



Core Curriculum

End-of-Life Nursing Education Consortium

Module 2: Pain Management



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Module 2: Pain Management



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Pain is

- Pain is “An unpleasant sensory and emotional experience associated with actual or potential tissue damage”

www.iasp-pain.org/terms

- Pain is “What the person says it is...”

Pasero & McCaffery, 201



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Current Status of Pain



- We know that about **54% of cancer patients at EOL (End of Life) have pain**
- Persons with AIDS generally have intense pain → **AIDS with prognosis <6 months – intense pain**

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Current Status of Pain (cont)

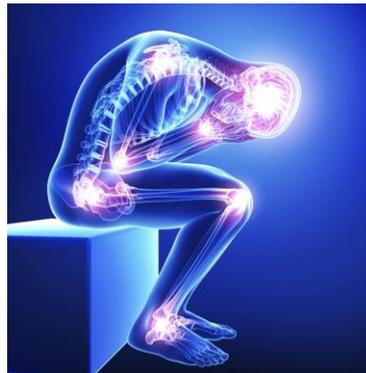
- **Less research conducted in other chronic illness**
- **Inadequate pain relief hastens death**
- **Pain relief is essential at end of life**

E L N E C Core Curriculum

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Inadequate pain relief hastens death

- Inadequate pain relief hastens death, because it increases physiological stress, potentially diminishes immunocompetency (decreases mobility, increase risk of pneumonia and tromboembolism, increases work of breathing and myocardial oxygen requirements)
- Pain relief is essential at end of life

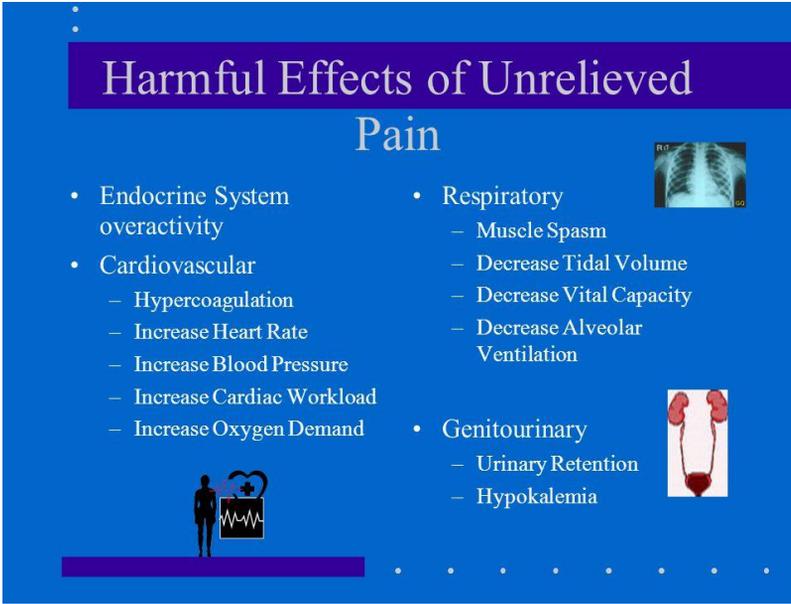


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Inadequate pain relief hastens death

Harmful Effects of Unrelieved Pain

- Endocrine System overactivity
- Cardiovascular
 - Hypercoagulation
 - Increase Heart Rate
 - Increase Blood Pressure
 - Increase Cardiac Workload
 - Increase Oxygen Demand
- Respiratory
 - Muscle Spasm
 - Decrease Tidal Volume
 - Decrease Vital Capacity
 - Decrease Alveolar Ventilation
- Genitourinary
 - Urinary Retention
 - Hypokalemia



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Barriers to Pain Relief

Barriers to Successful Management of Cancer Pain



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Barriers to Pain Relief

- **Specific barriers**

–**Professionals:** poor knowledge, poor assessment; do not give stronger drugs because of fear of addiction, of side effects, of tolerance; do not know regulation of controlled drugs

–**Health care systems:** low priority to alleviate pain; inadequate reimbursement; restrictive regulation

–**Patients/families:** fear of addiction, fear of tolerance, high cost, side effects, etc.

