

ACUTE PAIN MANAGEMENT

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Disclosure

- Medicis
- Medtronic



Case Presentation #1

- cc: abdominal pain
- HPI:

Mr. B is a 44 year old gentleman with history of HTN, CHOL, and pancreatitis seen in the ED for abdominal pain. The pain is epigastric, sharp, rated 8/10 with radiation into the back. The pain increases with coughing, sneezing and ingestion of food. He reports associated nausea and vomiting, with pain that is constant and occasionally flares.

Case Presentation #1

- GI – He denies hematemesis, hematochezia, or BRBPR. He has not noticed a change in bowel habits in the last few weeks. No history of alcohol use in the last week.
- GU – No dysuria, or associated flank pain. No fevers, chills, or history of stones.
- Vascular – Denies any postural hypotension or dizziness.

Case Presentation #1

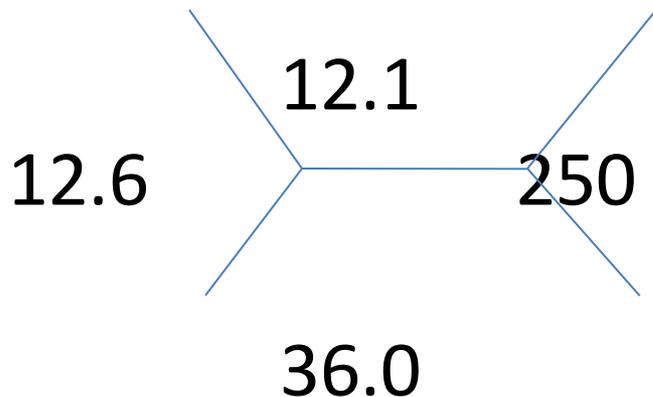
- PMHX: HTN, CHOL, Pancreatitis
- PSHX: Open Cholecystectomy 2003
- FMHX: Non-contributory
- SHX: Married, Business, 1ppd cigs, + ETOH
- ALL: NKDA
- MEDS: Amlodipine, Atorvastatin, Ibuprofen prn
- ROS: Abdominal pain

Case Presentation #1

- Exam: VSS
- GEN: WN/WD, MILD DISTRESS
- SKN: DECREASED TURGOR, NO LESIONS
- COR: TACHYCARDIC, S1/S2
- LNG: CLEAR x 4
- ABD: MILD TTP EPIGASTRIUM, +BS
- EXT: NO CLUBBING/CYANOSIS
- VAS: PULSES 2/4
- NRO: A x O, NFND

Case Presentation #1

- LABS: Amylase 287 Lipase 148



- IMAGING: CT
 - Peripancreatic/mesenteric fat stranding
 - Status post Cholecystectomy

Case Presentation #1

- Differential: pancreatitis, peptic ulcer disease, nephrolithiasis, inferior MI, AAA tear/rupture, esophageal tear/rupture, small bowel obstruction
- Assess: 44 yr old gentleman with history indicative of recurrent pancreatitis and severe pain. The patient has significant nausea and vomiting which limits the amount of oral medications that can be given

Case Presentation #1

- Plan:
 - PCA
 - Loading dose
 - Trigger dose
 - Basal dose
 - Lock out
 - Haldol
hours PRN
 - Benadryl
hours PRN
 - Narcan
- Dilaudid
- 0.5mg x 1
- 0.2mg q 10 minutes
- 0.0mg/hr
- 10 minutes
- 1 mg IV q 4-6
- 25mg IV Q 6
- At bedside (if possible)



Case Presentation #1

- PCA Indications
 - Moderate to severe pain
 - Patients requiring rapid opioid titration
 - Patients with incident pain
 - Patients with severe nausea and pain
 - Patients with changing pain intensity
 - Admission expected to last > 48 hours

Case Presentation #1

- Outcomes
 - Improved pain relief
 - Improved satisfaction
 - Less drug consumption
 - Less post-op complications
 - Less painful than IM/SQ injections



