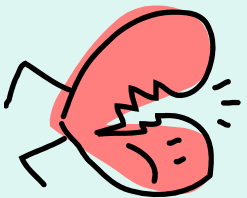




PAIN



Where it comes from
How it can be handled



PAIN A UNIVERSAL HUMAN EXPERIENCE

- Pain comes from a root word meaning punishment, trouble, toil
- Pain is helpful: warns us to “Watch Out!”
- Pain makes us think and is a central issue for philosophy and religion

NO BRAIN NO PAIN

- Pain starts with stimulation of “nociceptors” located throughout the body
- Pain is transmitted to the brain through the spinal cord
- In the brain it goes to areas that are involved in emotion and motivation and then finally to sensory and motor cortex

PAIN IS SUBJECTIVE

- Pain is highly subjective to the individual experiencing it. A definition that is widely used in nursing was first given as early as 1968 by [Margo McCaffery](#): "Pain is whatever the experiencing person says it is, existing whenever he says it does".

TYPES OF PAIN

- Superficial (that is in the skin): sharp, localized, quick to come and go
- Deep (in the bones, ligaments, joints): dull, poorly localized, slow to come and go
- Visceral (in the inner organs): even slower to come and go, may be “referred”

GATE THEORY

- When the nociceptor is stimulated, there is not necessarily a perception of pain
- Whether pain is perceived is determined by interaction with other neurons in the spine and in the brain
- This process interacts with heredity (redheads feel heat pain worse; some people feel no pain and others feel pain worse). Also interacts with learning.

TYPES OF PAIN

- Specific: due to local stimulation of pain receptor by chemical, thermal or mechanical stimulus
- Neuropathic: due to damage to nerves in the pain system (often burning) for example, phantom limb pain.

CHRONIC PAIN

- No Adaptive purpose
- Very much affected by psychological factors (attention, tension, mood)
- Hard to treat

PAIN MANAGEMENT

- **ANALGESICS:**
 1. Pain receptors interact with opioid receptors to suppress pain
 2. Pain receptors can be affected by internal opiates (endorphins) generated by physical activities or thoughts
 3. Pain receptors can be affected by opiate medications

Naturally Occurring Agents That Activate or Sensitize Nociceptors

Substance	Source	Enzyme Involved in Synthesis	Effect on Primary Afferent Fibers
Potassium	Damaged Cells		Activation
Serotonin	Platelets	Tryptophan hydroxylase	Activation
Bradykinin	Plasma kininogen	Kallikrein	Activation
Histamine	Mast cells		Activation
Prostaglandins	Arachidonic acid-damaged cells	Cyclo-oxygenase	Sensitization
Leukotrienes	Arachidonic acid-damaged cells	5-Lipoxygenase	Sensitization
Substance P	Primary afferent		Sensitization

(Reprinted with permission from Jessell TM, Kelly DD. Pain and analgesia. Kandel ER, Schwartz JH, Jessell TM, eds. *Principles of Neural Science*. 3rd edition. Norwalk, Ct: Appleton & Lange; 1991:385-399)

NSAIDS

- Cox inhibitors (inhibit prostaglandins)
Aspirin, Naproxen, Ibuprofen, diclofenac
(also may affect leukotrienes), Celecoxib

ACETAMINOPHEN

- Does not have anti-inflammatory action
- Reduces pain and fever
- Can safely be combined with other pain relievers
- Mechanism of action unknown, but may affect Cannabidiol receptors inhibiting anandamide production (anandamide sensitizes the primary nociceptor system)

ANTIDEPRESSANTS

- Tricyclics (especially amitriptyline): thought to act by inhibiting norepinephrine reuptake. Especially effective with neuropathic pain (e.g. post herpes), fibromyalgia and migraine
- SNRI's (Effexor, Cymbalta)
- Antidepressants of all kinds may help just by relieving depression and improving sleep

OTHER MEDS

- Neurontin/Lyrica/Baclofen: affect the GABA synapses and work for neuropathic pain and migraine. May work by overall calming of nervous system
- Muscle relaxants (Flexaril/Soma): reduce muscle spasms. Used after injury and for fibromyalgia
- Anaesthetics: general (loss of ability to perceive pain); local (block transmission of pain signals)
- Capsaicin: activates neurons which compete with nociceptor signals; also may cause depletion of substance P
- Alcohol, marijuana, etc.

NON-PHARMACOLOGICAL

- **Massage:** sets up signals that compete with nociceptor signals
- **Muscle relaxation:** muscle tension enhances nociception
- **Physical Therapy:** builds up supportive muscles reducing stress on joints
- **Chiropractic:** corrects spinal and postural problems
- **Biofeedback:** enables client to gain control of natural systems that reduce pain (e.g. making alpha waves, raising temperature in hand which causes reflexive relaxation of temporal lobe arterioles)
- **Hypnosis:** probably works by diverting attention from pain
- **Acupuncture:** changes flow of qi energy

DRUG SEEKING

- Person seeks pain meds for the high instead of or in addition to pain relief. Hard to determine when it is happening because opiates tend to develop tolerance so that the person needs more to achieve the same level of pain relief.
- A good way to avoid argument is to focus on functionality: if use of meds is increasing functionality, no problem. If use is decreasing functionality, look at working with client to produce holistic solutions.
- One indication of Abuse is that client is not able to look at harm caused by substance, but rationalizes use. Here, motivational interviewing, patience and tough love limits are useful

PAIN AND ADDICTION

- Patients with a history of addiction are more likely to have problems with opiate meds
- Pain specialists estimate that 90 to 95% of people handle opiate prescriptions without any problems
- With long-term heavy use, physical dependence (tolerance, withdrawal) is inevitable
- But psychological dependence (seeking euphoria, compulsion to use, preoccupation with substance) is rare for most patients

RISK FACTORS FOR ADDICTION TO PAIN MEDS

- Family hx of chemical dependence
- Hx of personal dependence
- Current mental illness dx (especially severe and persistent mental illness)
- Early response to pain meds as energizing or producing euthymia

MANAGEMENT OF ADDICTION TO PAIN MEDS

- Close supervision of use
- Switch to longer acting meds that produce less euphoria (methadone, buprenorphine) but which may produce less pain relief
- Encourage patient to use non-pharmacological alternatives
- 1. Many patients prefer a quick and easy pill
- 2. Many patients lack faith in non-pharmacological methods and consequently may realize little benefit
- Use motivational interviewing to increase clients consciousness of harm caused by pain med addiction

A FINAL WORD

Pain is a universal part of the human experience and as caregivers our responsibility is to see the individual and their pain in all the complexity of the physical, psychological, social and spiritual reality of the person. Our task as always is to help them to have the best possible quality of life.