What to do when you are called to see a patient with . . .

PAIN

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Disclosures

Susan Merel has no relationships with any entity producing, marketing, re-selling or distributing healthcare goods or services consumed by or used on patients.
Sound familiar yet?

“This is Jane, the nurse for Mr. Smith. He’s having more pain and I just gave him 10 mg of oxycodone. He’s asking for IV dilaudid, did you want to write an order for that?”
Objectives

• Describe approach to pharmacologic pain management in hospitalized patients
• Practice opioid choice, titration and conversion
• Recognize and manage opioid side effects
• Manage opioid withdrawal in hospitalized patients with opioid use disorder
• Identify best practices in pain management near the end of life in hospitalized patients
What I am NOT talking about here . . .

• Chronic use of opioids for chronic non-malignant pain
• Don’t let the opioid epidemic keep you from prescribing opioids appropriately for acute pain in seriously ill patients.
Mrs. S

• Having 10/10 right hip pain

• Acetaminophen 500 mg po q 6 hrs prn is not working
Mrs. S - signout

WATCHER
85 yo F R hip fracture; to OR in am for repair
#HTN
#CKD
Meds – dalteparin, acetaminophen, amlodipine
NTD
Avoid CNS active meds due to risk of delirium
FULL CODE
Mrs. S

Exam:
36.5  156/92  88  16  97/RA
Frail appearing, thin, approx 50 kg
Alert, conversant, uncomfortable
Pain indeed from hip fracture
What order would you write to improve her pain control?

a. Add ibuprofen 400 mg po q 8 hours prn
b. Stop acetaminophen and start acetaminophen/oxycodone (Percocet) 5/325 po q 4 hours prn
c. Add oxycodone 2.5-5 mg po q 4 hours prn
d. Add morphine 2-4 mg iv q 4 hours prn
Non-opioid analgesia

• Tylenol and/or NSAIDS can augment opioids  
  – Consider scheduled acetaminophen  

• Avoid NSAIDS in the elderly  
  – Renal failure, CHF, GI bleeding risk  

• Caution with NSAIDS in inpatients  
  – Renal failure  
  – Bleeding risk
Non-opioid analgesia

• Prescribe acetaminophen and opioids separately in acutely ill patients

• Caution with combination pills
  – Acetaminophen the most common cause of acute liver failure in the US
  – Easier to forget in a combo pill
  – No more than 4gm day (3 gm in liver disease)
Mrs. S

- Schedule acetaminophen
  - 500 or 650 tid

- Start a low dose of PRN opioid
  - E.g. oxycodone 2.5 – 5 mg po q 4 hours prn pain, hold for sedation
What order would you write to improve her pain control?

a. Add ibuprofen 400 mg po q 8 hours prn
b. Stop acetaminophen and start acetaminophen/oxycodone (Percocet) 5/325 po q 4 hours prn
c. Add oxycodone 2.5-5 mg po q 4 hours prn
d. Add morphine 2-4 mg iv q 4 hours prn
Opioids in the elderly

- Pain can be a strong risk factor for delirium
- Use low-dose opioids, follow closely
- Caution with morphine
  - High prevalence of renal insufficiency
Mrs. S – the next night

- Surgery was delayed
- Still having 8/10 pain despite oxycodone 5 mg po q 4 hours prn + scheduled acetaminophen
- Exam: VSS, alert, appears uncomfortable
- Says the oxycodone helps but just a little
What order would you write to try to improve her pain control now?

a. Add hydromorphone 1mg iv q4h prn
b. Increase oxycodone to 7.5mg po q4h prn
c. Change oxycodone to 5-15mg po q4h prn
d. Schedule Oxycontin 10mg po q12h in addition to the 5mg oxycodone po q4h prn
Opioid dose escalation

• Amount of dose escalation:
  – 25 to 50% increase for mild to moderate pain
  – 50 to 100% increase for moderate to severe pain
  – Don’t increase less than 25% or more than 100%

• Frequency of dose escalation
  – Can increase po short-acting opioids every 2-4 hours
  – Don’t increase long-acting oral opioids more often than q 24 hours
  – Don’t increase fentanyl patch more often than q 72 hours
What about long-acting opioids?

