

Pain Management Case Studies

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IMPROVING END-OF-LIFE CARE A RESOURCE GUIDE FOR PHYSICIAN EDUCATION

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**David E. Weissman, MD
Director, Palliative Care Program
Medical College of Wisconsin
Milwaukee, Wisconsin**

**Bruce Ambuel, PhD
Waukesha Family Practice Program
Medical College of Wisconsin
Milwaukee, Wisconsin**

**James Hallenbeck, MD
Stanford University
VA Palo Alto Health Care System
Palo Alto, California**

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CASE STUDIES

Case 1. SELECTION AND TITRATION OF OPIOIDS FOR SEVERE PAIN

Objectives

1. List barriers to analgesic management
2. Practice writing analgesic orders for severe pain
3. Practice equianalgesic conversion calculations

Case 2. DIFFERENTIATING “REAL” PAIN FROM ADDICTION

Objectives

1. Examine personal attitudes towards drug addiction and pain management.
2. Define tolerance, physical and psychological dependence (addiction).
3. Plan a pain management strategy for a patient with a history of substance abuse.

Case 3. RESPIRATORY DEPRESSION---USE OF OPIOIDS

Objectives

1. Describe patient and drug risk factors for opioid-induced respiratory depression.
2. Plan a management strategy for avoiding respiratory depression.
3. Plan a management strategy for suspected opioid-induced respiratory depression in a dying patient.
4. Explain the difference between euthanasia, physician-assisted suicide and good pain management.

Case 4. MANAGEMENT OF SEVERE MIXED SOMATIC AND NEUROPATHIC PAIN

Objectives

1. Differentiate between somatic and neuropathic pain.
2. Describe drug and non-drug treatment strategies for somatic and neuropathic pain.
3. Develop a management plan for a common cancer-related pain syndrome.

CASE 1. SELECTION AND TITRATION OF OPIOIDS FOR SEVERE PAIN

Objectives

1. List barriers to analgesic management
2. Practice writing analgesic orders for severe pain
3. Practice equianalgesic conversion calculations

A 50 y/o patient with metastatic breast cancer is admitted to the hospital at 1 a.m. because of severe neck pain. She is unable to move her head due to pain which has gradually worsened over two weeks. She has been taking an increasing amount of Percocet with little effect, most recently two Percocet q4h. She is seen by the on-call physician and the following orders are written. Morphine 10-15 mg po q4-6h prn severe pain, Tylenol #3 1-2 po q6h prn mild-moderate pain. Diagnostic x-rays have been ordered to evaluate for possible spinal cord compression.

The next morning (8 hours after admission) she is still in severe pain, no better than she was before admission, none of the diagnostics have been done because the patient was in too much pain. You check the chart and find there have been several one-time verbal orders for IV morphine 2 mg. You discuss the situation with the current nurse who relates that during the night, the physician-on-call was reluctant to increase the medicine out of fear of respiratory depression.

QUESTIONS:

1. List at least 4 problems with the analgesic orders as written.
2. For the drugs listed below, calculate the 24 hour dose that would be equianalgesic with 2 Percocet q4h. (Each Percocet contains 5 mg of oxycodone and 325 mg of acetaminophen.)

oral MSIR (morphine immediate release)
oral MS Contin or Oramorph SR
IV MS infusion
Subcutaneous MS infusion
oral hydromorphone (Dilaudid)
Transdermal fentanyl
3. What is a reasonable time frame in which to expect improved analgesia?
4. What principles would you use to decide how fast and by how much you would dose-escalate the opioid dose?
5. What would have been a better way to write the admission analgesic orders. List two sets of admitting orders, one using oral opioids, the other using parenteral opioids.

Case 1. Faculty Guide—Case of inadequately prescribed opioids

1. Allow the participants to express their ideas about better admitting orders; when to use prn vs. non-prn dosing; discuss the problems associated with the use of dosing ranges. The problems with the orders as written include a) range of doses, b) range of dosing intervals, c) prn dosing for continuous pain, d) use of descriptors--mild, moderate, severe.

