

Pain Management in Hospice and Palliative Care



A Case-based Approach

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Objectives

- Use a case study approach to stimulate discussion and illustrate medical management of pain in hospice and palliative care.
- Review relevant clinical aspects of pain management appropriate to the hospice setting.
 - Pain Assessment
 - Types of Pain
 - Addiction, Tolerance, Pseudoaddiction.
 - Opioid selection, dosage adjustment, and rotation.

Mr. Jones



Our patient, Mr. Jones, tells us he is having pain. We know that Mr. Jones is a sixty three year old man diagnosed with lung cancer which has spread to his bones. During our pain assessment we learn that Mr. Jones is experiencing pain primarily in his right hip and mid back. He says his pain is not relieved by his current medication. He tells us he is taking two Percocet (5/325) every four hours.

What further assessment is needed to develop a pain management plan for Mr. Jones?

PAIN ASSESSMENT: "P.A.I.N.E.D."

Place: Where is the pain? Is there more than one place?
Does it radiate? Does the place change?

Amount: How long (time) and how much?
Use scales (0-10) etc.

Intensifiers: What makes the pain worse?
Movement? Time of day? Emotions?

Nullifiers: What has relieved the pain in the past? What
relieves the pain now? How much? How often?

Effects: What are the effects of your pain on you? (Mood,
function, sleep, attitude....)

Description: How does the patient describe the pain?

Pain Assessment: "P.Q.R.S.T.U."

- **P**alliating and Precipitating factors
- **Q**uality of pain (descriptors)
- **R**adiation/Pattern of pain
- **S**ite and **S**everity
- **T**iming
- **U** (You)

Pain Assessment: "O.L.D. C.A.R.T. "

- **O**nset
- **L**ocation
- **D**uration

- **C**haracter
- **A**ssociated Factors
- **R**elieving Factors
- **T**reatment

Pain Assessment

What if Mr. Jones was not able to tell us about his pain?

Use Non Verbal / Pain Behavior Scales

Remember the limitations of these scales!

Pain Assessment

What are three Pain Behavior Scales used by Merrimack Valley Hospice?

1. Visual Analogue (Numeric Scale)
2. FACES Scale
3. PAINAD Scale

How strong is your pain?

No pain	Quite a lot of pain						Worst Pain imaginable			
0	1	2	3	4	5	6	7	8	9	10

Sample Tools for Self-report



Wong-Baker FACES Pain Rating Scale. From Wong D.L., Hockenberry-Eaton M., Wilson D., Winkelstein M.L., Schwartz P.: Wong's Essentials of Pediatric Nursing, ed. 6, 2001. St. Louis: Mosby, Inc. P.1301. Reprinted with Permission.

FLACC Scale : Face, Legs, Activity, Cry, Consolability

SCORE	<input type="checkbox"/>	Face	0 - No particular expression or smile 1 - Occasional grimace or frown, withdrawn, disinterested 2 - Frequent to constant frown, clenched jaw, quivering chin
	<input type="checkbox"/>	Legs	0 - Normal position or relaxed 1 - Uneasy, restless, tense 2 - Kicking or legs drawn up
	<input type="checkbox"/>	Activity	0 - Lying quietly, normal position, moves easily 1 - Squirming, shifting back and forth, tense 2 - Arched, rigid or jerking
	<input type="checkbox"/>	Cry	0 - No cry, awake or asleep 1 - Moans or whimpers, occasional complaint 2 - Crying steadily, screams or sobs, frequent complaints
	<input type="checkbox"/>	Consolability	0 - Content, relaxed 1 - Reassured by occasional touching, hugging or 'talking to,' distractible 2 - Difficult to console or comfort
	<input type="checkbox"/>	TOTAL	

