When It Hurts- Managing Pain in Older Adults

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Disclosures

None.

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Objectives

- At the end of this program, you will be able to:
  - Understand your role in treating older adults who are in pain when cognition is either intact or impaired.
  - Understand common misconceptions and cultural issues about pain in older adults.
  - Discuss a range of strategies to recognize and treat pain.
  - Understand non-drug and drug therapies for pain control.

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Goals For The Discussion Today

- The overall goal of this presentation is to improve the ability of the medical provider to recognize and relieve pain in older adults with either intact or impaired cognition using both common and alternative methods of pain reduction.

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Chronic Pain in the Long-Term Care Setting

- Pain is prevalent in the elderly population generally.
- 70-80% of nursing home residents have significant pain.
- Patients with dementia have especially high rates of untreated pain.
- Pain has substantial impact on health and well being.
- There is a cultural context to pain especially in those from the greatest generation and baby boomers.
- We believe that pain can and should be improved.

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Goals for Successful Pain Management

- Comprehensive Pain Management- This includes analgesia, relief of suffering, modulation of side effects and patient involvement with/and commitment to an effective analgesic regimen.
- Successful pain management regimen also prevents loss of cognitive function, enhances independence and improves patient quality of life as much as possible.
- Recognize the physiological, psychosocial, spiritual and social contributors to pain and include both pharmacological and nonpharmacological therapies.
- Any comprehensive pain management program involves a multi-disciplinary team of doctors, nurses, psychologist and social workers who work collaboratively to address physical, emotional and psychological aspects of pain.

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What is Pain?

- International association for the study of pain defines pain as:
  - An unpleasant sensory and emotional experience associated with actual or potential tissue damage. The definition acknowledges that pain is Psychologically triggered but mediated by patients' perception and experience.
    - Acute/short term pain is any pain lasting less than 3 months.
      - This is often accompanied by autonomic nerves system changes resulting in the following:
        - Anxiety
        - Elevated Blood pressure, heart rate and oxygen consumption.
        - Elevated Raspatory rate and muscle tension.
        - Decrease in gastrointestinal motility and diaphoresis
    - Chronic/Long term pain is any pain lasting longer than 3 months.
      - This often fails to induce changes in the autoimic nervous system:
        - Patients may look depressed rather than in pain.
        - Often feel as if pain has pervaded there who world.
        - Unrelieved pain can result in clinical depression, sometimes with vegetative signs.
        - This is especially true if suffering for many years with no end to the pain.

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What is Pain? continued

- Nociceptive pain
  - Pain caused by damage to body tissue. Nociceptive pain feels sharp, aching, or throbbing. It's often caused by an external injury, like stubbing your toe, having a sports injury, or a dental procedure.
    - Somatic pain- Occurs when nociceptive receptors in cutaneous and deep musculoskeletal tissues are activated.
      - Metastatic pain
      - Post surgical
      - Musculoskeletal inflammation or injury
    - Visceral pain- inflammation or distension of thoracic and abdominal viscera.
      - Liver Metastasis
      - Pancreatic cancer

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What is Pain? continued

- Neuropathic pain
  - Pain caused by damage or disease affecting the somatosensory system. Neuropathic pain may be associated with abnormal sensations called dysesthesia or pain from normally non-painful stimuli (allodynia). It may have continuous and/or episodic (paroxysmal) components. The latter resemble stabbings or electric shocks. Common qualities include burning or coldness, "pins and needles" sensations, numbness and itching.

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Pathophysiology of Pain

- The four steps to pain pathway
  - Step 1-Transduction
    - Refers to the process by which external noxious stimuli produce electrical activity in the endings of primary afferent fibers.
    - Nociceptors are specific receptors located in the skin, muscle joints and viscera that when stimulated by injury, convey pain to the central nervous system.
    - Normally nociceptors are silent or sleeping. When noxious stimuli or injury awaken receptors, they produce a signal transduction and response.
    - Signals are transmitted by small diameter myelinated A-delta fibers and by unmyelinated C-fibers. Stimulation of A-delta fibers produces sharp stabbing pain, while stimulation of C-fibers produces a dull burning pain.
    - Stimulation of muscle nociceptors typically produces a dull, ache pain. Low intensity stimulation of visceral nociceptors cause a vague sensation of fullness and nasea, while higher intensity visceral stimulation produces diffuse pain.
    - Nociceptive fibers terminate in different patterns on various regions on the spinal gray matter.

