Biopsy Alone</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Simple Mastectomy ± Sentinel Lymph Node Biopsy</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Modified Radical Mastectomy or Axillary Lymph Node Dissection</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>Wide Local Excision ± Sentinel Lymph Node Biopsy</td>
<td>30</td>
<td>20</td>
</tr>
</tbody>
</table>

https://opioidprescribing.info/
Question and Answer
How can you get involved in SCW?

• Take the post event survey – next week via email
• Join us for future educational events
• Become a collaborating member
• Engage in one or more inaugural initiatives