How pain affects hospitalization and rehabilitation

Samia Saouaf  BscN, DESS
Objectives

- MUHC prevalence survey
- What is pain
- Pain Pathway
- Harmful effects of pain
- Pain management tools
Patient reporting pain score ≥ 4/10

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency</td>
<td>27.7%</td>
<td>23.8%</td>
</tr>
<tr>
<td>ICU</td>
<td>53.4%</td>
<td>36.9%</td>
</tr>
<tr>
<td>Surgical mission</td>
<td>41.9%</td>
<td>32.5%</td>
</tr>
<tr>
<td>MUHC</td>
<td>36.6%</td>
<td>25.9%</td>
</tr>
</tbody>
</table>

Target of pain report for pain score ≥ 4/10 is 20%
What is Pain

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

  International Association for the Study of Pain (IASP)

- Pain is whatever the patient says it is.

- Acute pain is always triggered by a stimuli.
  - Lasts from a few minutes to a few weeks
BASIC MECHANISMS UNDERLYING THE CAUSES AND EFFECTS OF PAIN

1. Transduction
   A. Cell damage releases sensitizing substances: PG, BK, SH, SHT, SP, H
   B. Action potential
      
      No+ No+ No+
      Nociceptor
      
      Example of nociceptive input: damage cells and stimulate nociceptors, initiating the sensation of pain.

2. Transmission
   This phase of transmission occurs in the dorsal horn of the spinal cord.

3. Spinothalamic tract neuron
   
   Transmission

4. Modulation
   Spinothalamic tract neuron
   Transmission (inhibited)

5. Perception of pain
   Opioid receptors

6. Modulation
   Spinothalamic tract neuron
   Transmission (inhibited)


Figure 5
1. Transduction
2. Transmission
3. Modulation

Developed by McCaffrey M, Powers C, Para M.
Harmful effects of unrelieved pain

- Wound healing
- Nervous system
- Cognitive system
- Psychological
- Endocrine and metabolic system
- Immune system
- Respiratory system
- Cardiovascular system
- Musculoskeletal system
- Gastrointestinal system
- Genitourinary system
Cardiovascular System

- Clinical effect of stress response related to any injury:
  - Hypertension
  - Tachycardia
  - Cardiac arrhythmias
  - Protein catabolism
  - Hypercoagulation (increase risk of DVT & pulmonary embolism)
  - Elevated O2 consumption
Wound Healing

- Pain
- Possible infection
- Inflammation
  - Problems with concordance
  - Sleep Disturbances (cortisol)
  - Barriers to assessment
  - Limited Mobility
- Delays in Healing

Musculoskeletal system

- Muscle strength is affected by the:
  - Type of muscle fibers contracting
  - Speed of contraction
  - Length-tension relationship
  - Pain \ Fatigue
    - Limiting movement \ fear of movement
      - Muscle atrophy
        - Impaired muscle function
          - Deconditioning
Posttraumatic Stress disorder

- Studies on severe pain and posttraumatic stress disorder showed:
  - Correlation between severe pain and posttraumatic stress up to 24 months after discharge
  - Poor cooping over time
  - Increase of physical and psychological disability

Corry & al (2010); Patterson & al (2006)
Avoid pain

- Pain
- Stress / Anxiety
- Psychological distress
- Isolation
- ↓ mobility
Undertreatment of acute pain

- Delay mobilization and recovery (failure to participate in physiotherapy and rehabilitation)
- Lead to anatomic and physiologic changes in the nervous system (risk of developing chronic pain)
- Increase length of stay in the hospital
- Increase risk of multiple hospitalization
- Delay return to work
- Increase cost of health care
Analgesic stepped approach

Mild
(1-4/10)
- Acetaminophen
- ASA
- NSAID’s/Cox-2
± Adjuvants

Moderate
(5-6/10)
- Codeine
- Tramadol
- Oxycodone
- Acetaminophen
- ASA
- NSAID’s/Cox-2
± Adjuvants

Severe
(7-10/10)
- Oxycodone
- Morphine
- Hydromorphone
- Fentanyl
- Methadone
- Acetaminophen
- ASA
- NSAID’s
± Adjuvants

Adapted from the World Health Organization
Multi-Modal pain management from Trauma to Home
Multi-Modal pain management from Trauma to Home

- **Opioids**: start at low dose and increase slowly at regular intervals until there is an analgesic benefit or the patient experiences unacceptable and persistent adverse effects.

- **Co-analgesics and adjuvants**: Respect dose ceiling of the medications

- **Refer to opioid conversion table**

- **Refer to your local resources i.e. pharmacist or acute pain service.**
Non Pharmacological interventions

*Cognitive-behavioral interventions
- Relaxation
- Distraction
- Imagery
- Music
- Humour
- Deep Breathing
- Information / Teaching

*Physical Interventions
- Heat / Cold
- Massage
- Turning / Repositioning

Decreases:
- muscle spasms (heat / cold)
- local swelling (heat / cold)
- muscle tension
- heart rate
- blood pressure
- stress / anxiety

* Interventions intended to supplement, not replace, pharmacological interventions
Satisfaction with pain management

- 233 patients (October 2009 and November 2010)
- 97% reported pain at discharge
  - Mild pain: 38%
  - Moderate pain: 35%
  - Severe pain: 24%

Satisfaction with pain management = 86%

- 22% of patient with moderate to severe pain were dissatisfied with pain management.

Higher prevalence of clinically significant depressive symptoms

Summary

- Pain management facilitates reducing the risk of cardiovascular and respiratory complications.
- Good pain control will allow patients to:
  - Ambulate sooner
  - Improve nutritional intake
  - Restore sleep
  - Fast tract rehabilitation period and healing process.
- Resulting in shorter hospital stays
- Decrease cost of health care
References