Case Presentation #1

- Patient Selection
 - Demented or delirious patients
 - Comatose or sleep apnea patients
 - Patients with poor hand function
 - Patients with significant language barriers
 - Patients with poor renal function
 - Patients under the age of 7 years

Case Presentation #1

- Side Effects

- N/V 30%, highest incidence day 1
- Itching histamine effect
- Sedation highest incidence day 1
- Resp. depression rare side effect, <1%

care in renal dysfxn

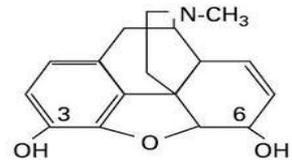
Morphine Sulfate

PRO

- Familiarity
- Standard Dosing
- Relative Safety

CON

- Fear
- Metabolite side effects
- Increased N/V
- Histamine release
- Pruritus
- Hypotension



Morphine

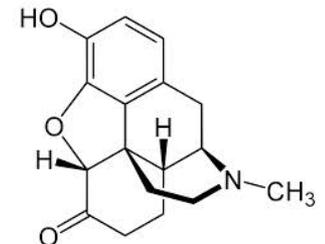
Hydromorphone

PRO

- Less N/V
- Relatively safe

CON

- Lack of familiarity
- Expensive



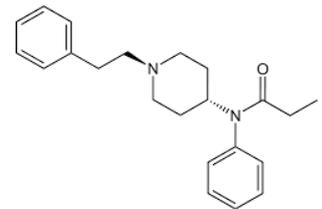
Fentanyl

PRO

- Fast
- Less N/V
- Relatively safe
- Short in duration

CON

- Short half-life
- Frequent dosing
- Expensive



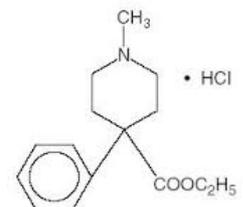
Meperidine

PRO

- Quick
- Less Biliary Tract Spasm
- Less N/V

CON

- Seizures
- Abuse
- Low potency



Dosing

- The best predictor for opioid dose is age
- Despite this, we still use the patient's weight
- With age, opioid requirements change due to:
 - Excretion
 - Metabolism
 - Drug distribution changes



Example: Morphine

- Loading dose
 - 0.04mg/kg lean body weight
 - $70\text{mg} \times 0.04\text{mg/kg} = 2.8\text{mg}$ (3.0mg)
- Trigger dose
 - 0.02mg/kg lean body weight
 - $70\text{mg} \times 0.02\text{mg/kg} = 1.4\text{mg}$ (1.0mg)
- Lockout interval
 - 10 minutes standard (6 – 20 minutes)

Example: Hydromorphone

- Loading dose
 - 8mcg/kg lean body weight
 - $70\text{kg} \times 8\text{mcg/kg} = 560\text{mcg}$ (0.5mg or 0.6mg)
- Trigger dose
 - 4mcg/kg lean body weight
 - $70\text{kg} \times 4\text{mcg/kg} = 280\text{mcg}$ (0.2mg or 0.3mg)
- Lockout interval
 - Same as with morphine 6/10/15/20

Other Concepts

- Lean Body Weight
 - Male
 - $50\text{kg} + 2.3(\text{height in inches over } 60 \text{ inches})$
 - Female
 - $40\text{kg} + 2.3(\text{height in inches over } 60 \text{ inches})$
 - 1 Hour Limit
 - Max PCA dose + hourly rate



Side Effects

- Respiratory Depression
 - Narcan
 - 0.4mg ampule
 - Works in 2-3 minutes (action up to 1 hour)
 - Titrate to avoid withdrawal, severe pain, and seizure
 - May require IV drip to avoid respiratory depression
- ie. 0.4mg in 10cc NS – administer 1 cc aliquots

