Pain Management in Palliative Care
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Objectives
• Assess at least 5 different qualities of pain experience in palliative care settings
• Utilize adjuvant pain control in palliative care settings
• Increase confidence in opioid conversions

Pain Assessment
• Understanding pain source informs treatment
• Pain scores
  • Widely used
  • Widely scorned
  • Needs to be a starting point
  • Helpful to show patients change over time
  • Refer to other pain scales entered in the chart
  • How much does X relieve your pain?

Include The Patient

Pain Assessment
• Dig deeper if 1st visit or pain greater than 5
• Comprehensive pain assessment
  • PQRST
  • OLD CART
  • WILDAA
• Make internally consistent

Disclosures
• President, American Academy of Hospice and Palliative Medicine
• Scientific Advisory Committee, Compassus
• Many medications for symptom control do not have FDA-approved indications
PQRST Pain Assessment
• Provoking
• Quality
• Radiation/Region
• Severity
• Timing

OLD CART
• Onset
• Location
• Duration
• Characteristics
• Aggravating
• Relieving
• Treatment

WILDA
• Words
• Intensity
• Location
• Duration
• Aggravating
• Alleviating

Pain Assessment - Other
• Consider past medications and their effect
• Cancer vs non-cancer
• Cancer pain syndromes
  • Oral mucositis
  • Chemo-induced neuropathy
  • Radiation damage
  • Peritoneal carcinomatosis
  • Obstructions
  • Paraneoplastic syndromes
  • Phantom limb

Pain Assessment - Exam
• General
  • Appearance, gait and vital signs
• Neurological
  • Mental status: alertness, cognitive function, affect
  • Sensory system: allodynia, hyperalgesia
• Musculoskeletal
  • Weight loss, muscle atrophy, muscle tone
  • deformities, posture

Pain Assessment - Exam
• Pain site
  • Inspect
  • Palpate
  • Pinprick/sensory
  • Position
  • Pressure
  • Motion
Prescribing Considerations

- Underlying cause
- Type of pain
- Medication
- Route
- Side effect profile
- Prevention/control vs rescue/breakthrough
- Don’t underestimate adjuvants

Broad Classes of Intervention

- Opioids
- Adjuvants
- Interventional
  - Intrathecal pump
  - Nerve blocks
  - TENS/Deep Brain Stimulation
- Behavioral
  - Exercise
  - CBT
  - Biofeedback

Opioids

- Not a panacea
- Yet they are still widely prescribed
- They can be very effective
- Concerns about respiratory depression
- Understand pain source
- Use lowest effective dose
- Close follow-up
- Good education of patient and family
Opioids for Dyspnea

- Likely a class effect
- Not FDA-approved
- Can be effective at low doses
- Supported by American College of Chest Physicians
- Most studies in COPD or Lung Ca
- Low doses may avoid respiratory depression
- Mechanism of action unclear

Opioid Side Effects

- Many are common initially
  - Nausea & vomiting
  - Drowsiness
  - Delirium
  - Itching
- Common ongoing
  - Constipation
  - Dry mouth
- Chronic
  - Suppression of hypothalamic-pituitary axis
  - Neurotoxicity

Opioid Education

- Keep out of reach of children and pets
- Do not broadcast prescription
- Take as prescribed
- Call and be truthful if taking outside the prescription
- Avoid passing judgment
- Assess addiction history/risk – Opioid Risk Tool
- Use of PDMP
- REMS – Risk Evaluation and Mitigation Strategy

Opioid Risk Tool

We tool should be administered to patients upon initial and prior to beginning opioid therapy for pain management. Assign a 0-3 or lower indicates low risk for future opioid abuse, a score of the 7 indicates moderate risk for opioid abuse, and a score of 8 or higher indicates a high risk for opioid abuse.