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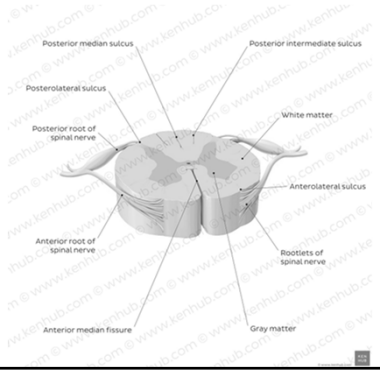

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Pathophysiology of Pain continued

- Step 2- Transmission
  - Transmission is the process by which impulses are sent from primary afferent nerves to the spinal cord.
  - The dorsal horn of the spinal cord is where afferent nociceptive neurons (A-C-Fibers) terminate and send their signals to projection neurons.
  - Signals are transmitted by excitatory amino acids such as glutamate which bind too N-methyl-D-aspartate (NMDA) receptors.
  - Stimulation of the NMDA receptors leads too influx of calcium and magnesium and causes depolarization of spinal cord neurons.
  - The spinothalamic tract is located in the anterolateral segment of the dorsal horn of the spinal cord.
  - Various components of the spinothalamic tract transmit pain and messages to the thalamus and midbrain along with sensations of cold, warmth and touch.

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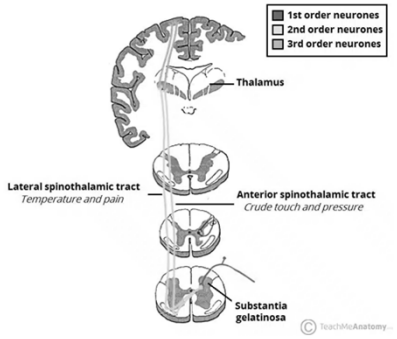

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Pathophysiology of Pain continued

- Step 3- Perception
  - Refers to the process that results in the awareness of pain.
  - Pain pathways can be divided into medial pathways which processes the afferent motivational component of pain, and the lateral pathway, which subserves the discriminative component of pain.
  - Pain signals are transmitted from the ventroposterolateral and ventroposteromedial nuclei of the thalamus to specific somatosensory regions of the cortex.
  - If a signal is blocked anywhere the patient will not perceive pain.

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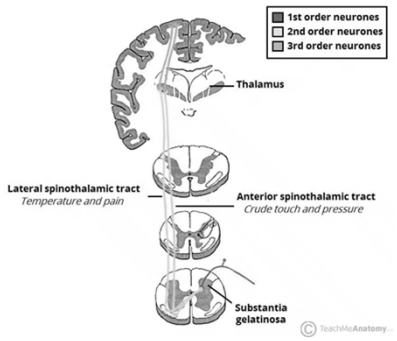

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Pathophysiology of Pain continued

- Step 4- Modulation
  - The body's physiological response to pain signals is to decrease (ie, modulate the perception of pain)
  - Modulation refers to the process of decreasing further transmission of pain signals through interactions between afferent ascending pathways and descending pathways in the brain stem and spinal cord.
  - The cerebral cortex and various limbic structures including the hypothalamus are components of analgesic pathways.
  - Descending pathways terminate in nociceptive sensory projection neurons in the dorsal horn of the spinal cord. These descending pathways inhibit the activity of nociceptive projection neurons through direct connects as well as interneurons in the superficial of the dorsal horn. The pathways release endogenous serotonin norepinephrine and other chemical mediators to suppress afferent nociceptive impulses, thereby modifying the effect of persistent pain.
  - Alpha-2 agonist such as clonidine provide pain modulation through direct action on the adrenergic receptors in the spinal cord.
  - Tricyclic antidepressants such as amitriptyline, block the uptake of serotonin and norepinephrine augmenting the post synaptic actions on the descending pain suppression pathways.
  - Opioid are postulated to work on the descending system by contributing to the release of serotonin and other endogenous substances, which then modulate the activity of ascending spinothalamic pathways.
  - Activation of the descending system has been implicated as a reason for the effectively for placebo and acupuncture.

