Overview of Pain Management
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Disclosures
Jeri Burn has no real or perceived conflicts of interest that relate to this presentation.

Objectives
1. Recognize our duty as healthcare professionals to relieve pain
2. Discuss the concept of “Total Pain”
3. Define the terms acute pain, chronic pain, and breakthrough pain
4. Perform basic opioid conversions
5. Define addiction, pseudoaddiction, tolerance, and physical dependence
“If we know that pain and suffering can be alleviated, and we do nothing about it, then we ourselves become the tormentors.”

Primo Levi

Definition of Pain: International Association for the Study of Pain

• An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage

• Pain is always subjective

Pain Definition: McCaffery

• Pain is whatever the experiencing person says it is, existing whenever he says it does

• The patient’s self-report of pain is the single most reliable indicator of pain
Assessing and Treating Pain
A moral, ethical, and professional duty.

"We must all die. But that I can save him from days of torture, that is what I feel as my great and ever new privilege. Pain is a more terrible lord of mankind than even death itself."

Dr. Albert Schweitzer
1931

The Concept of “Total Pain”

The Impact of Pain: Total Pain
- **Physical**: Impaired ambulation, difficulty sleeping, diminished strength/endurance, nausea, anorexia
- **Psychological**: Anxiety, irritability, fear, depression, helplessness, loneliness, difficulty concentrating, loss of control
- **Spiritual**: Questioning the meaning of life, why am I suffering? Re-evaluation of religious beliefs
- **Social**: Impact on relationships with family/friends, decreased sexual function, alteration in appearance, caregiver burden
- **Financial**: Impact on job performance, ability to work, medical costs
Consequences of Unrelieved Pain

- Reduction of mobility, increased risk of pneumonia and formation of thromboembolism
- Negative impact on emotional well-being
- May lead to depression/spiritual despair
- Increased healthcare utilization and costs

Acute Pain

- Associated with tissue damage from such processes as inflammation, a disease process, or a surgical procedure
- Regardless of intensity, acute pain is of limited duration

Chronic Pain

- Worsens/intensifies with time
- Lasts for an extended period (months, years, lifetime)
- Adversely affects function or well-being
- Chronic pain syndrome is pain that has lasted longer than six months
**Breakthrough Pain**

- Transitory exacerbations of severe pain
- Can occur incident to a voluntary act such as movement or coughing
- Can occur spontaneously
- May be a consequence of inadequate pain management or end-of-dose failure

**Classifying Pain**

- Pain
  - Nociceptive Pain
    - Somatic
    - Visceral
  - Neuropathic Pain
    - Peripheral
    - Central

**Types of Pain**

**Nociceptive Pain**

- Nociceptors are pain receptors in tissue
- These receptors are stimulated by tissue injury or tumor infiltration of skin, soft tissue, or viscera
- The amount of pain is proportionate to the stimulation of the nociceptor
- The more tissue damage, the more pain
**Nociceptive Pain: Somatic and Visceral**

**Somatic nociceptive pain:**
- Involves skin, muscle, or bone
- Well localized pain
- Aching, throbbing, sharp, or pressure-like
- Examples: Post-op incisions, tube/drain insertion pain, fractures of bone, skeletal muscle pain

**Visceral nociceptive pain:**
- Involves internal organs
- Diffuse pain
- Squeezing, cramping, or gnawing
- Examples: Bladder distention, intestinal distention, pericarditis, menstrual cramps, constipation, angina

**Types of Pain**

**Neuropathic Pain**

- Pain created by the abnormal processing of input by the peripheral or central nervous systems
- Results from injuries to the CNS or peripheral nerves rather than stimulation of nerve endings
- The injured nerves react abnormally to stimuli or may discharge spontaneously = pain

**Neuropathic Pain Types**

**Peripheral neuropathic pain:**
- Sharp, burning, stinging, electric, shooting
- Examples: Diabetic neuropathy, alcohol/nutritional neuropathy, nerve root compression, post-herpetic neuralgia, trigeminal neuralgia

**Central neuropathic pain:**
- Burning, shooting, pricking
- Examples: Phantom limb pain, spinal cord injury, complex pain syndromes
Common Causes of Persistent Pain in Advanced Illness

- Peripheral vascular disease
- Central poststroke syndrome (CPSP)
- Improper positioning
- Chronic leg cramps
- Decubitus ulcers
- Oral/dental problems
- Amputation
- Contractures
- Chronic headaches
- Multiple sclerosis
- Degenerative joint disease
- Rheumatoid arthritis
- Neuropathic pain
- Lower back pain
- Gout
- Osteoarthritis
- Osteoporosis
- Myofascial pain
- HIV
- Sickle cell disease

Why Identify the Type(s) of Pain(s)?