Side Effects

- Constipation
 - Stool softener and laxatives
- Pruritis
 - Benadryl 25mg IV or PO q 6 hours
 - May also decrease basal or trigger dose
- Nausea/Vomiting
 - Metoclopramide 10mg IV or PO q 6 hours
 - Haloperidol 1mg IV or PO q 6 hours

Basal PCA

PRO

- Good for chronic opioids
- Allows sleep through the night
- Can help with especially painful surgery

CON

- Removes intrinsic safety
- Requires close supervision
- 24 hour usage is generally the same

Basal PCA

- PROS
 - Better sleep
 - Lower effort dependent pain score
 - Useful in Thoracic/GI/Pelvic surgery
 - Useful in patients on chronic opioid therapy

Basal PCA

- CONS
 - Decreased safety
 - Careful monitoring
 - Higher side effects
 - Does not change 24 hour dosing

Transition to Orals

- Calculate total usage over 24 hours
- Convert PCA dose to oral dose by equianalgesic chart
- Consider scheduled Acetaminophen for dose reduction
- Wait 90 minutes after the first dose before PCA stopped
- Wait for the peak effect of SR oral med before stopping the PCA (usually 6 hours for MSO4)

Case Presentation #2

- cc: hip pain
- HPI: 76 year old gentleman with history of HTN, DM, and prostate CA admitted to the hospital for right hip pathologic fracture. Patient's creatinine is 1.8.
- How would you manage his pain?

Case Presentation #2



Case Presentation #2

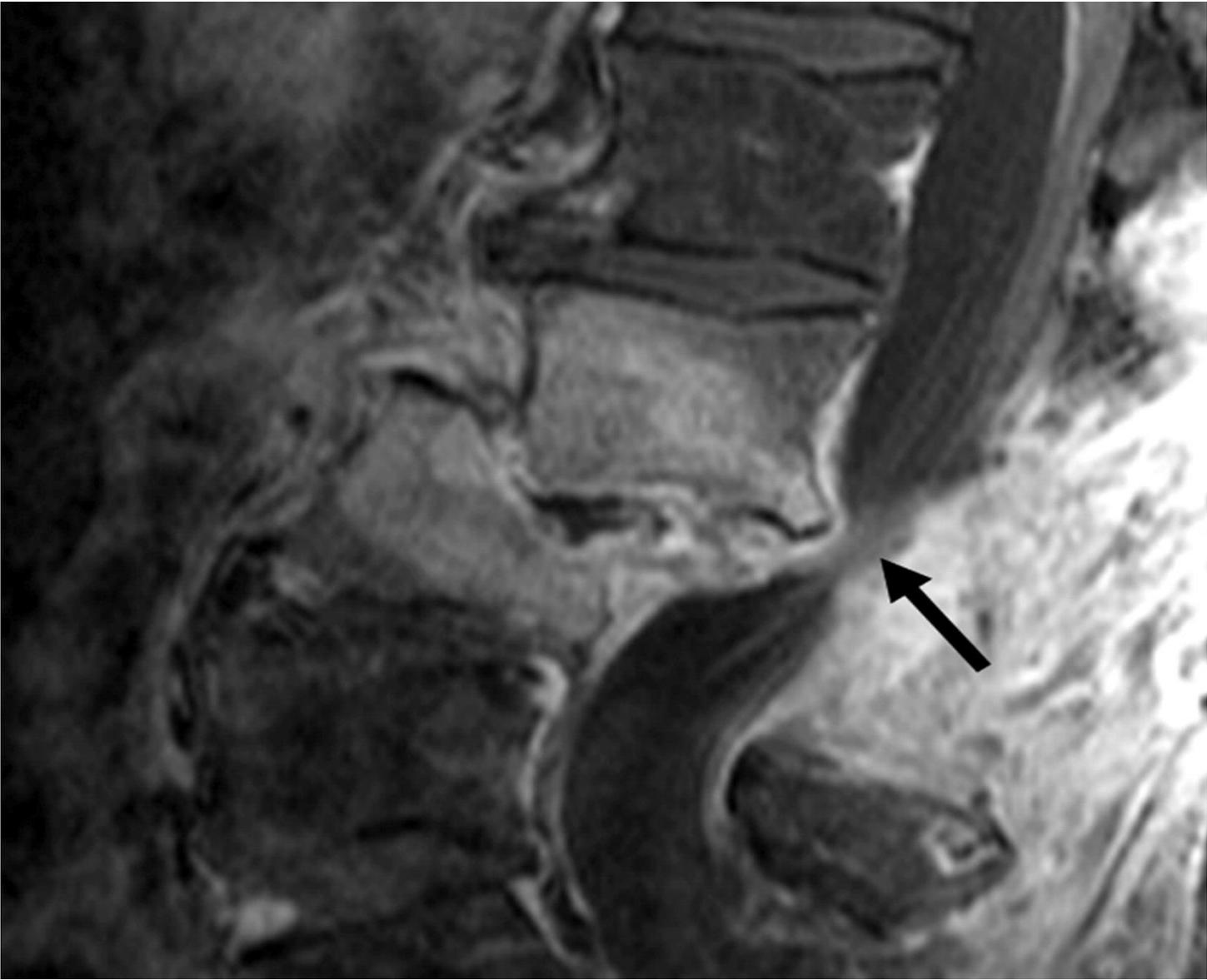
- Fractures are painful
- Starting a PCA with a loading dose may help
- The medication chosen should be safe for impaired renal and hepatic function
- Adjuvant therapies from different drug classes may help decrease pain (ie. muscle relaxants, alpha-2 delta, etc.)
- The route of medications given should keep in mind the upcoming surgery and potential NPO status
- With cancer related issues, get Oncology and Medicine on board early as radiation and calcitonin may also decrease bone pain in some cancers