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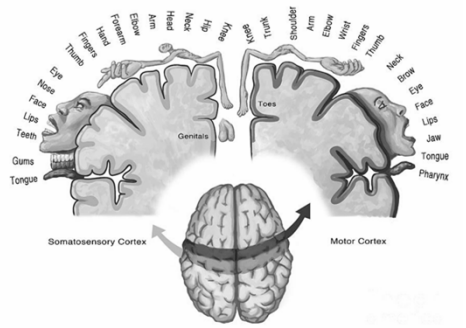

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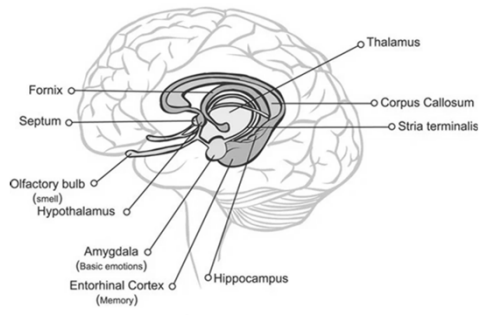
The Limbic System



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Assessment of the Patient with Pain

- A complete history and physical examination of the patient.
  - If patient cannot give a good history, you must get family involved to help with historic facts. Many patients will be cognitively impaired which can hinder a good exam.
  - Review of old records prior to examination.
  - An in person physical exam is always best to obtain a complete assessment.
  - If telemedicine is used, a competent healthcare provider should be with the patient.

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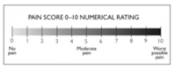
Assessment of the Patient with Pain Continued

- There is NOT a pain meter to help us assess pain.
- Mechanisms available are:
  - numeric pain scale



  - Wong Baker Faces

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Treatment for Nociceptive Pain

- Nociceptive Pain Management Modalities
  - Principles of Geriatric Care are to "Start Low and Go Slow"
    - Non-Pharmacological treatments
      - TENS Units (Transcutaneous Electrical Nerve Stimulation)
      - Physical Therapy
      - OMM
      - Psychosocial interventions
        - Help patients gain a sense of control over their perception of pain.
      - Surgical Consultations
      - Massage Therapy
      - Acupuncture

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Treatment for Nociceptive Pain Continued

- Pharmacologic Treatment
  - The World Health Organization's (WHO) three step analgesic ladder provides a useful guide for treating pain. It also incorporates important principles for effective pharmacologic treatment of pain, including the following:
    - As pain increases, effective analgesia requires switching from non opioids to weak opioids to strong opioids.
    - Adjuvant medications often are necessary to control pain.
    - The oral route should be used whenever possible due to general tolerability, ease of delivery, and cost.
    - Medications should be given around the clock for chronic pain not on an as needed basis.
    - Additional doses of medication should be available to control breakthrough and incident pain.
    - Pharmacologic treatments should be based on the pain's specific etiology, which requires careful assessment to identify the cause.
    - Perception of pain vary tremendously, requiring individualized treatment plans for each patient and each type of pain.
      - Misconception- All pain is the same for everyone!

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Treatment for Nociceptive Pain Continued

- Pharmacological formulations and regimens
  - Topical analgesics
    - Lidocaine
    - Capsaicin
    - Topical Nsaid's
  - Acetaminophen
    - Usual oral dose for geriatric patient is 3 grams per day divided doses.
      - 325-500 mg per dose every 4 hours as needed for pain control.
      - If that does not control pain, you can change to routine dosing every 4 hours.
      - Careful consideration for patients with hepatic disease, ie cirrhosis or chronic hepatitis.
  - Acetylsalicylic acid
    - Usual dose is 650 mg Q 4 hours, or 975 Q 6 hours as needed for pain control
    - Use enteric coated whenever possible.

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Treatment for Nociceptive Pain Continued

- Anti-inflammatory Medications
  - Ibuprofen
    - 400-800 mg Q 6 hours prn for pain control or on a schedule.
  - Diclofenac
    - 50-75 pm orally 2-3 times per day on a schedule or prn.
    - May be used topically BID or TID.
  - Cox-2 Inhibitor- Celebrex
    - 100-200 mg BID
  - Corticosteroids- Prednisone
    - 5 to 40 mg Q day depending on type of pain. Short term usage.
- With all Anti-inflammatory medications
  - Prostaglandin inhibition
    - Monitor GI and kidney complications

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Treatment for Nociceptive Pain Continued

- Muscle Relaxers
  - Cyclobenzaprine
  - Baclofen
  - Carisoprodol
- Weak Opioid treatment
  - Hydrocodone
    - May be combined with Acetaminophen or with ASA
    - 5mg Q4-6 hours PRN up to 10mg Q4-6 hours PRN for pain control
  - Oxycodone
    - 5- 10 mg Q6-8 hours PRN
  - Tramadol
    - 50-100 mg Q 8 hours PRN
  - All used in lower doses and titrated slowly.
  - All used in short term treatment plans and/or long-term break through pain.

