

What to Do When You Are Called to See a Patient with...

Pain

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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?”

Overview

- Opioid and non-opioid analgesics
- Basics of conversion between opioids
- Opioid withdrawal and overdose
- Opioid side effects
- When and who to call for help

Acute Pain in the Hospital

- Consider cause
 - Do you know why they are having pain?
- Consider patient circumstances
 - Ability to take oral medications?
 - Liver and kidney function?
 - Age?
 - Other issues: anxiety, delirium, opiate withdrawal?

Mrs. M



- RN calls to report that Mrs. M is having 10/10 right hip pain
- Acetaminophen 500mg po q6hrs prn is not working

Mrs. M – Sign-out

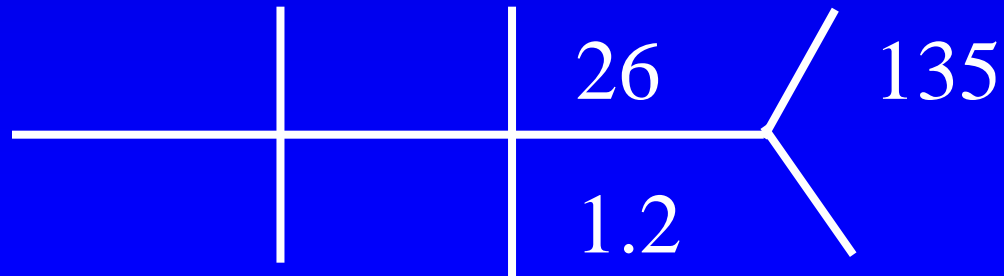


- 85 yo woman
- Full code
- Fall from standing with R hip fracture; to OR in AM for repair by Orthopedics
- PMH: HTN, CKD
- Meds – dalteparin, acetaminophen
- NTD
 - Avoid CNS active medications due to risk of delirium

Mrs. M



- Hx
 - pain indeed appears to be from hip fracture
- PE
 - Afeb, BP 156/92, HR 88, RR 16, O2 sat 97%RA
 - AOx4
- Allergies
 - NKDA



What order would you write to try to improve Ms. M's pain control?

1. Add ibuprophen 600mg po q8hrs prn pain
2. Stop acetaminophen & start Percocet 5/325mg po q4hrs prn pain
3. Add oxycodone 2.5-5mg po q4hrs prn pain
4. Add morphine 1-2mg IV q4hrs prn pain

World Health Organization's Stepwise Analgesia Ladder

Step	Pain	Drug
I	Mild	Non-opioid (acetaminophen, NSAIDS)
II	Moderate	Non-opioid plus weak opioid (hydrocodone, codeine, oxycodone)
III	Severe	Non-opioid plus strong opioid (morphine, hydromorphone, fentanyl, etc.)

Non-Opioid Analgesia

- Acetaminophen and/or NSAIDs can augment the pain relief provided by opioids
 - Consider scheduled acetaminophen
- Avoid NSAIDs in the elderly in most cases
 - Renal failure, CHF, occult GI bleeding
- Careful with inpatient NSAIDs in general
 - Renal failure (especially if volume depletion)
 - GI bleeding risk
 - Other bleeding risk (including surgical)

Non-Opioid Analgesia

- Caution when using combination pills
 - Acetaminophen is most common cause of acute liver failure in United States
 - Patients forget that acetaminophen is present in many OTC medications
 - No more than 4000 mg acetaminophen/day
- Consider prescribing acetaminophen and/or NSAIDs separately

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3. Add oxycodone 2.5-5mg po q4hrs prn pain
4. Add morphine 1-2mg IV q4hrs prn pain

Mrs. M



- Schedule acetaminophen
 - 1000mg po TID

- Start a low dose of PRN opioid
 - E.g. oxycodone 2.5 – 5 mg po q4hrs prn pain, hold for sedation

Opioids in the Elderly

- Use low-dose opioids and follow closely
 - Liquid oral oxycodone can be helpful for very small doses in frail elderly
- Caution with morphine due to high prevalence of renal insufficiency
- Remember that pain and opioids can both contribute to delirium.