2. Equianalgesic calculations:

a) 2 Percocet q4h = 10 mg oxycodone q4h = 60 mg oxycodone/24 hours

Look up the equivalent analgesic doses of oral oxycodone and oral morphine in any current equianalgesic table: 30 mg oral oxycodone is equivalent to 30 mg oral morphine.

Therefore 60 mg oral oxycodone/24 hrs = 60 mg or oral MS/24 hours

= 10 mg MSIR q4h = 30 mg MS Contin or Oramorph SR q12h

b) Look up the equivalent analgesic doses of oral oxycodone and parenteral morphine in an equianalgesic table: 30 mg PO oxycodone is equivalent to 10 mg parenteral morphine

$$\frac{30 \text{ mg PO oxycodone}}{60 \text{ mg PO oxycodone}} = \frac{10 \text{ mg IV morphine}}{X \text{ mg IV morphine}}$$

X = 20 mg IV morphine/24 hours or approx. 1 mg IV morphine/hr

c) and d) Doses of subcutaneous and intravenous morphine are the same.

e) Look up the equivalent analgesic doses of oral oxycodone and oral hydromorphone in an equianalgesic table:

30 mg oral oxycodone is equivalent to 7.5 mg oral hydromorphone

$$\frac{30 \text{ mg PO oxycodone}}{60 \text{ mg PO oxycodone}} = \frac{7.5 \text{ mg PO hydromorphone}}{X \text{ mg IV morphine}}$$

X = 15 mg PO hydromorphone/24 hours = Dilaudid 2.5 mg q 4h

f) the manufacturer suggests that a 25 ug fentanyl patch is equivalent to 45-134 mg oral MS/24 hours. Therefore the calculated oral morphine dose of 60 mg/24 hours would suggest an equianalgesic dose of fentanyl would be 25 ug q 72 hours. A more user friendly way to convert morphine to fentanyl is:

{ 24 hr oral morphine dose in mg/2 = Fentanyl patch size }

3. Discuss a reasonable time frame in which to expect better analgesia: certainly within the first 1-2 hours a patient in severe pain should be at least 50% improved and have improvement in ADL's. The important point is that the dose of opioid can and should be adjusted frequently within the first few hours if pain is not quickly relieved. If rapid dose adjustments fail to make any impact then other measures will be needed.
4. As a general rule, for moderate-severe pain dose escalate by 50-100%; for mild pain increase by 25% . Always dose escalate by a percentage of the prior dose (no matter what the current basal dose is). Short acting opioids (MSIR, Oxycodone, Dilaudid) can be dose escalated q1hr, while MS Contin/Oramorph SR/Oxycontin q 24 hr; the Fentanyl Patch and methadone can be dose escalated no more frequently than q 48-72h. When IV infusions are increased a bolus dose should be given to rapidly increase blood levels.
5. Discuss a reasonable set of admitting orders (there is no "right" answer), e.g. calculate appropriate starting doses for oral and parenteral morphine.

Oral dosing:

- 1) MS 20 mg po q4h with MS 10 mg q1h prn pain or
- 2) MS Contin 60 mg q 12 with MS 10 mg q 1h prn
- 3) Call the MD within 1 hour to report on patients condition

IV dosing:

- 1) MS drip 2 mg/hr after a bolus dose of 5-10 mg IV with 5 mg q 15 min prn
- 2) Call MD with 1 hour to report on patient's condition.

CASE 2. DIFFERENTIATING “REAL” PAIN FROM ADDICTION

Objectives

1. Examine personal attitudes towards drug addiction and pain management.
2. Define tolerance, physical and psychological dependence (addiction).
3. Plan a pain management strategy for a patient with a history of substance abuse.