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Treatment for Nociceptive Pain Continued

- Strong Opioid Treatment
  - Morphine
    - If patients do not achieve useful relief of pain from morphine or when rapid titration has
    - not been effective or toxicity occurs, referral to a specialist in palliative or pain medicine
    - is strongly recommended. Additional adjuvants are likely to be needed.
    - Morphine remains the first-line opioid for severe pain (except in renal impairment),
    - Oral is the preferred route
    - Not all pains are opioid responsive, and some respond better to one opioid than another
    - due to individual differences in drug pharmacokinetics
    - Elderly and cachexic patients and those with renal impairment may need lower doses,
    - reduced frequency or alternative opioids.
    - We recommend that all opioids are prescribed by drug name indicating whether it is
    - immediate or modified release form, e.g. morphine IR, oxycodone MR etc.

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Treatment for Nociceptive Pain Continued

- Oxycodone
  - Is an effective opioid for controlling severe pain and is available in controlled release formulations
- Fentanyl
  - Available in transdermal formulations.
- Meperidine and Pentazocine
  - Preparations of these medications should not be used due to their side effects and relatively poor bioavailability when given orally.
- Methadone
  - Is difficult to use due to extremely long half life.

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Treatment for Nociceptive Pain Continued

- The immediate release rescue dose should be approximately 15 to 25% of the total daily does of sustained release product and should be given every 2-4 hours as needed. If more than one rescue dose is required in a 24-hour period, appropriate increases should be made in the dosage of the sustained released preparations.

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Treatment for Nociceptive Pain Continued

Opioid Conversion Chart — **Wessex Palliative Physicians Handbook of Palliative Care 9th Edition 2019**

'Strong' opioids													Patches		'Weak opioids'	
Morphine					Oxycodone				Diamorphine		Alfentanil		Fentanyl	Buprenorphine	Tramadol	Codeine Phosphate
Oral (mg)			Subcutaneous (mg)		Oral (mg)			Subcutaneous[1] (mg)	Subcutaneous (mg)		Subcutaneous[2] (mg)		Transdermal Patch (mcg/hr) *Stable pain only*	Transdermal patch (mcg/hr) *Stable pain only*	Oral (mg)	Oral (mg)
4 hr dose (IR)	12 hr dose (MR)	24 hr total dose	4 hr dose	24 hr total dose	4 hr Dose (IR)	12 hr Dose (MR)	24 hr total dose	4 hr dose	24 hr total dose	4 hr dose	24 hr total dose	4 hr dose	24 hr total dose	Change every 72 hours	Change at intervals indicated	24 hr total dose	24 hr total dose
1.25		**10**												5 *7 days*		100	120
2.5	10	**20**	1.25	**10**	1.25	5	**10**	1.25	**5**	1.25	**5**	0.125	**0.5**		10 *7 days*	200	240
5	15	**30**	2.5	**15**	2.5	10	**20**	1.25	**10**	1.25	**10**	0.125	**1**	6-12	15 *7 days*	300	
7.5	20	**40**	5	**20**	5	10	**20**	2.5	**10**	2.5	**15**	0.25	**1.5**	12	20 *7 days*	400	
10	30	**60**	5	**30**	5	15	**30**	2.5	**15**	2.5	**20**	0.25	**2**	12-25	35 *72 hrs*		
15	45	**90**	7.5	**45**	7.5	25	**45**	3.75	**25**	5	**30**	0.5	**3**	25-37	52.5 *72 hrs*		
20	60	**120**	10	**60**	10	30	**60**	5	**30**	7.5	**40**	0.75	**4**	37-50	52.5 *72 hrs*		
30	90	**180**	15	**90**	15	45	**90**	7.5	**45**	10	**60**	1	**6**	50-75			

[1]Some units recommend a 1:1 conversion from CSCI morphine to CSCI oxycodone* rather than the 2:1 conversion in the table above.
[2]Some units recommend an 18:1 conversion from PO morphine to CSCI alfentanil* rather than the 30:1 conversion in the table above.
*Seek specialist advice when doses are greater than the equivalent of 180mg PO morphine in 24 hours
Consider reducing the equianalgesic dose by 25-33% if converting from a less sedating opioid, e.g. fentanyl to morphine, oxycodone or diamorphine, as sedative actions may be greater for an equianalgesic dose.