Miaskowski et al, 2005; Paice, 2010; Pasero & McCaffery, 2011

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Pain Assessment

- **Pain history**
- **Pain terms**
- **Acute vs chronic**

Fink & Gates, 2010

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Pain Assessment

- Assess **Pain history** (when it starts, triggers, what makes it worse, or alleviate, etc.)
- **Pain terms** (feels like throbbing? Like cutting? etc.)
- Is it **acute or chronic**?
 - **Acute pain** is of sudden onset and is usually the result of a clearly defined cause such as an injury. **Acute pain** resolves with the healing of its underlying cause. **Chronic pain** persists for weeks or months and is usually associated with an underlying condition, such as arthritis.

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Pain Assessment



Patient's name: _____ Date: _____ Time: _____

How My Pain Makes Me Feel

PAIN SCALE



0
No
pain

1
Some
pain
but OK

2
Mild
pain

3
Annoying
pain

4
Distressing
pain

5
Pain can't
be ignored
long

6
Pain can't
be ignored
at all

7
It's hard to
think and
sleep

8
Pain limits
activity;
nausea

9
I cry out
in pain

10
Passed
out

Where and how it hurts

On the pictures to the right:

- Put an **X** where it hurts (if it hurts in more than one place, put more than one X)
- Next to the **X** you wrote, put a number from the pain scale (above) that best shows how much it hurts
- From the words below, find the one that best says how your pain feels. Then, put the letter that's beside that word next to the number you wrote from step 2.

A. Throbbing

B. Shooting

C. Dull

D. Stabbing

E. Cutting

F. Cramping

G. Burning

H. Stinging

I. Tingling

J. Itching

K. Aching

L. Numbness

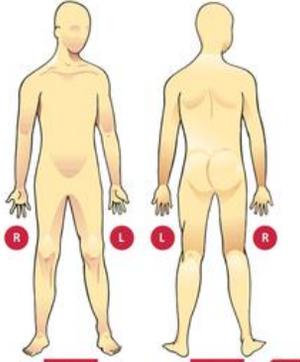
M. Sore

N. Heavy

O. Tender

P. Pressure

Q. Other _____



FRONT
BACK
→

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Pain History

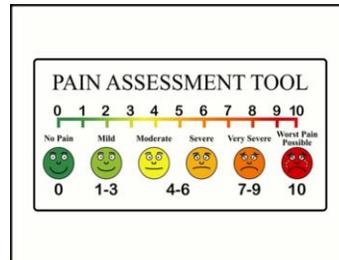
- Location
- Intensity
- Quality
- Temporal pattern



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Pain History

- **Location:** where does it hurt?
- **Intensity:**
 - on a scale from 0 to 10...
- **Quality:** how is it?
- **Temporal pattern:** timing
- **Aggravating/alleviating factors**
- **Medication** history (recent and distant)
- **Meaning** of pain
- **Cultural factors**



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Pain History

History taking

Presenting complaint

This outlines the reason why the patient is seeking health care and should consist of two to three words. For example:

- Central chest pain
- Abdominal pain
- Pain in ankle
- Shortness of breath

History of presenting complaint(HPC)

O	• Onset (When did the pain begin?)
L	• Location (Where is the pain, does it go anywhere else?)
D	• Duration (How long does the pain last? Is it constant or intermittent?)
C	• Characteristics (Is the pain sharp, shooting, burning, electrical? Is it a dull, aching or grinding pain? Does the pain feel like cramping or squeezing?)
A	• Aggravating factors (Do activities like moving, walking, sitting, turning or touching worsen the pain?)
R	• Relieving factors (What medical and non medical interventions relieve the pain?)
T	• Treatment (What treatment has the patient tried e.g. heat, elevation, simple pain relief, rest?)