A 25 y/o man has been hospitalized for 2 weeks with newly diagnosed lymphoma. He is being treated with combination chemotherapy. Ten days after the start of chemotherapy he develops severe pain on swallowing--upper GI endoscopy reveals herpes simplex esophagitis. He is unable to eat solid foods due to the pain although he can swallow some liquids. The pain is described as "really bad" and is not relieved by acetaminophen with codeine elixir ordered q4h prn.

The patient repeatedly asks for something for pain prior to the 4 hour dosing interval and is often seen moaning. The physician is concerned about using an opioid of greater potency or administering opioids more frequently because the patient admitted to a history of poly-drug abuse, although none in the last two years. The nurses are angry at the patient because of the repeated requests for medication and have written in the chart that the patient is drug seeking, possibly an addict.

You are asked to see the patient as a "pain consultant". After your assessment you recommend a change to MSIR Elixir 15 mg q3-4 around-the-clock. The resident calls you after reading your consult note and says: "I appreciate your consult but I really think this patient is drug seeking and I don't feel comfortable with your recommendations--let me think it over, I was thinking of asking a psychiatrist to see him to help with addiction management." The next day you check the chart and find that your suggestion has not been taken but the acetaminophen with codeine was discontinued in place of oxycodone/acetaminophen elixir q4 prn (equivalent to one Percocet Q4). Over the next several days the patient is still complaining of pain with no new analgesic orders.

QUESTIONS:

1. Put yourself in the position of the resident physician or staff nurse---what are their major concerns about providing stronger analgesics to this patient? List at least four fears/concerns.
2. Is this patient a drug addict? List criteria you would use to decide that the patient was drug seeking for illicit or euphoric purposes rather than for relief of pain?
3. As the pain consultant what would you do? What arguments or educational techniques could you use to help convince the resident to follow your recommendations?

Case 2. Faculty Guide Pain vs. Addiction

The primary goals of this case are to have participants discuss their own feelings about psychological dependence as a barrier to the prescribing of opioids and to better understand the fears/concerns of their colleagues.

First it will be important to determine that the participants know the meaning of the terms tolerance, physical and psychological dependence (addiction) and then to determine how their concerns about these phenomena affect prescribing, dispensing or administering.

Questions:

1. common fears that will likely be discussed (if not you should discuss them):
 - ✓ fear of making the patient an addict
 - ✓ fear of loss of control as the health care provider ; fear of being duped
 - ✓ fear of malpractice--if patient sues you for making him an addict
 - ✓ fear of regulatory review
 - ✓ fear of respiratory depressions--esp. for nurses the "I gave the last dose then he died"
 - ✓ fear of negative sanctions by colleagues or hospital

2. make a list on the flip-chart that participants come up with as possible criteria for drug addiction--it will likely look something like this:
 - a) body language
 - b) facial grimacing
 - c) clock watching
 - d) demanding behavior
 - e) finding used syringes/needles in the room
 - f) being overly sedated after "friends" visit
 - g) any past history of drug abuse
 - h) asking or demanding specific drugs
 - i) having drug allergies to many opioids (typically to morphine but not to Dilaudid or Demerol)
 - j) admitting to living in an environment where family/friends are actively using drugs

Discuss that items a-d are consistent with either true addiction or pseudo- addiction there is no way to differentiate without further information or a trial of better pain relief. Items e-f are pretty good indicators of true addiction, esp. e). Items h) , i) and j) are suggestive but not diagnostic, item g) only indicates past history but says nothing about the present.

The total pattern of behavior and current and past history is necessary to make the diagnosis of substance abuse. Ensure that everyone understands the definitions and differences between tolerance, physical and psychological dependence (addiction); if needed, review the DSM IV criteria for substance abuse/substance dependence and pain disorders.