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Treatment for Nociceptive Pain Continued

- Addiction is manifested by drug abuse and inappropriate drug seeking behavior.
- When opioids are stopped abruptly, both addicts and patients using opioids chronically for pain management experience similar physical signs and symptoms of withdrawal, including sweats, abdominal cramps, malaise and dread.
- Withdrawal symptoms can be avoided by decreasing the total daily does of the opioid by 25% each day until effective opioid dosing is obtained, or the patient no longer requires opioid therapy.

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Treatment for Nociceptive Pain Continued

- Tolerance is characterized by gradual decrease in analgesic effect.
- The cause of this decrease is unknown.
- For patients with pain, particularly those with cancer associated pain, the need for higher doses of medication to achieve adequate relief of pain is typically associated with disease progression, not pharmacological tolerance.
- Opioid tolerance and physical dependence do not indicate addiction.
  - Common misconception.

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Treatment of Neuropathic Pain

- Neuropathic Pain
  - Pain caused or initiated by primary lesion or dysfunction of the nervous system. Neuropathic pain and nociceptive pain frequently coexist; however, due to differing pain mechanisms, they require different treatment interventions. Generally, neuropathic pain responds less well to opioids than nociceptive pain and is treated using adjuvant analgesics such as anti-depressants and anticonvulsants.

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Treatment of Neuropathic Pain Continued

- Peripheral neuropathic pain stems from injury to the peripheral nerves system and may be characterized by intermittent stabbing and lancinating pain or consist of burning pain.
- Peripheral neuropathy includes polyneuropathies and mononeuropathies.
- Central neuropathic pain stems from injury to the central nervous system.
- Centrally mediated neuropathic pain can be subdivided into:
  - Deafferentation pain- includes several syndromes such as post hepatic neuralgia and phantom pain.
  - Sympathetically mediated pain- Includes Complex regional pain syndrome and reflex sympathetic dystrophy.

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Treatment of Neuropathic Pain Continued

- Pharmacological management of neuropathic pain

Drug	Starting Dose	Typical Dose
Antidepressants		
Nortriptyline	10mg PO HS	10-150mg PO HS
Desipramine	10mg PO HS	10-150mg PO HS
Calcium Channel- Alpha2-Delta Ligands		
Gabapentin	100-300mg PO QD to TID	300-1200mg PO TID
Pregabalin	50mg PO TID	100MG PO TID
Selective Serotonin Norepinephrine Reuptake Inhibitors		
Duloxetine	20mg PO BID	60-120mg PO QD
Venlafaxine	37.5mg PO BID	150-225mg PO BID
Antiseizure Medications		
Carbamazepine	100mg PO BID	200-400 PO BID
Sodium Valproate	250mg PO BID	500mg PO BID

- Tricyclics and Clonidine.
- Neuroleptic Agents- These serve as adjuvant analgesics for the management of neuropathic pain.

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Different Patients typically treated in the nursing home

- Pre-Palliative/Skilled Care- Post operative short term stay patients.
- Palliative Care- interdisciplinary medical caregiving aimed at optimizing quality of life and mitigating suffering among people with serious, complex, and often terminal illnesses. Patients in this category are estimated to have two years of life or less.
- Hospice/End of live Care- These are patients in the last 6 months of life.

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HOSPICE/END OF LIFE CARE

- These are patients with less than 6 months to live having a terminal diagnosis.
  - Many of these patients are unable to orally consume medications.
  - Effective treatment for these patients are sublingual routes, transdermal, rectal, or IV.
  - The overarching goal of this treatment should be to provide care and comfort, not **euthanasia**.
  - The provider should not worry about creating addiction in these patients.
  - End of life pain management is a complex and multifaceted issue that requires the utmost attention and care. By adopting a personalize wholistic approach involving a multidisciplinary team, exploring all available options and addressing emotional and psychological pain, and involving patients and their families in decision making, we can provide the highest level of comfort and support to those in their final stages of life.

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Thank you for allowing me to present this topic for your review.