- Correct identification of the type(s) of pain is crucial because nociceptive pain (somatic or visceral pain) responds well to traditional treatments such as opioids and NSAIDs but neuropathic pain does not.
- Always consider that a mixed pain presentation may be present and both types may need treatment.

Symptom Analysis: P Q R S T

P Provocative/Palliative
  • What makes the pain worse or better?
Q Quality
  • What does the pain feel like?
R Region/radiation
  • Where does it hurt? Is it superficial or deep? Does it spread or radiate to other areas?
S Site/Severity
  • Where does it hurt? How much does it hurt? Rate intensity using a pain tool
T Temporal
  • Is the pain constant? Does it come and go?
Determined the Severity/Intensity of Pain

• Choice of a measurement scale depends on such factors as age, ability to communicate, and facility policy

• Pain is difficult to measure as it is a completely subjective variable, we must accept patient self-report

• Self-report is the single most reliable indicator of pain

Factors to Keep in Mind

• Individual patients experience different levels of pain in response to similar stimuli, therefore, a uniform pain threshold does not exist

• Pain tolerance varies among individuals, factors include heredity, energy level, coping skills, and prior experiences with pain

More Factors to Keep in Mind...

• Assessment approaches and tools must be appropriate for the individual patient

• Using a 0-10 numerical scale, a pain rating of 5 greatly impacts quality of life

• It is important that all team members use the same intensity measurement tool

• Assess pain prior to and after administering an analgesic
Visual Analog Scale (VAS)

No pain________________________Worst pain

- Ask the patient to indicate on the line where the pain is in relation to the two extremes
- Qualification is only approximate; for example, a midpoint mark would indicate that the pain is approximately half of the worst possible pain

Simple Descriptor Scale (SDS)

[-----------------------------] None Mild Moderate Severe

- Older adults may do better with words than with numbers
- Slight? Mild? Moderate? Severe? Extreme? As bad as it could be?

Numerical Rating Scale (NRS)
Faces Rating Scale (Wong-Baker)

Pain Thermometer

http://www.medscape.com/viewprogram/6079_pnt

Nonverbal Patients

The inability to communicate verbally does not negate the possibility that an individual is experiencing pain and is in need of appropriate pain-relieving treatment.
Nonverbal Pain Indicators

- **Facial expressions**: Grimacing
  - Less obvious: Slight frown, rapid blinking, sad/frightened, any distortion
- **Vocalizations**: Crying, moaning, groaning
  - Less obvious: Grunting, chanting, calling out, noisy breathing, asking for help
- **Body movements**: Guarding
  - Less obvious: Rigid, tense posture, fidgeting, pacing, rocking, limping, resistance to moving

Nonverbal Pain Indicators

- **Changes in Interpersonal Interactions**: Combative, disruptive, resisting care, decreased social interactions, withdrawn
- **Changes in Mental Status**: Confusion, irritability, agitation, crying
- **Changes in usual activity**: Refusing food/appetite change, increased wandering, change in sleep habits

Pain Assessment in Advanced Dementia: PAINAD
(Warden, Hurley, Volicer, 2003)

<table>
<thead>
<tr>
<th>Score</th>
<th>Breathing, independent of vocalization</th>
<th>Negative vocalization</th>
<th>Facial expression</th>
<th>Body language</th>
<th>Consolability</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal</td>
<td>None</td>
<td>Smiling or inexpressive</td>
<td>Relaxed</td>
<td>No need to console</td>
</tr>
<tr>
<td>1</td>
<td>Occasional labored breathing. Short episodes of hyperventilation.</td>
<td>Occasional moan or groan, low level speech with a negative or disappointing quality.</td>
<td>Sad. Frightened. Frown.</td>
<td>Somnolent, disoriented, flabby.</td>
<td>Contracted or measured by voice or touch.</td>
</tr>
</tbody>
</table>
### Pain Treatment Strategies in Dementia

- **Non-pharmacologic treatment**
  - Examples: application of heat or cold, massage, mild exercise