- Scheduled pain medications often appropriate for constant severe pain BUT
- Don’t start long-acting opioids:
  - Until pain is relatively well-controlled
  - Unless there is a good plan to prescribe them as outpatient or taper
- Scheduled short-acting opioids with “hold for sedation” order are a good option.
What order would you write to try to improve her pain control now?

a. Add hydromorphone 1 mg iv q 4 hours prn
b. Increase oxycodone to 7.5 mg po q 4 hours prn pain
c. Change oxycodone to 5-15mg po q4h prn
d. Start Oxycontin 10 mg po q 12 hours scheduled in addition to the 5 mg oxycodone po q 4 hours prn
Mrs. S – two nights later

• Surgery finally scheduled for tomorrow!
• Nurse calls to tell you that she is strictly NPO, can she have some IV meds?
• Pain has been relatively well controlled on oxycodone 7.5 mg po q 4 hours prn
THINK-PAIR-SHARE

• Get in pairs
• Think a moment then share
  – What IV agent would you pick?
  – What would your *process* be for coming up with a dose?
Principles of opioid conversion

• Start with total opioid use in the past 24 hours
• Use an opioid conversion chart or website
• Decrease equianalgesic dose by 30% to account for incomplete cross-tolerance
• Divide up 24 hour dose
• Never hesitate to ask for help
## Opioid equianalgesic dosing

<table>
<thead>
<tr>
<th>Drug</th>
<th>PO</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>30 mg</td>
<td>10 mg</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>20 mg</td>
<td>--</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>7.5 mg</td>
<td>1.5 mg</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>30 mg</td>
<td>--</td>
</tr>
</tbody>
</table>
Opioid equianalgesic doses

• One mg IV morphine roughly equivalent to:
  – 3 mg oral morphine OR
  – 2 mg oral oxycodone OR
  – 0.2 mg IV hydromorphone
Mrs. S: Opioid conversion

• 24-hour use of oxycodone is 45 mg
• After decreasing for incomplete cross-tolerance, 24 hour dose is:
  – 2.4 mg IV hydromorphone per 24 hours
• This could be given q 2 hours prn
  – E.g. Hydromorphone 0.2 mg iv q 2 hours prn.
• A PCA might also be a good option here
New admission: Mr. G

- 73 yo M metastatic prostate cancer
- On hormonal therapy, XRT to spine mets
- Admitted with increased pain, somnolence, new renal failure with Cr 3.0 from baseline 1.0
- Meds: acetaminophen, morphine, ondansetron, senna
Mr. G

• Diffuse bony pain previously well controlled:
  – Morphine ER 60 mg po q 12 hours
  – Morphine IR 15 mg po q 4 hours prn
    • taking 2 doses per day

• More pain and more somnolent past few days

• Vitals stable, somnolent but arousable
Opioids in renal insufficiency

• Methadone and fentanyl optimal
• Hydromorphone and oxycodone with caution
  – Hydromorphone preferred in dialysis pts
  – AVOID Oxycontin
• AVOID morphine
Opioids in hepatic insufficiency

• Fentanyl optimal
• Hydromorphone, oxycodone with caution
• AVOID morphine, Oxycontin
• Generally avoid methadone/consult expert
Summary

- Avoid both morphine and Oxycontin in renal and hepatic insufficiency
- Avoid methadone in liver failure
- Fentanyl optimal in both
- Hydromorphone and oxycodone with caution
  - Extended dose intervals in severe disease
  - Hydromorphone preferred in dialysis patients
A few more words on opioid choice

• Morphine good first line agent if no renal or liver failure
  – Multiple formulations, cost-effective for patients
• Avoid codeine: emetogenic, not very effective
• Avoid meperidine: risk of seizures, delirium
  – Theoretical benefit over other opioids for rigors
  – AVOID in renal failure
• Avoid tramadol: not safer, not very effective
Mr. G