Case Presentation #2

- Keep in mind the amount of opioid the patient was on prior to admission (tolerance)
- That amount may serve as a basal if kidneys and liver are ok
- In this patient, choosing Dilaudid or Fentanyl PCA may be appropriate
- After surgery, consider oral Oxycodone or Dilaudid

Case Presentation #3

- cc: severe back pain
- HPI: 43 year old woman with history of depression, and rheumatoid arthritis is admitted for severe back pain and lower extremity weakness. Her MRI shows L3 osteomyelitis and discitis.
- How would you manage this patient's pain as an inpatient?
- Would you consider adding a long acting medication?
- What would you use as an adjuvant?
- What happens if pain reports rise during treatment?



Case Presentation #3

- First, decide if surgery is planned
- If surgery is planned, consider PCA
- If surgery is not planned, consider potent short acting agent such as Morphine, Oxycodone, or Dilaudid
- Avoid combination agents in situations where ultimate dose is unknown (avoids excess Acetaminophen)
- Patients do not need to be started on long acting agents immediately – even if therapy is planned for some time

Case Presentation #3

- Once the patient is on a stable regimen, transition to long acting agent if expected duration of healing is prolonged
- Choose a long acting agent that provides what is needed, for example, neuropathic pain + nociceptive pain = Methadone or Levorphanol
- Other agents include: Morphine, Oxycontin, Fentanyl, Dilaudid, and now Hydrocodone