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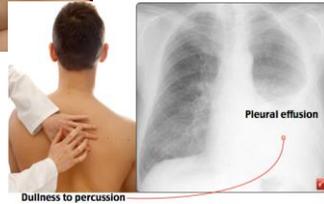
Pain History

Pain S O C R A T E S	Site : somatic pain-well localized Visceral pain – more diffuse (angina)
	Onset : speed of onset and any associations
	Character : e.g. Sharp, dull, burning, tingling, stabbing,crushing,
	Radiation (of pain or discomfort) through local extension or referred
	Alleviating factors
	Timing
	Exacerbating factors (Talley and O'Connor 2010)
	Severity

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Proceed to **Physical Examination**

- Observation
- Palpation
- Auscultation
- Percussion



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Proceed to **Neurological Examination**

- Vibration
- Proprioception
- Pain
- Temperature
- Reflexes

Sensory Function Tests:
Sensory Exam: Vibration



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Laboratory/Diagnostic Evaluation

- if needed → additional laboratory or imaging tests
- Rule out potentially treatable causes
- Need for additional laboratory or radiographic evaluation is directed by the goals of care

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Reassess

Always reassess changes in pain:

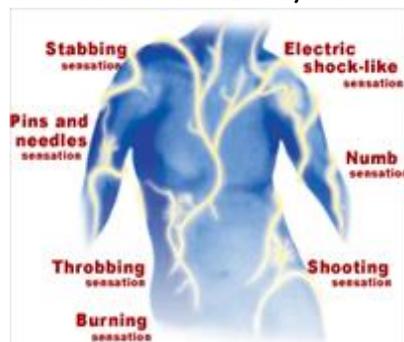
Always reassess after giving medication → Assess pain relief

Always reassess before giving medication → Characteristics of pain, Changes in pain

• **Make pain visible:** ask the person to describe his/her pain



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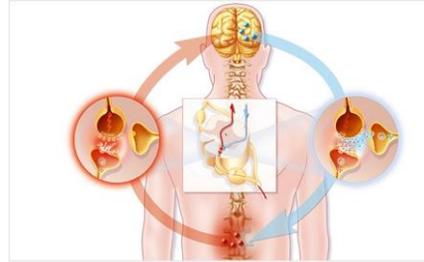
Common Syndromes at the End of Life

NOCICEPTIVE PAIN

- Somatic
- Visceral

NEUROPATHIC PAIN

- Post herpetic neuropathy
- Diabetic neuropathy
- HIV associated neuropathy
- Chemotherapy related neuropathy



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Common Syndromes at the End of Life

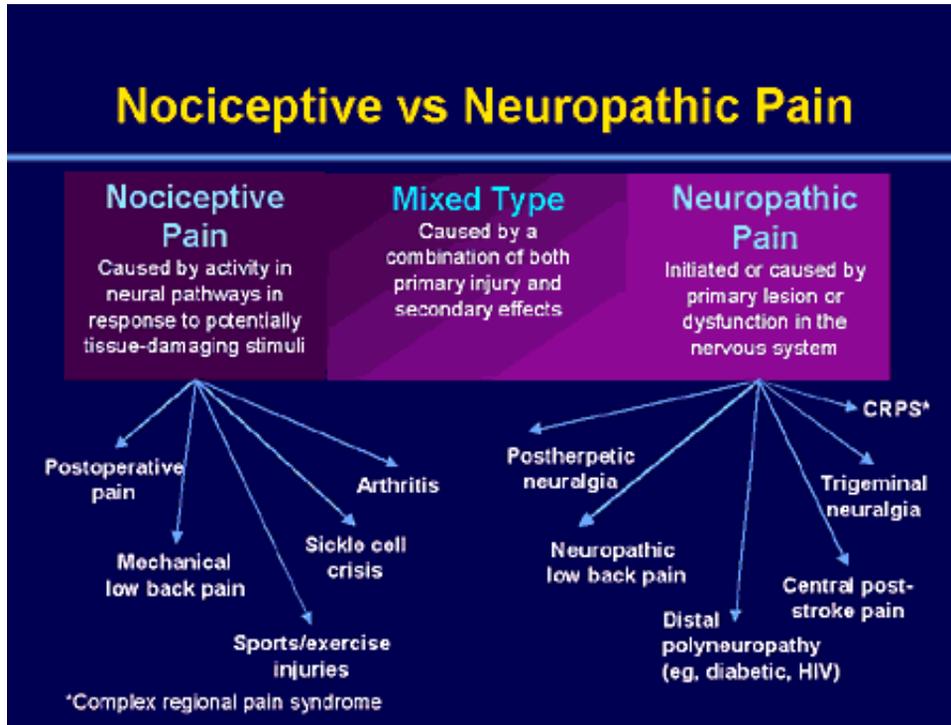
Nociceptive Pain

Nociceptive pain may be somatic or visceral in origin.