• Morphine is accumulating in renal failure
• Inpatient pain management:
  – IV hydromorphone now if he wakes up with pain
  – Oral oxycodone or hydromorphone when alert
  – Consider fentanyl PCA when he is alert enough
• Discharge options:
  – Oral scheduled oxycodone or hydromorphone
  – Fentanyl patch
Suggested protocol for malignant pain

1. Start scheduled short acting PO opioid q3-6hrs
2. Order PRN PO and IV opioid for breakthrough (10% of 24 hour dose)
3. Adjust scheduled dose q24hrs based on prn use and/or symptoms
4. If patient is sedated or has respiratory depression, hold dose(s), then decrease scheduled dose by 25-50%
5. Once pain is controlled (only using 2-3 prns q24hrs) convert to long acting pain medication + PRN

McPherson, Demystifying Opioid Conversion Calculations, 2009

Graphic courtesy of Caroline Hurd
What is a PCA and when should you use it?

• Patient controlled analgesia
• Safe method of delivering a relatively constant, very low dose of opioids
• Appropriate for:
  – Alert patient
  – Pain severely impacting function
  – Appropriate 24-hour dose unclear and/or rapid titration necessary
  – Patients who would benefit from control of dosing
Elements of PCA orders

- Incremental or “lockout” dose
- “Clinician” (nurse) bolus
- Continuous infusion
- or
- Other basal opioid
PCA orders

• “Primary service PCA” order set:
  – Low dose of hydromorphone or morphine w/o continuous infusion
• Pain service consult necessary to continue home basal opioids or add continuous infusion
• Remember the “clinician bolus”!
• If pt on opioids at home, make sure to compare equianalgesic dose
• Caution with sedating symptom meds
• RN calls to report that Mr. M, a 50 year old male admitted last night with endocarditis, is becoming agitated, complaining of pain, and demanding . . .

“METHADONE!”
Mr. M - signout

WATCHER
HD#2

50 yo M IVDU presumed endocarditis
Meds: vancomycin, acetaminophen

NTD
Opioid withdrawal

• Signs and symptoms:
  – Pupillary dilation, lacrimation, rhinorrhea, yawning, sneezing, nausea, vomiting, diarrhea

• Peak for heroin 36-72 hours, lasts 7-10 days

• Peak for methadone 72-96 hours, lasts >14 d

• Ask about:
  – Use of other drugs
  – History of any treatment for opioid use disorder
  – Pt wishes regarding medication assisted therapy
Mr. M

• Denies other drug use, is not in a methadone maintenance program
• You evaluate him and think he is in withdrawal.
• Says he gets 120 mg methadone in hospital.
  – You cannot verify this.
What order would you write?

a. Methadone 120mg po qday hold for sedation
b. Methadone 20mg po qday hold for sedation
c. Oxycodone 5-10mg po q4h prn withdrawal symptoms
d. Clonidine, hydroxyzine and phenergan prn for specific withdrawal sx
Goals in inpatients with addiction

• Prevent/treat acute opioid withdrawal to allow optimal medical care
• Do not expect to “cure” opioid use disorder!
  – Withholding opioids will not cure addiction
  – Giving opioids will not worsen addiction
• Initiate substance use treatment referral
  – Discharge with naloxone prescription


Modified from Jared Klein
Use of methadone for withdrawal in inpatients

- Starting dose of methadone 20 mg po daily
- Can give an additional 5-10 mg within 1-4 hours for severe symptoms
- Do not exceed 30 mg on day one
- Can increase by 5-10 mg q 3-5 days for continued objective withdrawal sx
- Generally not necessary to exceed 40mg/day
- Use short-acting opioids for acute pain
What order would you write?

a. Methadone 120 mg po qday hold for sedation
b. Methadone 20 mg po qday hold for sedation
c. Oxycodone 5-10 mg po q 4 hours prn for withdrawal symptoms
d. Clonidine, hydroxyzine and phenergan prn for specific withdrawal symptoms
Methadone drug interactions

- Decrease methadone level (precipitate withdrawal):
  - Rifampin, some antiretrovirals
  - Phenytoin, carbemazepine
  - Steroids

