Overview of Pain Types and Prevalence

Pain Resource Nurse Program
Module 1

The Resource Center of the Alliance of State Pain Initiatives
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Pain: A Gift and a Curse

**GIFT:** Adaptive response to real or potential tissue injury

**CURSE:** Maladaptive, ongoing response with no discernable purpose
Definitions of Pain

- Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage
  
  IASP, 1979, 1994

- Pain is whatever the experiencing person says it is, existing whenever he says it does
  
  McCaffery, 1968, 1999
Pain Classifications

- Intensity: e.g., mild, moderate, severe
- Duration: acute, chronic (persistent)
- Pathophysiology: nociceptive, neuropathic
- Type or Syndrome: e.g., cancer, low back pain, fibromyalgia, migraine, sickle cell
Acute versus Chronic Pain

Many patients will have mixed pain mechanisms and problems

ACUTE
- Time limited
- Cause often known
- Diminishes as healing takes place
- May have observable signs

CHRONIC (Persistent)
- Purposeless, cyclical, irreversible
- Persists > 3-6 months
- Vegetative, depressive signs
- Autonomic adaptation
## Nociceptive Pain
also termed “normal” or “physiologic” or “inflammatory”

<table>
<thead>
<tr>
<th><strong>Somatic</strong></th>
<th><strong>Visceral</strong></th>
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<tbody>
<tr>
<td>Well-localized</td>
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<tr>
<td>Aching, throbbing, gnawing</td>
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<tr>
<td>Activation of nociceptors in cutaneous and deep tissues</td>
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<tr>
<td>Bone mets, soft tissue injury</td>
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<tr>
<td>Poorly localized</td>
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<tr>
<td>Deep aching, cramping, pressure, referred</td>
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<tr>
<td>Activation of nociceptors resulting from stretch, distention, or inflammation</td>
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<tr>
<td>Bowel obstruction, biliary colic</td>
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Neuropathic Pain
also termed “abnormal” or “pathophysiologic”

- Pain that is initiated or caused by a primary lesion or dysfunction of the nervous system
- May include both positive and negative sensory and motor signs and symptoms
- No single symptom is diagnostic. High degree of interpatient variability in presentation
- Three symptoms are significant predictors
  - Tingling
  - Numbness
  - Pain with normal touch
Abnormal Sensitivity to Stimuli

- **Hyperalgesia**: An increased response to a stimulus which is normally painful

- **Allodynia**: Pain due to a stimulus which does not normally provoke pain
Transduction

Noxious Stimulus

Nociceptors
Transmission

Diagram showing the transmission of nerve signals from the hand to the brain. Key components include:

- Primary afferent neurons (Aδ and C fibers)
- Dorsal root ganglion
- Dorsal horn
- Secondary afferent neurons
- Spino-thalamic tract
- Thalamus
Perception
Modulation
Pain Experience

- Sensory
- Emotional
- Spiritual
- Behavioral
- Socio-Cultural
- Cognitive
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- Cognitive
Downward Spiral of Pain and Emotions

- Pain
- Depression
- Anxiety
- Inactivity
- Pain
Pain by the Numbers

- 76 million Americans report pain lasting greater than 24 hours
  - 42% of these had pain lasting one year or more
- More than 73 million surgeries each year in U.S.
  - >80% have moderate to severe pain during first 2 weeks after surgery
- Pain is common in cancer
  - 64% in advanced disease; 59% during anticancer treatment; 33% in those cured.
  - \( \geq 33\% \) of those in pain had moderate to severe pain
Pain by the Numbers

Children
- More than 5 million children in the U.S. undergo surgery every year
- > 80% children dying from cancer have pain; only one-third had effective relief

Elders
- One-fifth of the general public age ≥ 65 report pain
  - 57% of those had pain that lasted ≥ 1 year
  - Back and joint pain most common
- Nearly half of nursing home residents report pain of moderate or greater intensity
Pain: Societal Costs

- Unnecessary suffering
- Annual cost to American economy: over 100 billion
- 50 million lost work days/year in U.S.
- Unrelieved post-operative pain can increase length of stay
Consequences of Unrelieved Acute Pain