Mrs. M – the next night



- The nurse calls to say that Mrs. M is still in pain despite taking oxycodone 5 mg po q 4 hours prn with scheduled acetaminophen.
- You see her: she is alert, appearing uncomfortable, vitals stable.
- Says the oxycodone helps just a little.

What order would you write to try to improve Ms. M's pain control?

1. Add morphine 1-2mg IV q4hrs prn pain
2. Increase oxycodone to 7.5 mg po q 4 hours prn pain
3. Increase oxycodone to 5-15 mg po q 4 hours prn pain
4. Stop oxycodone and start controlled-release oxycodone (Oxycontin) 10 mg po q 12 hours scheduled

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 more than 100%
- Frequency of dose escalation:
 - Can usually increase short-acting opioids as often as q 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 medication is helpful for constant pain BUT
- Don't start long-acting opioids until pain relatively well-controlled.
- Long-acting usually used for pain that is expected to be relatively chronic.
- Consider scheduled short-acting opioids with “hold for sedation” order.

What order would you write to try to improve Ms. M's pain control?

1. Add morphine 1-2mg IV q4hrs prn pain
2. Increase oxycodone to 7.5 mg po q 4 hours prn pain
3. Increase oxycodone to 5-15 mg po q 4 hours prn pain
4. Stop oxycodone and start controlled-release oxycodone (Oxycontin) 10 mg po q 12 hours scheduled

Mrs. M 2 nights later



- Surgery has been delayed but is finally scheduled for tomorrow.
- The nurse calls to tell you that Mrs. M is strictly NPO, can she have IV meds to get her through the night?
- Pain has been relatively well controlled on oxycodone 7.5 mg po q 4 hours prn pain

What IV order would you write?

1. Morphine 1-2mg IV q4hrs prn pain, hold for sedation
2. Morphine 0.5mg IV q4hrs prn pain, hold for sedation
3. Hydromorphone 1-2mg IV q 4hrs prn pain, hold for sedation
4. Hydromorphone 0.2 mg IV q 2 hrs prn pain, hold for sedation

Narcotic Equianalgesic Doses

Drug	PO	IV
Morphine	30 mg	10 mg
Oxycodone	20 mg	---
Hydromorphone	7.5 mg	1.5 mg
Hydrocodone	30 mg	---

1 mg morphine IV \approx 0.15 mg hydromorphone IV

$$\frac{1.5 \text{ mg hydromorphone IV}}{10 \text{ mg MS IV}} = \frac{X}{1 \text{ mg MS IV}}$$

Narcotic Equianalgesic Doses

- Other conversions to remember:
 - One mg of IV morphine is roughly equivalent to 3 mg of oral morphine
 - One mg of IV hydromorphone is roughly equivalent to 5 mg of oral hydromorphone
 - One mg of IV hydromorphone is roughly equivalent to 13 mg oral oxycodone.

Principles of opioid conversion

- Start with the total used in the past 24 hours
- Use an opioid conversion chart or website
 - Hopweb.org is a good one
 - VA CPRS has one
- Decrease the dose by $1/3$ to $1/2$ for incomplete cross-tolerance
- Breakthrough dose = 10% of total daily dose
- Always consider asking for help when using a medication you have not used before.



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Opioid References

[Opioid Equivalency Table](#)

[Opioid Formulations](#)

[References](#)

[Abbreviations](#)

[About](#)

Current Regimen

Opioid	Dosage	
<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	

New Regimen

Opioid	
<input type="text"/>	<input type="button" value="Calculate"/>

Hopweb.org
Requires free registration and log-in

Opioid conversion: Mrs. M

- 7.5 mg of oxycodone q 4 hours is 45mg per day
- $\frac{2}{3}$ of 45 is 30 to reduce for incomplete cross-tolerance
- Using Hopweb or doing the math, 30 mg of oral oxycodone is 2.2 mg IV hydromorphone.
- 2.2 mg /12 times a day is about 0.2 mg IV q 2 hours prn.

What IV order would you write?