- **Pharmacologic**
  - Mild pain can be effectively treated with over the counter pain relievers, such as acetaminophen
  - The goal is to maximize function and quality of life
  - Treatment plans must be individualized

### World Health Organization 3-Step Analgesic Ladder

![3-Step Analgesic Ladder](source)


### Step One: Mild to Moderate Pain

- **PAIN SCORE 1-3**
- Use non-opioids: Acetaminophen, NSAID’s (including ASA)

- Adjuvant drugs can be used at any step, in addition to non-opioids and opioids

- Examples of adjuvants:
  - Tricyclic antidepressants (beware of anticholinergic side effects)
  - Anticonvulsants (Neurontin, Lyrica®)
  - Steroids (Decadron)
  - Skeletal muscle relaxants (Flexeril)
  - Local anesthetics
**Step Two: Moderate to Severe Pain**

- **PAIN SCORE 4-6**
  - If pain persists or increases, opioids are added: Oxycodone, Hydrocodone
  - These are often administered in fixed dose combinations with acetaminophen or aspirin
  - This combination provides additive analgesia
  - Avoid exceeding the maximum recommended doses of acetaminophen (3-4 grams/day)
  - May need a bowel regimen
  - Consider the use of adjuvant drugs

**Step Three: Severe Pain**

- **PAIN SCORE 7-10**
  - Strong opioids are required: Morphine, Oxycodone, Hydromorphone, Methadone
  - A prophylactic bowel regimen will be necessary
  - Consider the use of adjuvant drugs
  - Note: Methadone has a long and unpredictable half life and must only be prescribed by clinicians who are familiar with its unique pharmacology

**Opioid Use in Renal Failure**

- Only three opioids that can be safely used in insufficiency/renal failure (GFR less than 30 ml/min):
  - Fentanyl
  - Dilaudid
  - Methadone
- The morphine metabolites morphine-3 and morphine-6 glucuronide are excreted by the kidneys
- Accumulation can result in:
  - Confusion, respiratory depression, sedation, and CNS hyperexcitability: Myoclonus, hyperalgesia, delirium with hallucinations, and grand mal seizures
- These metabolites are not removed with dialysis
**Treatment of Cancer Pain**

- Medications for persistent cancer-related pain should be administered on an around-the-clock schedule, with additional “as needed” doses
- Regularly scheduled dosing maintains a constant level of drug in the body and helps to prevent a recurrence of pain
- Patients who have moderate to severe pain when first seen by the clinician should be started at the second or third step of the WHO analgesic ladder

**Treatment of Cancer Pain**

- **Palliative radiation therapy:** Treatment of choice for spinal cord compression and bone pain; frequently used in superior vena cava syndrome and for symptomatic brain metastases
- **Palliative chemotherapy:** Reduction of tumor burden; relief of pressure on nerves, lymphatics, and blood vessels; reduction of organ obstruction
- **Palliative sedation:** Used at end of life for those with intractable pain and suffering, agents include: opioids, benzodiazepines, ketamine

**Opioid Equianalgesic Dosing**

<table>
<thead>
<tr>
<th>Opioid</th>
<th>Oral</th>
<th>Parenteral</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>30</td>
<td>10</td>
<td>3:1</td>
</tr>
<tr>
<td>Hydromorphone (Dilaudid)</td>
<td>7.5</td>
<td>1.5</td>
<td>5:1</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>20</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Questions: Opioid Conversions

• Morphine is a 3:1 ratio: 3 mg of oral morphine equals 1 mg of IV morphine
• 2 mg of IV morphine is equivalent to how much oral morphine?
• 30 mg of oral morphine is equivalent to how much IV morphine?
• 10 mg of IV morphine is equivalent to how much IV hydromorphone? Oral hydromorphone?

Opioid Conversions: Case #1

Mr. Jones is a 55-year-old who was admitted to an inpatient hospice facility for uncontrolled pain. He has achieved good pain control with a PCA IV morphine continuous infusion at 1.5 mg/hour with a PCA breakthrough dose of 0.5 mg. He has needed an average of 8 BT doses/24 hours. He badly wants to return home but needs to be converted to oral morphine for discharge. What would you recommend?