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family history of substance abuse</td>
<td>1-3</td>
</tr>
<tr>
<td>Use of alcohol</td>
<td>1-3</td>
</tr>
<tr>
<td>Use of marijuana</td>
<td>1-3</td>
</tr>
<tr>
<td>Personal history of substance abuse</td>
<td>1-3</td>
</tr>
<tr>
<td>Age &lt; 19 years</td>
<td>1-3</td>
</tr>
<tr>
<td>History of preadolescent sexual abuse</td>
<td>1-3</td>
</tr>
<tr>
<td>Psychological disorder</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Total score: 1-18

Score: 1-3 indicates low risk,
4-7 indicates moderate risk,
8-10 indicates high risk.

Additional Resources

- BMJ Best Practice: Opioid Prescribing
- National Institute on Drug Abuse: Opioids

PDMP: Prescription Drug Monitoring Program

REMS: Risk Evaluation and Mitigation Strategy

Opioid Risk Tool

- BMJ Best Practice: Opioid Prescribing
- National Institute on Drug Abuse: Opioids

PDMP: Prescription Drug Monitoring Program

REMS: Risk Evaluation and Mitigation Strategy
Opioids

- Morphine
- Oxycodone
- Fentanyl
- Methadone
- Tramadol
- Buprenorphine – partial agonist/antagonist

Opioid Receptors

- Pre and post-synaptic
- 4 Receptors: Mu, Delta, kappa, ORL-1
- Accounts for drug variability
- May account for patient response variation

Combining Opioids

- Done very often, but considered bad practice
- No scientific support

Opioid Rotation

- Intolerance
- Poor pain control
- Significant constipation (consider TD Fentanyl)
- Neurotoxicity
- Convert to Morphine Equivalent Daily Dose (MEDD)

Equianalgesic Opioid Dosing

<table>
<thead>
<tr>
<th>Drug</th>
<th>Equianalgesic Doses (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parenteral</td>
<td>Oral</td>
</tr>
<tr>
<td>Morphine</td>
<td>15</td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>0.3</td>
</tr>
<tr>
<td>Codeine</td>
<td>100</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>0.1</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>N/A</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>1.5</td>
</tr>
<tr>
<td>Tramadol</td>
<td>100</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>10</td>
</tr>
<tr>
<td>Oxycodeine</td>
<td>10</td>
</tr>
<tr>
<td>Tramadol</td>
<td>100</td>
</tr>
</tbody>
</table>

Methadone

- Should only be prescribed by experienced clinicians
- Or under mentorship of experienced clinicians
- Very long half-life
- Slow titration (up and down)
- Occasionally used as adjunct

<table>
<thead>
<tr>
<th>Oral MEDD (mg/day)</th>
<th>Initial Dose Ratio (oral morphine: oral methadone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 30</td>
<td>2.0</td>
</tr>
<tr>
<td>30 - 59</td>
<td>4.0</td>
</tr>
<tr>
<td>100 - 200</td>
<td>8.0</td>
</tr>
<tr>
<td>300 - 400</td>
<td>12.0</td>
</tr>
<tr>
<td>600 - 800</td>
<td>15.5</td>
</tr>
<tr>
<td>&gt; 1000</td>
<td>&gt; 20.0 or greater</td>
</tr>
</tbody>
</table>
Fentanyl Patch
- Subcutaneous fat myth
- Dose-end failure
- Overprescribed in opioid-naive patients
- Do not cut patches

Tramadol
- Has opioid and non-opioid properties
- Stimulates serotonin release
- Naloxone only partially reverses
- Can cause hypoglycemia
- Reduced by ondansetron
- Dosing
  - 50mg Q6h PRN
  - Max – 600mg/24h

Adjuvants
- Corticosteroids
- Non-steroidal Anti-Inflammatories (NSAID)
- Acetaminophen
- SSRI/SNRI/TCA
- Anti-seizure
- NMDA blockers
- Smooth muscle relaxants
- Bisphosphonates

Corticosteroids
- No optimal dose
- Multiple off-label uses
- Use in short bursts if possible
- Need to taper, if chronic
- Work towards lowest effective dose
- Dexamethasone 2-8mg daily
- Prednisone 10-60mg daily

