Intermountain Project ECHO
Pain Management

Introduction to Pain Fundamentals and Establishing a Pain Diagnosis

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Robin R. Ockey M.D.
Disclosure

I have no financial interest to disclose
Objectives

At the conclusion of this activity, participants should be better able to:

1. Review the pathophysiology of pain
2. Differentiate between acute and chronic pain (with the focus on chronic pain)
3. Understand the biopsychosocial approach to chronic pain management and the importance of interdisciplinary care
Pain
Pathophysiology and Definitions
Nociception: The neural process of encoding noxious stimuli (IASP)

A series of physiological events bridging tissue damage and pain perception*

1. Transduction
2. Transmission
3. Perception
4. Modulation

Pain

Usually thought of as sensation arising from the stimulation of nociceptors
This is an OVERSIMPLIFICATION!

Defined by the IASP as:
“An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage.” (1,2)

Suffering
“can be defined as an affective or emotional response in the central nervous system, triggered by nociception or other aversive events, such as loss of a loved one, fear, or threat. Suffering is observed only in the indirect sense of the person's engaging in some behavior that is attributed to suffering.” (3)

Pain Behaviors (3)
1. Things people do when they suffer or are in pain
2. May arise because of nociception
3. May arise from other reasons as well

6 key notes that go along with the IASP definition

1. Pain is always a personal experience that is influenced to varying degrees by biological, psychological, and social factors.

2. Pain and nociception are different phenomena. Pain cannot be inferred solely from activity in sensory neurons.

3. Through their life experiences, individuals learn the concept of pain.

4. A person’s report of an experience as pain should be respected.

5. Although pain usually serves an adaptive role, it may have adverse effects on function and social and psychological well-being.

6. Verbal description is only one of several behaviors to express pain; inability to communicate does not negate the possibility that a human or a nonhuman animal experiences pain.

• **Nociceptive pain**
  Pain that arises from actual or threatened damage to non-neural tissue and is due to the activation of nociceptors.

• **Neuropathic pain**
  Pain caused by a lesion or disease of the somatosensory nervous system.

• **Nociplastic pain**
  Pain that arises from altered nociception despite no clear evidence of actual or threatened tissue damage causing the activation of peripheral nociceptors or evidence for disease or lesion of the somatosensory system causing the pain.

https://www.iasp-pain.org/resources/terminology/
Regarding Nociplastic Pain

1. Underlying mechanism is not entirely understood

2. Augmented CNS pain and sensory processing as well as altered pain modulation thought to play prominent roles

3. Pain is often multifocal and more widespread or intense than would be expected given the amount of identifiable tissue or nerve damage

4. Central nervous system derived symptoms such as fatigue, sleep, memory and mood problems may be associated.

5. Can occur in isolation but often occurs in conditions such as fibromyalgia or tension type headache and may occur as part of a mixed pain state in combination with nociceptive or neuropathic pain

“Pain is a uniquely individual and subjective experience that depends on a variety of biological, psychological, and social factors, and different population groups experience pain differentially.”

“For many patients, treatment of pain is inadequate not just because of uncertain diagnoses and societal stigma, but also because of shortcomings in the availability of effective treatments and inadequate patient and clinician knowledge about the best ways to manage pain.”
Poll:
All of the following are true about pain except:

A. It is a personal experience that is influenced to varying degrees by biological, psychological, and social factors.

B. Nociplastic pain may be more widespread or intense than would be expected given the amount of identifiable tissue damage or nerve damage.

C. Though it usually serves an adaptive role, it may have adverse effects on function and social and psychological well-being.

D. Pain and nociception are similar phenomena. Pain can be inferred largely from activity in sensory neurons.

E. Verbal description is only one of several behaviors to express pain.

F. Individuals learn the concept of pain through their life experiences.
Acute Pain:

- Is generally “a relatively short, time-limited experience that abates when the injury heals or the disease is cured.” (1)
  - Is essential to survival
  - Warns us of injury/disease.
  - Encourages us to seek medical help
  - Contributes to healing by promoting rest/recovery
  - Its absence notifies us that it is okay to resume activities
  - Remembering acutely painful events helps us avoid future harm

- Without the capability of feeling pain, people typically do not live beyond childhood (2)

Chronic Pain or Persistent Pain (1, 2)

- Serves no adaptive purpose
- Persists past normal healing time
- When severe/intractable, it impacts the core of the person causing distress and suffering
- Associated with significant emotional distress and/or significant functional disability

- It ruins marriages and families
- Causes job loss, financial problems, social isolation, anxiety, worry, depression, and even suicide
- Time based definitions suggests that chronic pain is pain that persists 3-6 months

Poll:

All of the following are true about acute pain except

A. It is essential to survival
B. Warns us of injury/disease.
C. Encourages us to seek medical help
D. Contributes to healing by promoting rest/recovery
E. Remembering acutely painful events helps us avoid future harm
F. Persists past normal healing time
1. Pain is experienced by a chronic pain patient as a somatic event. It may or may not be related to tissue damage.
2. The patient may or may not recall an actual event resulting in injury.
3. Injuries may result in pain, but the presence of pain does not necessarily mean that an actual injury has occurred.
4. We often erroneously assume that the greater the pain, the greater the degree of injury.
5. With acute pain, the correlation between the experience of pain and the degree of injury seems to be stronger. With chronic pain the relationship is much more variable.
6. We should reassure patients that their reports of pain are accepted as valid regardless of the results of medical testing.
Physical Thinking

Memories of previous experiences of pain and events related to the chronic-pain condition

Perceived coping alternatives

Expectations regarding implications of chronic pain for one’s general well-being.