1. Morphine 1-2mg IV q4hrs prn pain, hold for sedation
2. Morphine 0.5mg IV q4hrs prn pain, hold for sedation
3. Hydromorphone 1-2mg IV q 4hrs prn pain, hold for sedation
4. Hydromorphone 0.2 mg IV q 2 hrs prn pain, hold for sedation

Ms. M 3 Days Later

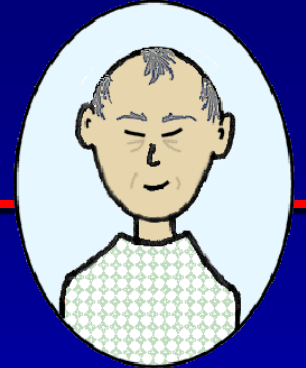


- Ms. M is POD#1 for surgical repair of hip
- Now complains of abdominal pain and no BM for 4 days.

Initiating Opioids

- Always consider prophylactic medications to prevent constipation
 - E.g. docusate 250 mg po bid *AND* senna 2 tabs po qhs
- If concern for prior opioid-induced nausea
 - Give an antiemetic with the opioid for approximately 3 days until tolerance to nausea side effect has developed
 - Ondansetron, metoclopramide, prochlorperazine (sedating)

Your new admission: Mr. G



- 73 yo gentleman
- Metastatic prostate cancer on hormonal therapy; receiving XRT to spine
- Admitted with increased pain and worsening renal failure, Cr of 3 from baseline of 1.2
- Meds – acetaminophen, morphine, ondansetron, bisacodyl PR

Mr. G



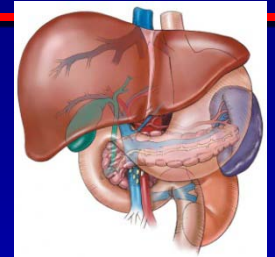
- You go see Mr. G:
 - Complains of baseline diffuse bony discomfort relieved by acetaminophen and morphine ER 60 mg po q 12hr + morphine IR two 15 mg tabs/day
 - Pain has been worse over the past few days
 - He is alert and oriented and uncomfortable
- Should he continue morphine?
- What can we do for his pain?

Opioids in Renal Insufficiency



- Methadone and fentanyl optimal
- Oxycodone and hydromorphone with caution
 - Hydromorphone preferred to oxycodone in dialysis patients
 - AVOID long-acting oxycodone (Oxycontin)
- AVOID morphine, codeine, and meperidine
- Reasonable starting regimens *might* include:
 - Oxycodone 2.5 or 5 mg po q 4 hours prn
 - Dilaudid 0.5 or 1 mg po q 4 hours prn

Opioids in Hepatic Insufficiency



- Fentanyl safe without dose adjustment
- Hydromorphone, oxycodone with caution
 - Consider extended dosing intervals (e.g. q 6 hours)
 - E.g Oxycodone 2.5 or 5 mg po q 6 hours prn
- Methadone not advised in severe liver failure, consult expert
- **AVOID** morphine, Oxycontin, meperidine

Mr. G: Conversion to Oral Hydromorphone

- Morphine ER 60 mg po q 12hr + morphine IR two 15 mg tabs/day = 120 mg + 30 mg = 150 mg total/day
- $150 \text{ mg morphine} \times \frac{7.5 \text{ mg oral hydromorphone}}{30 \text{ mg oral morphine}} = 37.5 \text{ mg hydromorphone}$
- Decrease dose by 1/3rd for incomplete cross tolerance = 25 mg oral hydromorphone/day
- So 4 mg oral dilaudid po q 4 hours scheduled, hold for sedation is new baseline dose
- Breakthrough dose = 10% of total daily dose = 2.5 mg hydromorphone po q 4 hours prn pain

Basics of PCA Orders

- Good option for patients in constant pain
 - But avoid in delirious patients!
- Consist of “lockout” dose q 6 – 10 minutes, clinician boluses, optional continuous infusion
- Standard order sets available at 3 hospitals
 - Reasonable to start at lowest dose in most cases e.g. lockout dose of 0.1 mg hydromorphone or 0.5 mg morphine q 6 minutes
 - BUT calculate equianalgesic dose if on opioids previously to make sure they will get enough.