Corticosteroids
- Benefits
  - Anti-inflammatory
  - Multiple other impacts
  - Appetite stimulation
  - Increased energy
  - Increased wakefulness
  - Helpful in bone pain
  - Helpful in visceral swelling
- Drawbacks
  - Swelling
  - Glucose control
  - Avascular bone necrosis
  - Muscle wasting/weakness
  - Moon face
  - Mental disturbances
### Approximate Equivalent Doses

<table>
<thead>
<tr>
<th>Steroid</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dexamethasone</td>
<td>.75mg</td>
</tr>
<tr>
<td>Methylprednisolone</td>
<td>4mg</td>
</tr>
<tr>
<td>Prednisone</td>
<td>5mg</td>
</tr>
<tr>
<td>Hydrocortisone</td>
<td>20mg</td>
</tr>
</tbody>
</table>

### Non-Steroidal Anti-Inflamatories

- Ibuprofen
  - Doses up to 2400mg per day can be tolerated
  - Use lowest effective dose
  - Onset of action: 30mins
- Cons:
  - Increased risk of thrombotic events
  - Impact on heart failure, kidneys, fever
  - GI morbidity - 1 in 500 taking at least 2 months
- Topical NSAID
  - Might be used for local pain

### SSRI/SNRI/TCA

- Neuropathic pain
- Chronic non-malignant pain
- Not equally effective
- Most indications for diabetic neuropathy or PHN
- Venlafaxine (EFFEXOR) – SNRI
- Duloxetine (CYMBALTA) - SNRI
- Amitriptyline (ELAVIL) – TCA
- Desipramine - TCA

### SSRI/SNRI/TCA

- Not to be used alone for pain
- Manage pain + other QOL issues
  - Depression
  - Anxiety
  - Insomnia
- Watch TCA for anti-cholinergic side effects

### Question #1

- A patient is taking morphine sulfate continuous release 90 mg BID and morphine sulfate immediate release 15 mg every four hours for breakthrough pain. Convert this oral dose to intravenous morphine.
  - 3.75 mg/hr
  - 33 mg/hr
  - 3.3 mg/hr
  - 2.5 mg/hr

### Question #2

- Change MS Contin 90 mg TID to fentanyl patch.
  - 12 mcg
  - 75 mcg
  - 125 mcg
  - 200 mcg
Question #3

• Convert hydromorphone PCA to oral morphine for home. The patient is receiving a basal rate of .5 mg/hr with 0.5 mg every 20 minutes PRN pain or dyspnea. Over the last 24 hours, ten demand doses have all been given.
  - MS Contin 90 mg PO BID and MS IR 45 mg PO q4h PRN breakthrough pain
  - MS Contin 45 mg PO BID and MS IR 15 mg PO q4h PRN breakthrough pain
  - MS Contin 15 mg PO BID and MS IR 15 mg PO q4h PRN breakthrough pain

Question #4

• Change oral morphine to fentanyl infusion. Patient is taking morphine sulfate continuous release 60 mg PO BID and morphine sulfate immediate release 30 mg PO q4h PRN breakthrough pain, using twice a day. Don’t account for cross-tolerance.
  - 50 mcg/hr IV infusion
  - 25 mcg/hr IV infusion
  - 12 mcg/hr IV infusion
  - 100 mcg/hr IV infusion

Question #5

• Convert oral oxycodone to oral morphine. Patient taking oxycodone continuous release 60 mg PO BID and oxycodone immediate release 10 mg PO q4h PRN, taking four times a day. Don’t account for cross-tolerance.
  - Morphine sulfate continuous release 45 mg PO BID and morphine sulfate immediate release 45 mg PO q4h PRN breakthrough pain.
  - Morphine sulfate continuous release 60 mg PO BID and morphine sulfate 30 mg PO q4h PRN breakthrough pain
  - Morphine sulfate continuous release 30 mg PO BID and morphine sulfate 15 mg PO q4h PRN breakthrough pain.