3. Discuss techniques for dealing with reluctant clinicians:

assessment--improve the assessment process so that patients are participating more in their care, review in greater depth the history of drug abuse, any history of drug abuse treatment, and explore patient concerns re: drug use.

reverse role-playing--have one team member play the patient and ask his/her response (what would you do) to inadequate treatment of severe pain.

provide positive information to clinicians--make sure they understand what addiction is and is not; make sure they understand the consequences of untreated pain--provide resource material.

cognitive therapy--have clinicians discuss the worst possible consequences to providing more analgesics--malpractice, respiratory depression, negative sanctions by colleagues or state regulatory authorities and allow them to understand that their fears are generally not based in reality (however, in some states the threat of regulatory scrutiny is real--this issue should not be dismissed lightly).

patient involvement--make sure everyone understands that the patient should be included when establishing a care plan.

CASE 3. RESPIRATORY DEPRESSION --- USE OF OPIOIDS

Objectives

1. Describe patient and drug risk factors for opioid-induced respiratory depression.
2. Plan a management strategy for avoiding respiratory depression.
3. Plan a management strategy for suspected opioid-induced respiratory depression in a dying patient.
4. Explain the difference between euthanasia, physician-assisted suicide and good pain management.

A 76 y/o man is in a home hospice program with end stage metastatic prostate cancer and severe COPD. He complains of back pain secondary to multiple bone metastases. He rates the pain at 9/10, severely limiting his movement. The pain is poorly relieved by 120 mg q8h of Oramorph SR and ibuprofen 600 mg q6h. The patient understands his condition is "terminal" and wants maximal pain relief. He does not wish to return to the hospital for any further tests or procedures since he has already had maximal doses of radiation, ⁸⁹Strontium, and hormonal therapy.

The home hospice nurse contacts the primary physician and asks to have the dose of opioid increased, the physician agrees--the new order is for Oramorph SR 150 mg q8 with MSIR 15 mg. q4 for breakthrough pain. Two days later the nurse calls the physician saying that the increased dose has not reduced the severity of pain and the dose of breakthrough MS is not effective either. The nurse suggests increasing the Oramorph SR to 300 mg. q8h. The physician explains to the nurse that due to COPD the patient is at great risk for opioid-induced respiratory depression and that other, non-opioid, analgesic modalities should be tried rather than increasing the Oramorph SR.

QUESTIONS:

1. What are the patient and drug risk factors for respiratory depression?
2. If the patient's respiratory rate dropped to 6-8 breaths/min while he was asleep what would you do?
3. What would be your legal liability if this patient died soon after a dose of morphine? Would this be euthanasia?

Case 3. Faculty Guide Respiratory depression

1. Tolerance develops rapidly to the CNS depressant effects of opioids. Risk factors for respiratory depression include: rapid dose escalation, particularly of methadone, fentanyl patch or levorphanol, rapid bolus IV dosing or new liver or renal dysfunction.
2. A falling respiratory rate is normal when patients receive opioids, especially while sleeping. The first step in management is to assess level of consciousness. If the patient is not arousable, and it makes sense given the clinical circumstance (i.e. not imminently dying or expected death, Narcan can be administered by IV bolus or by slow IV infusion (dilute one amp in 10 cc of saline, give 1 cc every 60 seconds until level of consciousness increases). The latter is generally preferred in non-emergency situations, as a slow infusion can reverse opioid effects in a step-wise fashion--(coma sleep awake with analgesia)—without inducing opioid withdrawal and severe pain. →
3. Discuss concerns about a patient dying while receiving morphine: there is nothing ethically or legally inappropriate about a patient dying on a morphine infusion or after a bolus dose as long as the intent was to relieve pain. However, death directly attributable to opioid-induced respiratory depression should occur very rarely.

Definitions:

Euthanasia—intentionally causing the death of a patient through the direct administration of a drug or device with the intention of causing death.

Physician-Assisted suicide—providing the patient with a means to end their life (typically giving the patient a prescription for a lethal dose of a medication, to take at the time/place of their choosing).

Good Pain management—providing sufficient medication with the **intent** to relieve suffering; the risk of iatrogenic respiratory depression when managed carefully is extremely small, even shortly before death. Fohr SA.