PAINAD Scale : Pain Assessment in Advanced Dementia

SCORE	<input type="checkbox"/>	Breathing	0 - Normal 1 - Occasional labored breathing. Short period of hyperventilation. 2 - Noisy labored breathing. Long period of hyperventilation. Cheyne-Stokes respirations.
	<input type="checkbox"/>	Negative vocalization	0 - None 1 - Occasional moan or groan. Low level speech with a negative or disapproving quality. 2 - Repeated troubled calling out. Loud moaning or groaning. Crying.
	<input type="checkbox"/>	Facial expression	0 - Smiling or inexpressive 1 - Sad, Frightened, Frown. 2 - Facial grimacing.
	<input type="checkbox"/>	Body language	0 - Relaxed 1 - Tense. Distressed pacing. Fidgeting. 2 - Rigid. Fists clenched, knees pulled up. Pulling or pushing away. Striking out.
	<input type="checkbox"/>	Consolability	0 - No need to console. 1 - Distracted or reassured by voice or touch. 2 - Unable to console, distract or reassure.
	<input type="checkbox"/>	TOTAL	

Merrimack Valley Hospice Pain Screening Guidelines

- All team members are responsible for screening for patient comfort and this should be done for **every visit**.
- It is the RN's responsibility to implement the appropriate screening tool to be used for that patient.
- Pain scores **and** pt's report of acceptable levels of pain are to be documented each visit.
- The RN should be contacted if the patient's pain score is greater than 5/10, or greater than the patient's reported acceptable level of pain.
- Pain assessment (tool used, current ratings, etc.) should be included in the IDT updates.

Mr. Jones:



Mr. Jones describes his lower back and right hip pain as a constant, deep, and "aching". He reports his pain level as a "6" on a 0 to 10 scale. He also tells us that his pain is worse when he walks - thus limiting his activity - and that his pain awakens him at night interfering with his sleep. He states two Percocet give him about 50% relief, but that it lasts only 2-3 hours.

He denies side effects including sedation or cognitive changes, but admits his last bowel movement was three days ago.

Mr. Jones:

Physical Exam

- (+) tenderness over L1-2 vertebrae
- Hip R.O.M. limited by pain
- 4/5 muscle strength R quads

Studies

- Spinal MRI last done 6 months ago negative for metastatic or degenerative disease.
- Recent CT scan of pelvis shows metastatic disease in R ischium, no fractures.

Pain Diagnosis

What is the known or presumed cause of Mr. Jones' pain?

What type of pain is Mr. Jones experiencing?

Why is this important?

Types of Pain: Nociceptive and Neuropathic

NOCICEPTIVE

- Normal processing of stimuli that damages normal tissues, or has the potential to do so if prolonged.
- Includes both Somatic and Visceral pain.
- **Usually responsive to non-opioids and opioids.**

NEUROPATHIC

- Pain resulting from damage to peripheral nervous or central nervous system tissue or from altered processing of pain in the central nervous system.
- Described as “tingling”, “burning”, “lancinating”, “shooting”.
- **Treatment usually includes adjuvant analgesics**

Types of Nociceptive Pain: Somatic and Visceral

SOMATIC

- Arise from injury to bone, joint, muscle, skin, or connective tissue



- Described as aching, pressure, throbbing
- Intermittent or constant
- Worse with movement
- Well localized

VISCERAL

- Arises from the visceral organs, such as the GI tract, pancreas or liver.



- Two Subdivisions
 - “Capsular”: Tumor involvement of organ capsule (ie, liver): aching, fairly well localized, often tender.
 - Obstructive: obstruction of hollow viscus (ie, colon): intermittent, cramping, poorly localized.

Mr. Jones: Differential

- Somatic pain R ischium and L1-2 vertebrae related to known and possible disease involvement
- Combined somatic and neuropathic pain related to known bone lesions and possible L1-2 lesion
- Neuropathic pain R hip related to referred pain from L-2 vertebral involvement
- Degenerative changes

Mr. Jones: Further evaluation

What further diagnostic evaluation would you recommend for Mr. Jones?