- Increase methadone level (cause somnolence):
  - Ketoconazole, macrolides, fluoroquinolones
  - SSRI’s, diazepam, amitriptyline
Ms. D

• New 6/10 suprapubic pain

• Morphine and acetaminophen not helping
Ms. D - signout

STABLE

41 yo F metastatic breast ca to brain, bones adm for pain control, XRT
Titrating up morphine for pain
Meds – morphine, prednisone, acetaminophen, ondansetron
NTD
What would you do next?

a. Increase morphine by 25%
b. Increase morphine by 50%
c. Bladder scan
d. Add ibuprofen
Opioid side effects

• Urinary retention
  – Rx: foley/straight cath +/- decrease opioids if appropriate +/- BPH meds
• Constipation
• Nausea – always make sure not constipated!
• Confusion
  – Search for other underlying causes
• Myoclonus – usually at higher doses
• Hyperalgesia syndrome – rare, at higher doses
What would you do next?

a. Increase morphine by 25%
b. Increase morphine by 50%
c. Bladder scan
d. Add ibuprofen
Ms. D – 3 days later

- RN calls to report minimally arousable, RR 6
- Full code
- Exam:
  - 120/80, RR 8, 95/2L (stable)
  - Responds minimally to vigorous stimulation
What do you do next?

a. Give naloxone (Narcan) 0.4mg iv now
b. Give naloxone 0.04mg iv now
c. Start naloxone drip immediately
Naloxone

• RR 8-10 in resting patient usually ok
  – Especially if goal of care is comfort
• Can precipitate withdrawal and pain in patients on chronic opioids
• If you must give it to someone on chronic opioids:
  – Dilute 1 amp (0.4 mg) in 10 ml of saline and give 1ml IV (0.04mg) q 5 minutes
  – Can use higher dose if emergent (e.g. 0.2 mg)
What do you do next?

a. Give naloxone (Narcan) 0.4 mg iv now
b. Give naloxone 0.04 mg iv now
c. Start naloxone drip
Mr. G – 10 days later

• 73 yo M metastatic prostate cancer
• On comfort care, going home with hospice
• Was getting PRN hydromorphone boluses for pain, but just lost his IV.
  – He is having pain now
  – Somnolent but arousable
  – Nurse not sure he can swallow pills
What would you do next?

a. Place central line, start hydromorphone drip
b. Order STAT PICC, start fentanyl PCA
c. Place fentanyl patch
d. Start scheduled liquid hydromorphone with PRN breakthrough
When your patient can’t swallow . . .

• IV is not the only option!
• Liquid opioids have buccal absorption
  – Morphine and hydromorphone both come in concentrate (20 mg/ml)
• Many options for antiemetics also (e.g. SL ondansetron, PR phenergan)
What would you do next?

a. Place central line, start hydromorphone drip
b. Order STAT PICC, start fentanyl PCA
c. Place fentanyl patch
d. Start scheduled liquid hydromorphone with PRN breakthrough
Comfort care tips

• Always use standard order set
• Start with liquid oral opioids in most cases
  – First line treatment for both pain and dyspnea
  – IV PRN breakthrough if has IV
  – Transition to drip using standard order set if refractory pain
• Benzodiazepines:
  – For anxiety, insomnia
  – Second line for pain/discomfort, dyspnea
Comfort care tips

• Important nonpharmacologic measures:
  – Good mouth care, sips, ice
  – O2, fan near face
  – Turns for comfort – take family’s lead
• May need to have discussion with pt/family about preferences of comfort vs. alertness
• Stop medications not contributing to comfort
  – Usually best as recommendation to family
Ordering liquid morphine

• 20 mg/ml is standard dose in comfort care order set
  – Ordered as “Conc SOLN”

• 1mg/ml also on formulary
  – Ordered as “Oral SOLN”
  – For an opioid naïve person not on comfort care needing a low dose of liquid morphine
Who to call for help

• Senior resident
• Pharmacist
• Pain service
• Palliative care service

No badges for independence, bravery and courage . . .
Thank you!

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