Basics of PCA Orders

- Stop all previous opioids and benzodiazepines
- Some sedating medications are standard on PCA form (e.g. diphenhydramine, zolpidem)
 - Consider crossing these out
- Continuous infusion (“basal rate”)
 - Generally not part of initial order
 - Can be only at night or continuous
 - Do not increase more often than every 8 hours

When your patient can't swallow:

- IV is not the only option!
- Liquid oral opioids have buccal absorption
- Sublingual morphine also available
- Many options for antiemetics, too:
 - SL ondansetron, PR promethazine, etc.
- Fentanyl patch an option when pain controlled on other meds
- Talk to your pharmacist!

Mr. T

- RN calls you to report that Mr. T, a 25 yo male admitted last night with endocarditis, is becoming agitated, complaining of pain, and demanding...

“METHADONE!”

Mr. T – Sign-out

- 25 yo gentleman
- Full code
- Longstanding heroin addiction; admitted last night with presumed endocarditis
- Meds – vancomycin, acetaminophen
- NTD

Approach to Evaluating Patients with Opioid Withdrawal

- Know the signs & symptoms
 - pupillary dilatation, lacrimation, rhinorrhea, piloerection, yawning, sneezing, anorexia, nausea, vomiting, diarrhea
- Peak heroin withdrawal 36-72 hrs, lasts 7-10 d
- Peak methadone w/d 72-96 hrs, last >14 d
- Ask about:
 - other drugs the patient may be using illicitly
 - history of methadone maintenance
 - patient's wishes regarding detox or no detox during this trip to the hospital

Mr. T

- Patient denies other illicit drug use except for heroin
 - “I use 3 grams a day!”
- He wants methadone
 - Says he usually gets 120 mg a day when he is in the hospital

What order would you write for Mr. T?

1. Methadone 120mg po qday, hold for sedation
2. Methadone 20mg po q 12 hours hold for sedation
3. Oxycodone 5-10mg po q4hrs prn withdrawal symptoms

Management of Opioid W/D in Patients Not Requesting Detox

- Treat or prevent acute withdrawal
 - Otherwise medical condition may not be adequately managed
- Methadone starting dose
 - Methadone 20 mg po q 12 hours hold for sedation
 - Could also consider 20 mg q 8 hours
 - Pharmacist can investigate previous doses
- If acute pain as well, give short-acting opioids

Management of Opioid W/D in Patients Requesting Detox

- Treat symptoms
 - clonidine = GI distress, diaphoresis, piloerection, muscle aches
 - NSAIDS = muscle aches
 - promethazine (Phenergan) = nausea
 - hydroxyzine (Vistaril) = itching, agitation
 - Immodium = diarrhea

What order would you write for Mr. T?

1. Methadone 120mg po qday, hold for sedation
2. Methadone 20mg po q 12 hours hold for sedation
3. Oxycodone 5-10mg po q4hrs prn withdrawal symptoms

Mr. T – 10 Days Later

- RN calls you on crosscover to report that Mr. T is becoming agitated, complaining of pain, and demanding...

“MORE METHADONE!”

Mr. T – Sign-out

- 25 yo gentleman
- Full code
- Longstanding heroin addiction; endocarditis
- Meds – nafcillin, gentamicin, rifampin, methadone 60mg qam, acetaminophen
- NTD