-Somatic pain: Originates from musculoskeletal, joint or cutaneous nociceptors and is often well localized. E.g. Gout, osteoarthritis, skin incision and trauma-induced pain.

-Visceral pain: Originates in nociceptors located in the hollow organs and smooth muscles; it is often referred. E.g. Dysmenorrhea, gastritis, appendicitis or acute pancreatitis

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Pain vs. Suffering at the End of Life

- PAIN can lead to **Existential distress** (detrimental emotions experienced due to the anticipation of death)
- The **dimensions of Quality of Life** are not only physical, but also psychological, emotional, social, spiritual.
- Therefore, Pain management is crucial. It **require interdisciplinary approach**.



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Patients at Risk for Undertreatment

- Children and older adults (who cannot express well what they are feeling)
- Non-verbal or cognitively impaired (cannot express well)
- Non-English speaking (when no one can interpret)
- Different cultures (may express differently and not be understood)
- Patients who deny pain
- History of addictive disease (medication may not work well, dosages have to be adjusted, etc.)



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Communicating Assessment Findings

*Communication improves pain management
(communication with the patient, and among care providers)*

- Describe intensity, limitations, and response to treatments
- Document (record the information for adequate continuation of treatment/management)



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Definitions

- **Tolerance:** person's reduced reaction to a drug following its repeated use.
- **Physiologic dependence:** the body physically reacts to not having the drug that it is used to depending on.
- **Psychological dependence (addiction):** a person does not have a physical need for a drug but rather a mental desire for it.
- **Double effect:** When the drug to alleviate pain can have a bad side-effect, but the bad side-effect wasn't intended.
 - Example: increased dose of opioid to relieve pain at End of Life can shorten survival



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Pharmacological Therapies

- **Nonopioids** (such as acetaminophen, NSAIDs, and salicylates. However, there is controversy regarding long term use , because of increase in cardiovascular events and other effects.)

- **Opioids**

- **Adjuvants**



Adjuvant Analgesics

- ◆ Agents primarily developed though not necessarily used- for nonanalgesic purposes, found to relieve pain of certain types
 - Anti-depressants
 - Anti-convulsants
 - Anti-arrhythmics
 - Alpha 2 agents
 - Baclofen
 - Miscellaneous agents



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Nonopioids

- Acetaminophen
- NSAIDs

Miaskowski et al., 2005; Paice, 2010;
Pasero & McCaffery, 2011

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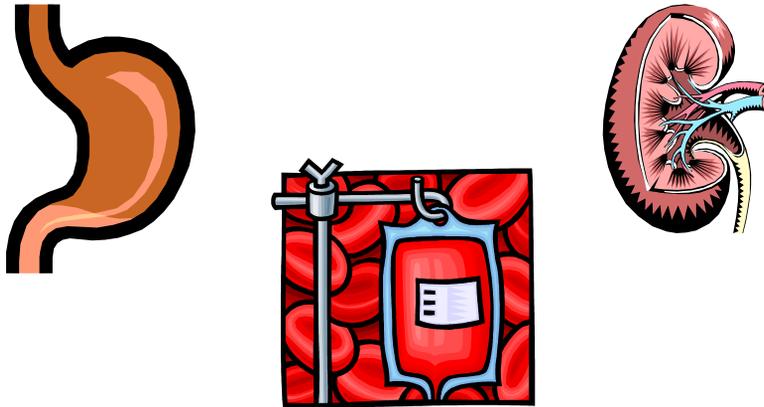
Nonopioids: Role of COX-2

- Controversy regarding long term use
- Increase in cardiovascular events
- Consider costs/benefits

Couzin, 2004; Juni et al., 2002;
Paice, 2010

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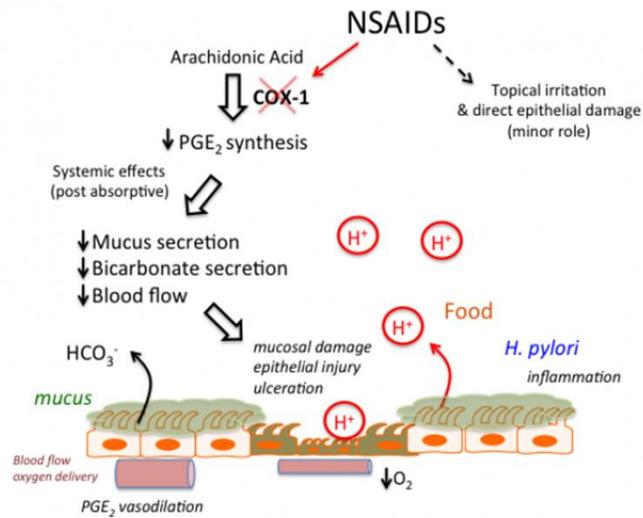
Nonopioids: NSAIDs Adverse Effects