Attitudes and beliefs regarding oneself and others

Focus of Attention
Emotions
- Anxiety
- Depression
- Guilt
- Hostility
- Hopelessness

Thinking
- Fear
- Frustration
- Irritability

Physical
Physical Thinking

- Vomiting
- Restricted activity
- Facial grimaces
- Limp
- Overt Expressions of Pain

Emotions

- Taking medications
- Moaning
- Seeking medical assistance
- Bracing
- Withdrawing from others

Behaviors

- Vocal utterances
- Pain diverting activities
- Restricting activity
- Facial grimaces
- Overt Expressions of Pain
- Limp
- Withdrawing from others
Ways of Thinking about Pain

Disease or Biomedical Model
Assumes pain is a symptom of underlying body defect.

Vs

Biopsychosocial Model (1)
Suffering behaviors may occur for many reasons that may have substantial, little or no relationship to nociception.

(Biology, behaviors, thoughts, feelings, beliefs, and the environment all play a role).

“... pain is a subjective perceptual event that is not solely dependent on the extent of tissue damage or organic dysfunction.”

“... treatment should be designed not only to alter the physical contributors but also to change the patient’s behaviors regardless of the patient’s specific pathophysiology and without necessarily controlling pain per se.”

Treatment
Treatment strategies (in brief)

With chronic persistent pain
• Treatment should reflect the biopsychosocial approach
• A multifaceted approach with interdisciplinary care should be strongly considered

Both nonpharmacological and pharmacological strategies should be considered. Pharmacological strategies should reflect the type of pain:
• Nociceptive pain: NSAIDs are typical first-line therapy
• Neuropathic pain: Antiepileptic and antidepressant medications are typical first-line therapies.

Nonpharmacological strategies should also be considered for both nociceptive and neuropathic pain depending on the situation
• Given compelling evidence of risk and the absence of strong evidence for effectiveness, opioids should not routinely be used for chronic pain.
If the decision is made to prescribe opioids, the following are important considerations:

- Should only occur when other options have failed. Alternative strategies need to be explained to the patient.
- The lowest effective dose should be used.
- Ongoing assessment of risk and benefits needs to occur.
- Compliance monitoring should be part of prescribing.
- Continue opioids only if function and quality of life are improved.
- Patient needs to be informed of risks and limited benefits.
  ✓ Includes education regarding risk of addiction, overdose and death.
  ✓ Should also include a discussion of potential interactions with other drugs and alcohol.
- Discussions about the option of tapering or dose reduction should be an ongoing part of the therapy.

(This is not meant to be a comprehensive discussion on opioid prescribing)
Treatment of Nociplastic Pain

“nociplastic pain requires a broader multimodal approach including patient education, behavioural graded activity, stress management, exercise therapy, sleep management, etc.” (1)

“regular exercise can modulate pain sensitivity by altering central nociceptive processing and increasing central inhibition in both animals and people, making it an ideal choice for those with nociplastic pain.” (2)


When to refer for pain consultation (2 groups of patients):

1. The patient who may benefit from interventional care (i.e. image guided injections/procedures etc.)
   - Localized pain with anatomical explanation (via imaging, exam etc.)
   - Pain not responsive to initial conservative strategies
   - Desire to avoid surgical intervention
   - Appropriate expectations of potential benefit
   - Distress/mood reasonably controlled

2. Complex patient with difficult to treat pain
   - Persistent pain that impacts function, QOL, and/or mood (unresponsive to initial strategies)
   - Persistent, unexplained pain despite appropriate (often extensive) work-up (severe enough to require treatment)
   - High risk/complex pain related pharmacology (i.e. high-dose opioids, sedatives etc.)
   - Persistent neuropathic pain that has not responded to first-line treatments
   - Complex pain situations where a multifaceted approach with multiple disciplines may be necessary
Poll:

All of the following are true about pain treatment except

A. Chronic persistent pain is more likely to require an interdisciplinary approach to management than is acute pain.
B. NSAIDs are a typical first-line pharmacological strategy for nociceptive pain.
C. Antiseizure medicines are a typical first-line pharmacological strategy for neuropathic pain.
D. Opioids are typically not recommended for chronic pain because of limited evidence of efficacy and compelling evidence of risk/harms.
E. Nociplastic pain is more likely to respond to NSAIDs and opioids than to a multifaceted interdisciplinary approach to pain management.
Case Presentation


Bibliography/References