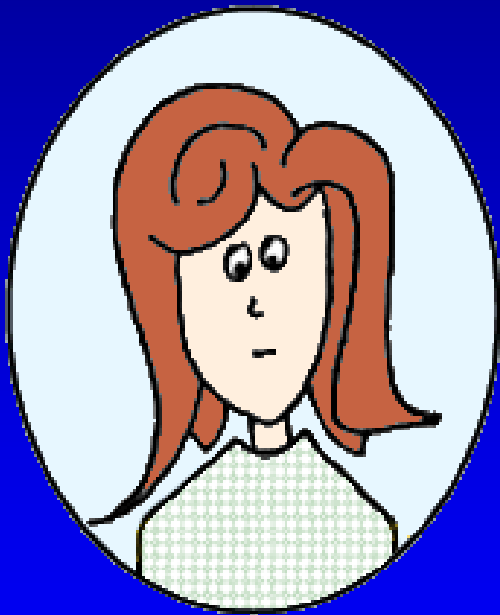
Methadone in General

- Some meds decrease methadone level
 - Rifampin
 - Phenytoin, steroids, carbamazepine, some antiretrovirals
- Some meds increase methadone levels
 - Amitriptyline, ketoconazole, macrolides, fluoroquinolones, SSRIs, diazepam

Methadone in General

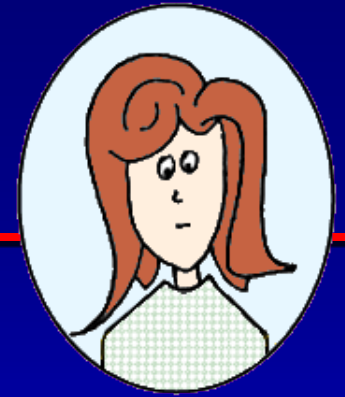
- Long, variable half-life (up to 190hrs)
- In general, do not increase dose more than once every 3-4 days
- Always write “hold for sedation”
- Dose conversion complex...involve pharmacy

Ms. D



- RN calls to report that Ms. D is having new 6/10 suprapubic pain
- Acetaminophen 500 mg po q4hrs prn not helping

Ms. D – Sign-out



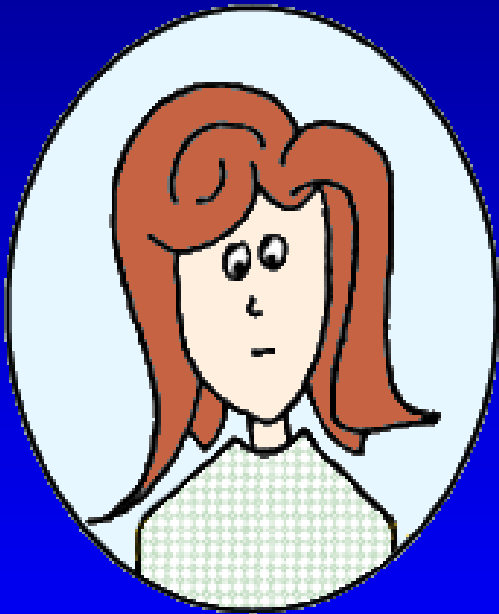
- 41 yo woman
- Metastatic breast cancer to brain
- Admitted for pain control and brain XRT
- Meds – prednisone, morphine (recently increased), acetaminophen, ondansetron
- NTD

Some Side Effects of Opioids

- Urinary retention
 - Rx: Foley, decrease opioid dose, BPH meds in men
- Constipation
 - Rx: senna, docusate, polyethylene glycol, MOM, lactulose, bisacodyl, enema
- Drowsiness: often goes away after 1-2 days
- Nausea: often goes away after a few days; always make sure they are not constipated!
 - Rx: ondansetron, metaclopramide, prochlorperazine
- Confusion
 - Search for underlying causes other than opioids
- Myoclonus
 - Reduce dose or change to a different opioid

Ms. D – 3 Days Later

- RN calls to report that Ms. D is not arousable and RR 8



Naloxone

- RR 8-12/min in resting patient is usually OK (especially if the goal of care is comfort)
- In patients on chronic opioids, naloxone can precipitate withdrawal & pain
- If you must give naloxone to patient on chronic opioids:
 - Dilute 1 amp (0.4mg) in 10 ml of saline and give 1ml IV (0.04 mg) q5 minutes
- Can use higher dose in emergent situation (e.g. 0.2 mg)

Who to call for help

- Senior resident (always the first call)
- Pharmacist (always available)
- Pain Service (Acute or Chronic)
- Palliative Care

- There are no badges for independence, bravery, courage



Thank You

- Moe Hagman, MD
- Elena Meeker, PharmD

Questions?

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