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Nonopioids: NSAIDs Adverse Effects

- GI tract, Heart, Blood:



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Nonopioids: NSAIDs Adverse Effects

- GI tract, Heart, Blood:

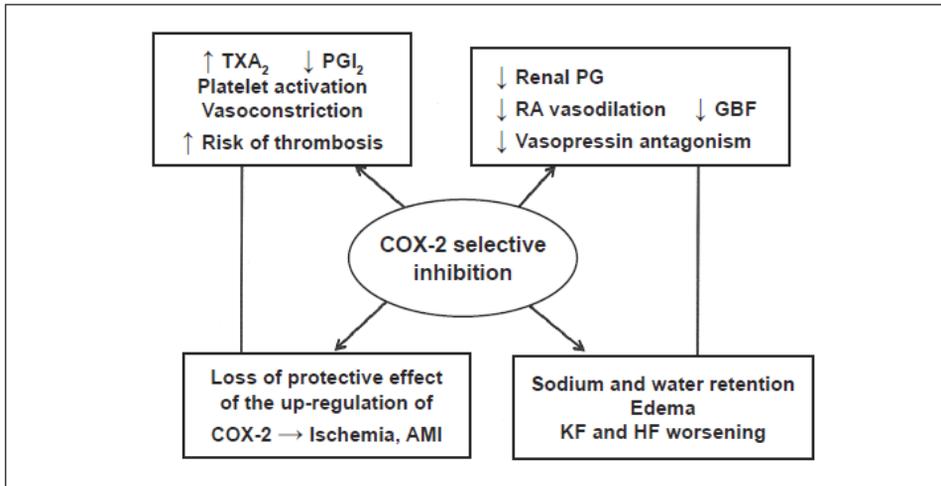


Figure 3 - Schematic representation of the effects related to the COX-2 inhibition. COX - cyclooxygenase; PG - prostaglandin; TX - thromboxane; GI - gastrointestinal; RA - renal arteriole; GBF - glomerular blood flow; AMI - acute myocardial infarction; HF - heart failure; KF - kidney failure.

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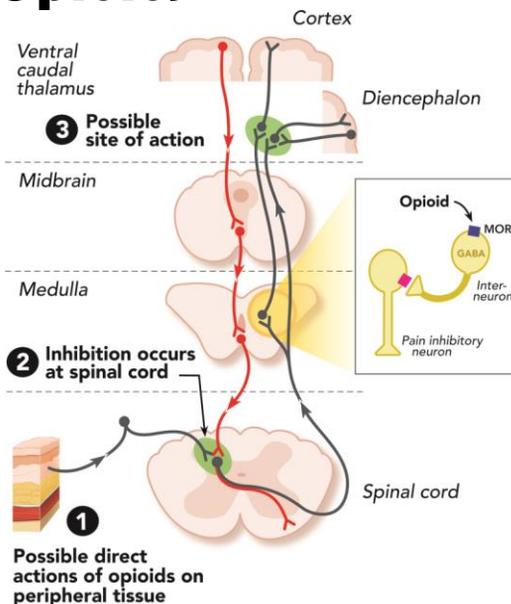
Opioids

•Mechanisms of action:

block the release of neurotransmitters that are involved in the processing of pain