- First: Weigh benefits/burdens of the information and testing.
- Spinal MRI to r/o cord compression

Mr. Jones: Recommendations

What would be a better pain regimen for Mr. Jones?

- Since he is using short acting opioids almost around the clock, add a Sustained-Release opioid.

Mr. Jones: Recommendations

Which sustained release opioid would you recommend? Why?

What dose would you recommend?

Opioid Rotation

- We've decided we want to add a long acting Morphine to Mr. Jones' medication regimen.

Calculation: Current totals

1. Each Percocet 5/325 has 5 mg oxycodone
2. $5 \text{ mg} \times 2 \text{ tablets} = 10 \text{ mg/dose}$
3. Every 4 hours = 6 doses/24 hrs
4. $10 \text{ mg} \times 6 \text{ doses} = 60 \text{ mg oxycodone/ 24 hrs}$

Equianalgesic Dose Calculation

From equianalgesic chart:

20 mg oxycodone = 30 mg oral morphine

$$\frac{20 \text{ mg oxycodone}}{30 \text{ mg oral morphine}} = \frac{60 \text{ mg oxycodone}}{x \text{ mg oral morphine}}$$

$$x = 90 \text{ mg oral morphine/24 hours}$$

Adjusting for Incomplete Cross Tolerance

A patient who is tolerant to the effect and side effects of one opioid may not be equally tolerant to the effects and side effects of another opioid.

Adjust for Incomplete Cross Tolerance

- Decrease equianalgesic dose by 1/3 to 1/2 because of incomplete cross tolerance
- $90\text{mg} \times 1/3 = 30\text{mg}$
- $90 - 30\text{ mg} = 60\text{ mg}$ oral morphine/24 hours
- New dose: 30 mg SR Morphine q12h

Breakthrough dosing for Mr. Jones

What opioid dose would you recommend for breakthrough or incident pain?

Determining the PRN Dose

- Each PRN dose should equal 10-15% of the 24 hour dose of sustained-release opioid

Breakthrough options for Mr. Jones

- Mr. Jones is taking 60mg of Oxycodone/24h.
 - Oxycodone: $60 \times 15\% = 9\text{mg PO, q4h PRN}$ (round up to 10mg)
 - MSIR 10mg PO q4h PRN
 - Hydromorphone 4mg PO q4h PRN *

Opioid Selection for Mr. Jones

Which opioids will be best for Mr. Jones?

Opioid Selection

- Availability of appropriate dosing forms and routes of administration
- Drug pharmacokinetics
- Cost and insurance coverage
- Patient preference and experience

Side Effects of opioids: an opportunity for education.

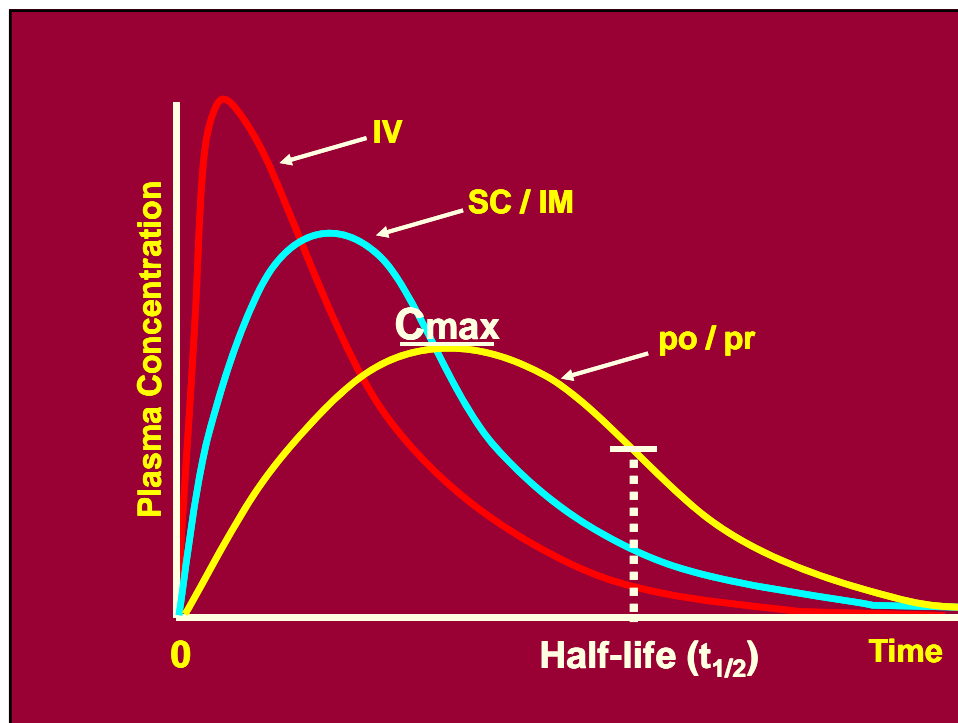
- Sedation
- Nausea and vomiting
- **Constipation**
- Dry mouth
- Urinary retention
- MS changes: Confusion, dysphoria, hallucinations, nightmares, delirium
- Myoclonus (rare on low doses)
- Respiratory depression (rare)