Excellent Resource: Fohr S. The double effect of pain medication: separating myth from reality. *J Pall Med* 1998; 1:315-328.

CASE 4. MANAGEMENT OF SEVERE MIXED SOMATIC AND NEUROPATHIC PAIN

Objectives

1. Differentiate between somatic and neuropathic pain.
2. Describe drug and non-drug treatment strategies for somatic and neuropathic pain.
3. Develop a management plan for a common cancer-related pain syndrome.

A 50 year old man with squamous cell lung cancer develops progressive right-sided pelvic pain in the region of known pelvic metastases. He describes dull-aching pain rated at 8/10 in the lateral pelvis and sharp shooting pain that radiates down the right leg. The pain limits mobility and awakens him from sleep. He has no focal motor or sensory deficits. An X-ray shows a large lytic metastasis in the lateral pelvis. He is referred to a radiation oncologist who recommends a course of palliative XRT at 300 cGY per day for 10 days (total dose 3000 cGY).

The patient has been taking MS-immediate release, 30 mg every 4 hours, which worked until the past week. He currently takes this dose every 4 hours but his pain only decreases from 8/10 to 6/10 for 1-2 hours at best.

QUESTIONS:

1. Classify this patient's pain type.
2. How soon should analgesia begin from the XRT?
3. When would you expect the maximal benefit from the XRT?
4. How would you change his opioid prescription to provide better analgesia? List three alternative strategies: drug, dose and dosing intervals.
5. If you decide to use an anti-depressant as an adjuvant, what drug and dose would you start with? How fast would you escalate the dose and what end-point would you use to decide if the drug is not effective and should be stopped?
6. If you decide to use an anti-convulsant as an adjuvant, what drug and dose would you start with? How fast would you escalate the dose and what end-point would you use to decide if the drug is not effective and should be stopped?
7. What other adjuvant drugs might you consider? In what dose and schedule?
8. How would you integrate behavioral treatments into the pain management strategy?
9. If oral drug therapy and radiation therapy fail to control his pain what other strategies could you use? List three in order of preference.

Case 4. Faculty Guide

1. Pain type - mixed, both somatic and neuropathic
- 2-3. Analgesia typically begins within a few days, maximal analgesia 2-4 weeks after the completion of XRT.
4. Multiple options: current dose of 30 mg q4 (180 mg/day) should be increased by 50-100%
 - a) increase to MSIR 45-60 mg q4h scheduled; plus same dose q 1-2 h prn breakthrough pain;
 - b) start MS Contin or Oramorph SR at 150 q12h plus breakthrough MSIR at 45-60 mg q1-2 h;
 - c) start fentanyl patch - $\frac{1}{2}$ the oral MS 24 hours dose ($300 \text{ mg}/2$) = 150ug Fentanyl Patch with MSIR 45-60 mg q 1-2 h for breakthrough pain;
5. Start at 25 mg of Elavil, increase by 25 mg every three days to target dose of 150 mg, if no response in 7 days at that dose then discontinue.
6. Start Gabapentin (Neurontin 300 mg qhs—rapidly dose escalate up to 1800 mg (or higher) as needed, in divided doses. Alternative, start Tegretol at 100 mg bid, increase by 200 mg (in divided doses) every week until pain control or intolerable side effects develop. If no response after seven days at maximally tolerated dose discontinue.
7. NSAIDs, alternative anti-depressants or anti-convulsants; steroids, mexiletine.
8. Offer training in relaxation techniques or imagery ASAP if patient is interested.
9. Depends on which of the pains is still a problem: the dull aching somatic pain or shooting neuropathic pain;

for somatic pain, options include:

- ✓ ⁸⁹strontium or ¹⁵³Samarium
- ✓ epidural infusion of opioid +/- local anesthetic
- ✓ spinal neurolytic block

for neuropathic pain options include:

- ✓ epidural infusion of opioids +/- local anesthetics
- ✓ spinal neurolytic block
- ✓ cordotomy