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<thead>
<tr>
<th>System</th>
<th>Physiologic responses</th>
<th>Clinical consequences</th>
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<tbody>
<tr>
<td>Endocrine/Metabolic</td>
<td>↑ Stress hormones (ACTH, cortisol)</td>
<td>↑ RR, HR, BP</td>
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<td></td>
<td>↑ ADH</td>
<td>Fluid overload</td>
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<td></td>
<td>↑ Epi, NE</td>
<td>Glucose intolerance</td>
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<tr>
<td></td>
<td>↑ renin, aldosterone</td>
<td>Hyperglycemia</td>
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<tr>
<td></td>
<td>Gluconeogenesis</td>
<td>Loss of lean body mass</td>
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<td></td>
<td>Glycogenolysis</td>
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<td>Protein catabolism</td>
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<td>Cardiovascular</td>
<td>↑ HR, cardiac output&lt;br&gt;↑ Peripheral vascular resistance&lt;br&gt;↑ O₂ consumption&lt;br&gt;↑ Coagulation</td>
<td>Hypertension&lt;br&gt;Unstable angina&lt;br&gt;MI&lt;br&gt;Deep vein thrombosis</td>
</tr>
<tr>
<td>Respiratory</td>
<td>↓ Tidal volume&lt;br&gt;↓ Cough&lt;br&gt;Hypoxemia</td>
<td>Atelectasis&lt;br&gt;Pneumonia</td>
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<td>Urinary</td>
<td>↓ Urinary output&lt;br&gt;urinary retention</td>
<td>Fluid overload&lt;br&gt;Electrolyte imbalance</td>
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<tr>
<td>Gastro-intestinal</td>
<td>↓ Gastric and bowel motility</td>
<td>Constipation&lt;br&gt;Anorexia&lt;br&gt;Ileus</td>
</tr>
<tr>
<td>Musculo-skeletal</td>
<td>Muscle spasm&lt;br&gt;Impaired muscle function</td>
<td>Immobility&lt;br&gt;Weakness and fatigue</td>
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<td>Neurologic</td>
<td>Impaired cognitive function</td>
<td>Confusion, Impaired ability to reason and make decisions</td>
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<td></td>
<td>Altered pain processing: ↑ sensitivity</td>
<td>↑ Risk of chronic pain, allodynia, hyperalgesia</td>
</tr>
<tr>
<td>Immunologic</td>
<td>↓ Immune response</td>
<td>Infection, Sepsis</td>
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Consequences of Persistent Pain

- Depression, hopelessness
- Impaired mobility, impaired physical function
- Decreased socialization
- Cognitive dysfunction
- Increased health care utilization
- Sleep disturbances
Consequences of Neonatal Pain

- Minimal anesthesia associated with ↑ intra- and post-op complications
- Repetitive or prolonged pain → altered pain sensitivity and processing later in life
- If pain not controlled, circumcised infants displayed ↑ pain response to subsequent routine immunizations at 4 and 6 months compared to uncircumcised infants
Groups at Risk for Poor Pain Control

- Infants and children
- Older adults
- Racial and ethnic groups
- Women
Groups at Risk for Poor Pain Control

- Patients with a current or past history of substance abuse
- Cognitively impaired, nonverbal patients
Barriers to Assessing & Treating Pain

- Patient and family attitudes and lack of knowledge
- Health care provider attitudes and lack of knowledge
- The health care system
- Regulatory issues
Patient and Family Barriers

- Reluctance to report pain (stoicism, not wanting to be a “complainer”)
- Belief that pain is inevitable or “deserved”
- Fear of the meaning of pain
- Fear of addiction
- Negative experiences or attitudes about analgesics
- Fear of distracting health care team from treating the disease
- Belief that pain cannot be managed
Barriers:
Health Care Providers

- Lack of knowledge
- Negative attitudes about patients with pain
- Time constraints
More Barriers: Health Care Providers

Fears ...
- addiction
- respiratory depression
- hastening death
Barriers: Healthcare System and Regulations

- Reimbursement issues
- Fragmented care
- Lack of organizational support
- Lack of accountability
- Restrictive laws
- Societal attitudes about pain therapies
Case Study
Addressing Barriers

- Mr. S is dying of metastatic prostate cancer. He is receiving an IV morphine infusion at a rate of 20 mg/h. He is moaning and restless. The attending physician orders a 10 mg bolus of IV morphine. The patient’s nurse refuses to administer the bolus because she fears it will hasten the patient’s death.

- How should you respond?
Fear that Opioids Hasten Death

- No evidence to support the fear that aggressive pain management at the end of life will hasten death
- Clinicians must understand that significant tolerance develops to the respiratory depressant effects of opioids
- Principle of double effect provides ethical basis for aggressive pain control
Summary

- Pain is more than an unpleasant sensation.
- Recognition of pain as a biopsychosocial experience is essential to all aspects of the care of persons with pain.
- Knowledge of the physiology of pain provides a framework for appropriate pharmacological and non-pharmacological therapies.
- Much pain is still inadequately treated because of lack of knowledge and inappropriate attitudes and barriers in the health care system.