Opioid Induced Constipation

- Tolerance does not develop
- Aggressive prophylaxis recommended with scheduled doses of:
 - Stool softener
 - Docusate
 - Osmotics
 - Sorbitol
 - Mild laxatives
 - Senna (tabs or tea)
 - Miralax
 - Lactulose

Opioid pharmacology

- Cmax
- Tmax
 - PO \approx 1 h
 - SC/IM \approx 30 min
 - IV \approx 6 min
- Half-life
- Steady state: = approx 4-5 half lives



Routes of Administration

- Oral – preferred
- Sublingual, transmucosal
- Transdermal
- Subcutaneous injection or infusion
- Intramuscular injection
- Intravenous – bolus, infusion, PCA
- Spinal

Pharmacokinetic Considerations

- Morphine is the standard opioid
 - Active metabolite
- Hydromorphone (Dilaudid)
 - Active metabolite
- Fentanyl
 - Lipophilic
- Codeine
 - Analgesic ceiling effect
- Methadone
 - Long and variable half life necessitates careful monitoring for sedation
 - $T_{1/2}$ = 15-22 hrs
 - Steady State = 4-5 days

Q: Would any co-analgesics be helpful?

A: Possibly. Somatic pain such as pain from bone metastasis often respond to NSAIDs.

NSAIDs: Considerations

- Effective analgesic for somatic pain
- Ceiling doses
- Effective for mild to moderate pain
- Side effects/toxicities
 - Dyspepsia
 - GI Ulceration
 - Renal and hepatic damage
 - Inhibit platelet function

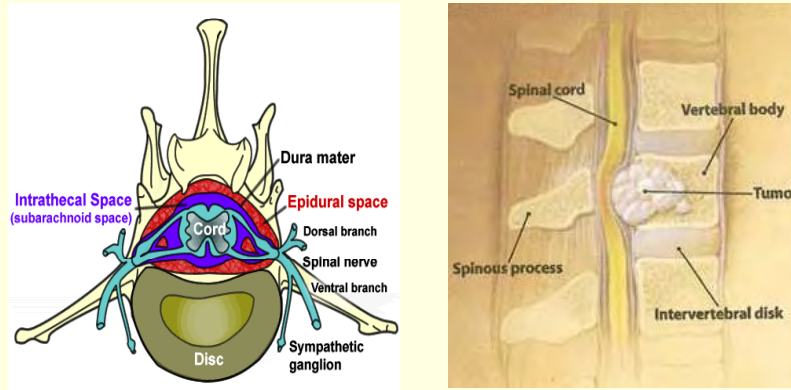
NSAID Recommendations for Mr. Jones

- Mr. Jones is not on anticoagulants, reports no history of GI ulcers or bleeding, and his renal function is WNL
 - The recommendation is for Ibuprofen 600 mg TID
 - Often started simultaneously with a ppi.