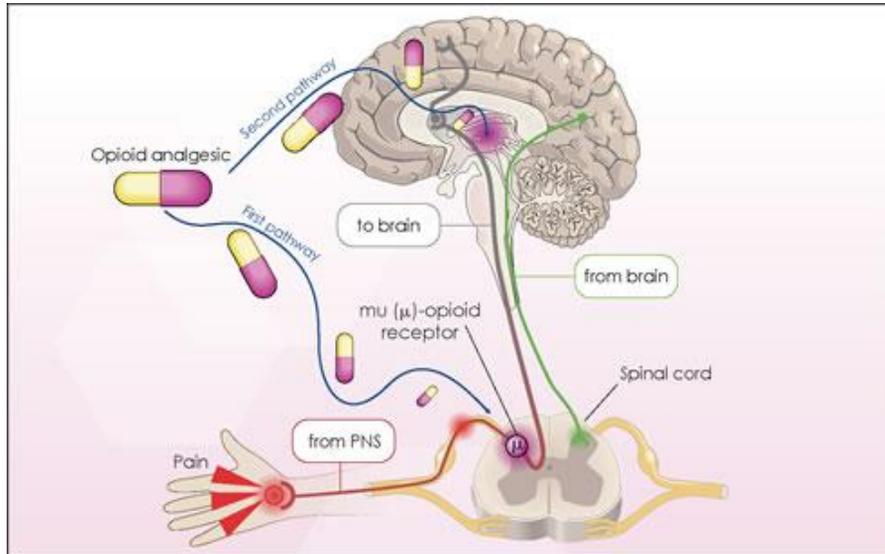
•Adverse effects:

- Respiratory depression
- Constipation
- Sedation
- Urinary retention
- Nausea/vomiting
- Pruritus



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Opioids



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Adjuvant Analgesics

(Also called *coanalgesics*.)

- Antidepressants
- Anticonvulsants
- Local anesthetics
- Corticosteroids

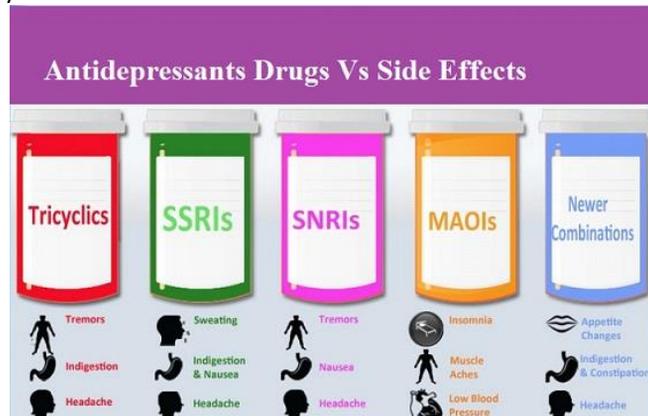
LASIs

An adjuvant analgesic is a medication that is not primarily designed to control pain, but can be used for this purpose. Some examples of adjuvant analgesics are medications like antidepressants and anticonvulsants. You might be prescribed an adjuvant analgesic in addition to other pain medications, or on its own.

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Antidepressants

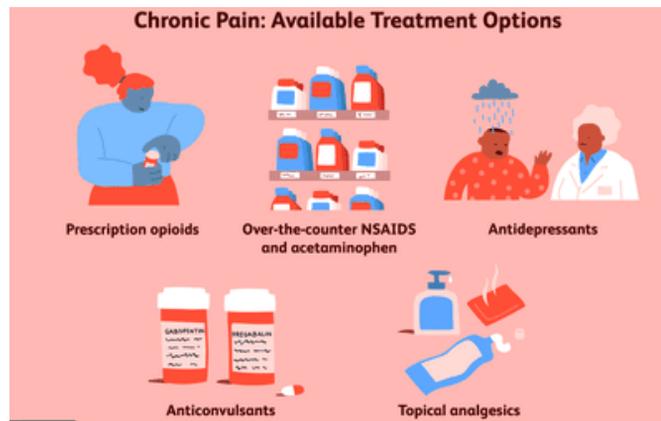
- Because can give some Sedation, administer at bedtime
- Side effects => such as dry mouth, constipation
- Contra-indication (anticholinergic effects) → cardiac arrhythmias, conduction abnormalities, narrow-angle glaucoma, prostatic hyperplasia.
- Newer agents may have less side effects



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Anticonvulsants

- Older agents (Carbamazepin/Tegretol) have significant adverse effects, such as liver dysfunction and aplastic anemia
- Gabapentin (Neurontin) – Dose: 100 mg po TID and titrate gradually
- Pregabalin (Lyrica) – Dose: 50 mg TID x 1 wk then 100 mg TID
- Lamotrigine, levetiracetam, oxcarbazepine and others