Opioid Conversions: Case #1

Do the math:
1.5 mg/hour x 24 hours = 36 mg
0.5 mg x 8 doses/24 hours = 4 mg
36 + 4 = Total daily dose of 40 mg IV morphine

Oral morphine: 40 x 3 = 120 mg
120 mg divided by 2 = 60 mg long acting morphine tablet q 12 hours

For breakthrough pain: 10-15% of TDD would be 12-18 mg

Give immediate release morphine 15-20 mg q 2-3 hours PRN
Opioid Conversions: Case #2

The patient is receiving Oxycontin (long-acting opioid) 40 mg po q 12 hours and is taking 6 doses/day of immediate release oxycodone 15 mg for breakthrough pain. He rates his pain as a consistent 6/10.

Do the math:
40 mg x 2 = 80 mg
15 mg x 6 = 90 mg
TDD = 170 mg

His pain is uncontrolled. What do you do?

Opioid Conversions: Case #2

For uncontrolled pain:
<5/10: Increase by 25-50%
≥6/10: Increase by 50-100%

TDD = 170 mg
170 mg + 50% = 255 mg
255 divided by 2 = 127.5 mg
Give Oxycontin 130 mg po q 12 hours

For breakthrough pain: 10-15% of TDD is 25-38 mg, give 25 to 40 mg oxycodone q 2-3 hours PRN for BTP

Opioid Adverse Effects

• **Common**
  • Constipation
  • Nausea/Vomiting
  • Sedation

• **Less Common**
  • Urinary retention
  • Delirium
  • Myoclonus
  • Pruritus
  • Respiratory depression
  • Postural hypotension
Opioids and Hypotension: the Facts

- Morphine alone does not cause significant hypotension
- Hypotension may occur if opioids are combined with benzodiazepines or diuretics

Opioids and Respiratory Depression: the Facts

- Does not occur in patients on chronic opioids (not opioid-naive)
- Can occur in opioid-naive patients especially if the opioid dose is rapidly escalated

Take Home Message:
- Respiratory depression is ALWAYS preceded by slowly progressive somnolence

Treating Respiratory Depression

- If you must treat:
  - Dilute naloxone (10:1) in saline and infuse 1 cc at a time until breathing pattern returns to normal
  - This will reverse the respiratory depression without taking away all analgesic effect

NOTE: The ½ life of the naloxone (Narcan) is of much shorter duration than an opioid, may need to repeat
Pain Management and Addiction
Addiction
A pattern of compulsive drug use characterized by a continued craving for an opioid for effects other than pain relief.

Pain Management and Addiction
American Society For Pain Management Nursing
Position Statement
Patients with addictive disease and pain have the right to be treated with dignity, respect, and the same quality of pain assessment and management as all other patients.

Pseudoaddiction
Seeking of additional medications appropriately or inappropriately secondary to significant undertreatment of the pain syndrome.
Behaviors cease when the pain is effectively treated.
Tolerance
Adaptation to the effects of a chronically administered opioid.

Over time, the opioid dose may need to be either increased or given more frequently to achieve the same initial analgesic effect.

Physical Dependence
A physiological state in which abrupt discontinuation of an opioid results in withdrawal syndrome (also known as abstinence syndrome).

Symptoms of withdrawal include: lacrimation, rhinorrhea, yawning, dilated pupils, gooseflesh, tremor, insomnia, diarrhea, vomiting, anorexia, irritability, elevated blood pressure, muscle cramps/spasms, dysphoria (a state of profound unease).

Pain Management Principles
• Believe the patient’s report of pain
• Give medication by mouth (po) whenever possible
• Use adjuvant medications when indicated
• Realize that most oral drugs achieve steady state after 5 doses
• Titrate to effect
Pain Management Principles

- Sustained release/long acting opioids can be considered maintenance medications for pain control
- Immediate release opioids are for treating breakthrough pain
- Opioids have no known ceiling (limit), doses may be increased as needed to achieve pain relief
- Exceptions: meperidine (Demerol) and methadone

Pain Management Principles

- Treat side effects
- Common side effects of opioids include: constipation, nausea/vomiting, and dry mouth
- Tolerance to side effects usually develops with the exception of constipation
- Anyone on routine opioids MUST also be on a bowel regimen, at a minimum docusate and senna daily (NOT PRN)

Pain Management Principles

- Use non-pharmacologic modalities in addition to medications: relaxation/guided imagery, exercise/range of motion as tolerated, massage, humor, aromatherapy, hypnosis, music
- Try and keep on trying
- Obtain expert advice if necessary
- The majority of pain can be well controlled with currently available tools and strategies