Answer #1 - A

• A:
  - Long-acting: 90 mg x 2 = 180 mg. Short-acting: 15 mg x 6 = 90 mg. Total 270 mg PO morphine in 24 h
  - Using morphine sulfate 30 mg PO = 10 mg IV: Divide by 30 mg PO, multiply by 10 mg 0 for 50 mg IV in 24 h = 0.33 mg/hr infusion
  - B: If you divide by 10 mg IV and multiply by 30 mg PO (inverting the conversion ratio), you get 80 mg PO in 24 h, or 33 mg/hr IV morphine infusion
  - C: If you multiply the MSIR by 4 instead of 6 (if had used 6 hours), you end up with 3.3 mg/hr
  - D: If forget to double the long-acting 90 mg, you’d end up with 2.5 mg/hr
  - Teaching point: Know oral and intravenous morphine equivalents. Some experts recommend starting the new opioid at 30% of the calculated dose to account for inter-individual variation in first-pass elimination. I did not include that calculation in this problem. Reference: FAST FACT #46 Calculating Opioid Dose Conversions

Answer #2 - C

• C: 90 mg x 3 = 270 mg PO morphine in 24 h. Approximating 50 mg PO morphine to 25 mcg fentanyl patch. 270 mg PO morphine divided by 50 mg PO morphine multiplied by 25 mcg fentanyl patch = 33.5 mcg patch. Given doses available for fentanyl patch, reasonable to start 125 mcg patch, assuming this is not an opioid-naive patient.
  - A: Reasonable to start at the lowest dose of fentanyl patch, 12 mcg/hr, in an opioid-naive patient. Remember there is no maximum dose.
  - B: This would be undertreating the patient and risking uncontrolled pain.
  - D: The patient may need this much for baseline control, and it may be reasonable to uptitrate the dose in a few days, but starting at such a high dose is unwarranted for this problem.
  - Teaching point: Alternate formula from 2000: 25 mcg/hr transdermal fentanyl is roughly equivalent to 50 mg oral morphine. Remember no data that fentanyl patch less efficacious in cachectic patients, who have less subcutaneous fat. Reference: FAST FACT #2 Converting to Transdermal Fentanyl

Answer #3 - B

• B:
  - Basal rate 0.5 mg/hr x 24 hr = 12 mg, plus 0.5 mg demand bolus x 10 is another 5 mg, so total 17 mg IV hydromorphone in 24 hours
  - Using 1.5 mg IV hydromorphone equivalent to 7.5 mg PO hydromorphone: 17 mg IV divided by 1.5 mg IV and multiplied by 7.5 mg PO = 85 mg PO hydromorphone in 24 hours.
  - Oral morphine equivalents: 85 mg PO hydromorphone divided by 7.5 mg PO hydromorphone and multiplied by 30 mg PO morphine = 340 mg PO morphine in 24 hours.
  - 50% reduction for cross-tolerance: 340 divided by 2 = 170 mg PO morphine.
  - 50% as long-acting: 170 mg divided by 2 = 85 mg, divided in two doses = 42 mg BID (or ~90 mg divided by 2 = 45 mg BID). And 15 mg short-acting morphin for breakthrough pain.
Answer #4 - B

- B
  - MS Contin 60 mg BID = 120 mg. MSIR 30 mg twice daily = 60 mg. Total 180 mg oral morphine in 24 hours.
  - 180 mg PO morphine divided by 30 mg PO morphine and multiplied by 100 mcg IV fentanyl = 600 mcg IV fentanyl. Divide by 24 hours = 25 mcg/hr infusion.

Answer #5

- B
  - Oxycodone total: 60 + 60 + 40 mg = 160 mg in 24 hours.
  - 20 mg PO oxycodone = 30 mg PO morphine, so 160 mg divided by 20 mg and times 30 mg = 240 mg oral morphine in 24 hours.
  - 50% of 240 mg for long-acting morphine = 120 mg divided in two doses, so MS Contin 60 mg PO BID. Would be reasonable to give 15 – 30 mg short-acting morphine as breakthrough available every 4 hours throughout the day.