Update on Mr. Jones

- With continued monitoring and medication adjustments Mr. Jones enjoys a good quality of life for three months. He then presents with c/o increasing low back pain associated with pain down the back of his right leg. He describes the pain as 7/10, “constant”, “throbbing”, with occasional “electric shocks” going down his leg.
- A spinal MRI shows progression of disease at the L3 vertebral body encroaching the R neural foramina.
 - Q: *What treatment might be helpful for Mr. Jones?*
 - Radiation Therapy is planned.

Spinal Cord Compression



- At this point Mr. Jones is taking
 - MS Contin 60 mg q 12
 - MSIR 15 mg 5-6 times each day
 - Ibuprofen 600 mg TID

*Each dose of MSIR gives him “about 60 % relief”.

What other co-analgesics may be helpful in managing his pain?

Co-analgesics

Medications that are primarily used or meant for other purposes but enhance or have analgesic effects in some circumstances.

- Anti-convulsants
 - e.g. gabapentin (Neurontin) 100-900 mg TID
- Tricyclic antidepressants
 - e.g. amitriptyline, nortriptyline, *desipramine
- Corticosteroids
- NSAIDs

How would you adjust Mr. Jones's
opioids?

Opioid Calculations

- MS Contin 60 mg q 12
 - MSIR 15 mg 5-6 times each day

 - Total daily morphine dose is:
 - $60 \times 2 = 120$ mg
 - $15 \times 5 = \underline{75}$ mg
- 195 mg/24 hours**

=> Increase MS Contin to 75-90 mg q12

=> Increase MSIR to 15-30 mg q 3 PRN

His wife asks if you really need to increase the morphine. She thinks he is becoming addicted because he needs more and more pain medication.

How do you respond to her?

Explore Her Concerns

What does "addiction" mean to her?

Does Mr. Jones have an addiction history?

Is there a history of alcohol or drug addiction in the family?

TOLERANCE

- Expected effect of chronic opioid use
- Presents as decreased duration of analgesia
- Need for more frequent dosing and/or higher doses to maintain analgesia

DEPENDENCE

- Expected effect of chronic opioid use
- Not a sign of addiction
- Withdrawal symptoms occur when opioid dose is markedly decreased or stopped abruptly and may include increased pain, anxiety, lacrimation, rhinorrhea, nausea, diarrhea.

ADDICTION

- Psychological dependence on the drug
- Using drug for psychic effect
- Often associated with drug seeking behaviors
- Drug use continues despite negative legal, social, economic effects
- 15-20% incidence in general population

PSEUDOADDICTION

Used to describe behavior that appears like addictive, "drug seeking" behavior, but is actually an effort to obtain pain relief in a non-addicted patient whose pain is being [or has been] undertreated.

Back to Mr. Jones

- One month later, Mr. Jones is admitted with increasing pain, nausea and vomiting.
- He is found to have further progression of bone disease.
- He had been taking MS Contin 120 mg q 8 with MSIR 90 mg 3-4 times each day; ibuprofen 600 mg TID and Neurontin 900 mg TID.

Opioid Conversion

- You have decide to convert Mr. Jones' oral morphine to IV hydromorphone via PCA.
- He is currently taking:
 - MS Contin 120 mg q 8
 - MSIR 90 mg 3-4 times each day

Opioid Conversion: Calculations

- Calculate total dose in last 24 hrs.

$$\begin{aligned} \text{MSContin 120mg q8h} &= 360\text{mg MSO4} \\ + \text{MSIR 90mg 3x/day} &= 270\text{mg MSO4} \\ &= 630\text{mg MSO4} \end{aligned}$$