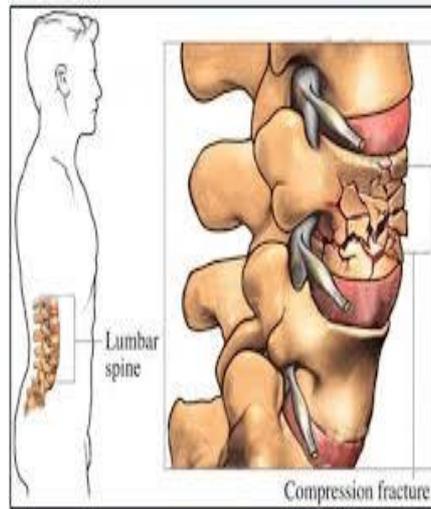
Case Presentation #3

- Consider adjuvants:
 - Neuropathic pain may respond to anti-epileptics, and tricyclic antidepressants
 - Nociceptive pain may respond to muscle relaxants and bony pain NSAIDs
- Consider precautions:
 - EKG, Renal/Hepatic function, surgery and non-union rates
 - Check ESR or CRP periodically – if they continue to rise despite antibiotics, then increases in pain may also spell more tissue destruction and pain
 - Some SSRIs may alter P450 2D6 function – be aware of this possibility

Case Presentation #4

- cc: fracture pain
- HPI: 32 year old man with history of bipolar disorder and polysubstance abuse (ETOH and heroin) is admitted for multiple fractures after being hit by a vehicle while intoxicated. Has pain in the legs and back with radiation into the legs. CT scan of the body shows tibia-fibula fractures bilaterally and fracture of L1.
- Knowing this patient's history, how would you treat his pain?
- What about his recent history of ETOH/cocaine abuse?

Fractures



Case Presentation #4

- Despite history, patients in acute pain should be treated
- Addiction and psychosocial issues can be addressed while the patient is being treated, but should not mean reduced pain medications
- Getting specialists on board early is helpful – Psychiatry to assess for untreated depression, anxiety, and factors that are influencing addiction and possibly suicidality

Case Presentation #4

- Patients with a history of abuse may go into withdrawal while in-house – provide medications as needed, including benzos
- Patients with a history of abuse are often tolerant and may require significantly higher doses than non-abusers
- Try and get Addiction Medicine to see patient if possible – if not, do not initiate Methadone for “addiction”
- If the patient is on Methadone already for addiction, do not change or alter dose – discuss with their treatment facility first

Case Presentation #4

- If patient is on Methadone already, realize pain half-life and drug half-life are different
- Avoid IV breakthrough medications once the patient is clinically stable
- Try and use agents that don't cause euphoria
- Rational polypharmacy is reasonable in this patient

Case Presentation #4

- In this patient, consider PCA
- After surgery, rapidly transition to long/short acting meds
- Add adjuvants as needed for different pain types
- Avoid NSAIDs and IV breakthrough medications

FDA

- Acetaminophen content lowered
- Hydrocodone/Acetaminophen changed to schedule II
- Shorter duration between visits if opioids prescribed

FDA

- Labeling to say the drugs are: "indicated for the management of pain severe enough to require daily, around-the-clock, long-term opioid treatment **and** for which alternative treatment options are inadequate."
- The "limitations of use" portion of the new labeling retains language indicating that the drugs are not intended for use as an **"as-needed"** pain reliever. Furthermore, the new labeling adds: "Because of the risks of addiction, abuse and misuse with opioids, even at recommended doses, and because of the greater risks of overdose and death with extended-release opioid formulations, reserve [Tradenname] for use in patients for whom alternative treatment options (e.g., non-opioid analgesics or immediate-release opioids) are ineffective, not tolerated, or would be otherwise inadequate to provide sufficient management of pain."

Clinical practice

- If planning on initiating opioids document why?
- Establish an informed consent in medical records
- Consider random urine toxicology screens
- If suspect abuse, diversion, misuse consider referral

Clinical practice

- Avoid dose escalation without examination
- Avoid meds that potentiate opioid
- Avoid prescribing Methadone unless very familiar
- Check state PDMP program to ensure safety of patient

Summary

- All patients deserve good pain management
- Pain management may include opioids as an option
- Use adjuvants as necessary to lower opioid doses
- Consider patient comorbidities when choosing a drug
- Keep in mind drugs that may alter opioid metabolism
- Get consultation early

The End

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- <http://www.hopweb.org/hop/login.cfm>
- www.globalrph.com/narcoticonv.htm