- Calculate equianalgesic dose of hydromorphone

$$\begin{array}{l} \underline{630 \text{ mg oral MSO4}} \quad = \quad \underline{30 \text{ mg oral MSO4}} \\ \text{X mg IV hydromorphone} \quad 1.5 \text{ mg IV hydromorphone} \end{array}$$

$$X = 31.5 \text{ mg IV hydromorphone/24 hours}$$

Opioid Conversion: Calculations

- Adjust for Cross Tolerance
 $31.5 \times 75\% \text{ (or } 0.75) = 23.65\text{mg}/24\text{hr} = 24\text{mg}$
- Calculate the hourly dose of hydromorphone
 $24\text{mg IV hydromorphone}/24 \text{ hours} = 1 \text{ mg/hr}$
- Calculate PRN dose for breakthrough pain
(50-100% of hourly dose)

IV bolus = 0.5 – 1 mg q 15 minutes PRN

Any other recommendations for pain ?

- Since he is unable to take ibuprofen and Neurontin, the addition of corticosteroid may help bone and neuropathic pain.
 - Steroid may worsen delirium.
- Can be given IV during hospitalization.

- Mr. Jones is discharged on dexamethasone 8 mg BID po and hydromorphone 0.3 mg/hour IV with PCA bolus of 0.1 mg q 15 minutes
- Three weeks later he is again admitted with worsening pain, sedation, and “tremors”.

What do you think may be happening?

- Pain
- Delirium
- Hyperalgesia
- Progression of disease

Hyperalgesia

- Caused by neuroexcitatory effects of high dose opioids.
 - Pain increases despite ever increasing opioid doses.
 - Myoclonus
- Treat with opioid rotation, benzodiazepines, sedatives/anesthetics
- If appropriate to goals of care, consider interventional options to spare opioid use.

- Mr. Jones is converted to methadone which improves his tremors and pain control but sedation continues to be an issue.
- Anesthesia pain consult is requested to determine eligibility for an interventional pain management procedure.

INTERVENTIONAL PROCEDURES

- Consider when standard analgesic/co-analgesic pain regimen is unacceptable or inadequate, or when unacceptable analgesic side effects occur.
 - Opioids/local anesthetics via spinal catheters
 - Intrathecal
 - Epidural
 - Neurolytic/nerve blocks
 - Neurosurgical procedures
 - Cordotomy (last resort)

The anesthesia consult recommends spinal analgesia for Mr. Jones.

Reduced Dose =
Reduced Side Effects

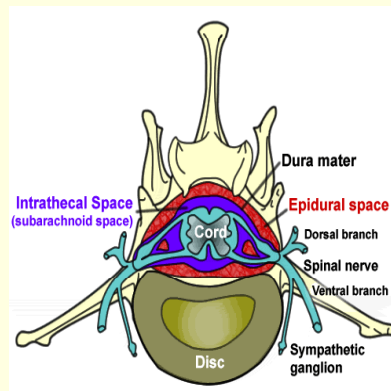
Krames ES. *J Pain Symptom Manage.* 1996 Jun;11(6):333-52.

Why Use Spinal Analgesia?

Oral morphine	300 mg/day
IV morphine	100 mg/day
Epidural morphine	10 mg/day
Intrathecal morphine	1 mg/day

Krames ES. Intraspinal opioid therapy for chronic nonmalignant pain: current practice and clinical guidelines. *J Pain Symptom Manage.* 1996 Jun;11(6):333-52.

Intraspinal Opioid Analgesia



Dosage Adjustment Intervals

Pain score unchanged =>	Give DOUBLE the dose
Pain score ↓ < 50% =>	Repeat same dose
Pain score ↓ >50% =>	Consider this the effective dose and repeat q 2-3h PRN oral or q1h PRN I.V.

Conclusion

- Pain relief is contingent upon adequate assessment
- One long-acting and one short acting opioid + adjuvant if effective.
- Consider alternative routes and opioids based on assessment
- **REASSESS, REASSESS, REASSESS**