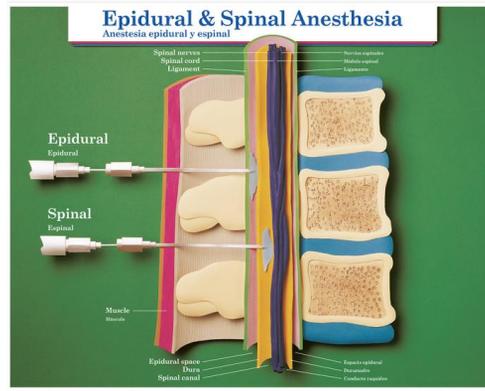


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Local Anesthetics

Use of anesthetics agents:

- Topical: Lidocaine gel, EMLA® and Lidoderm
- Intravenous anesthesia
- Spinal anesthesia



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Corticosteroids

*Corticosteroids inhibit prostaglandin synthesis and reduce edema
=> used for neuropathic pain, bone pain, visceral pain*

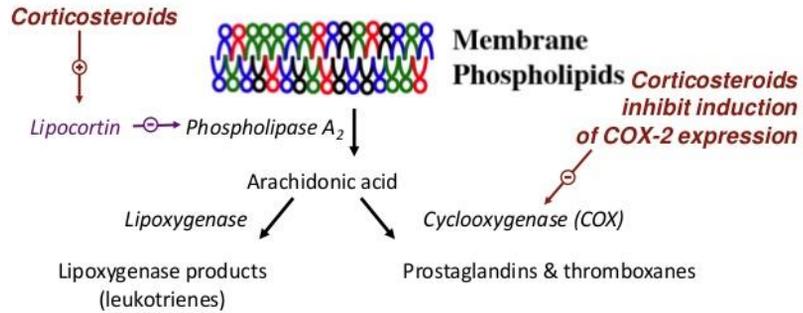
- Administer - q am to prevent sleeplessness
- Dexamethasone has least mineralocorticoid effect (changes in Na and K excretion)
- Side effects: - Psychosis, - Proximal muscle wasting → and other undesirable effects



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Corticosteroids

Corticosteroids Inhibit Eicosanoid Production

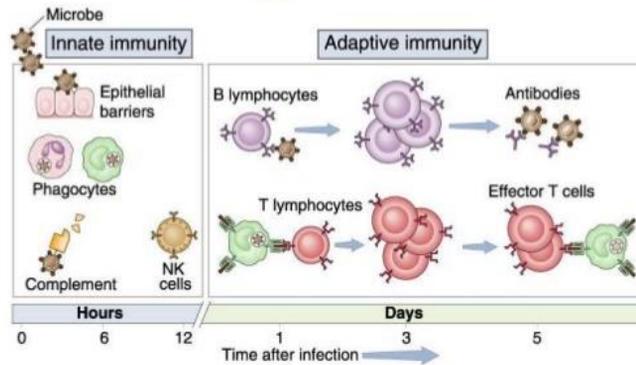


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Corticosteroids

Glucocorticoids Are Powerful Immunosuppressants



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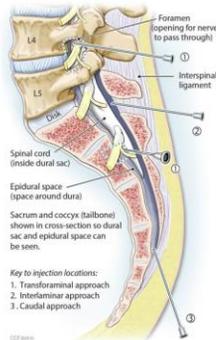
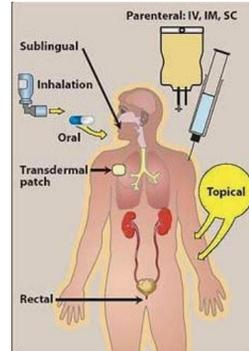
Corticosteroids affect nearly every facet of immune function, although less inhibition of humoral arm than cell-mediated arm; they also induce apoptosis in rapidly-dividing leukocytes

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Routes of Administration

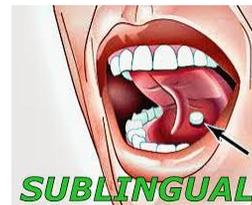
- Oral
- Mucosal
- Rectal
- Transdermal
- Topical
- Spinal
 - Epidural
 - Intrathecal



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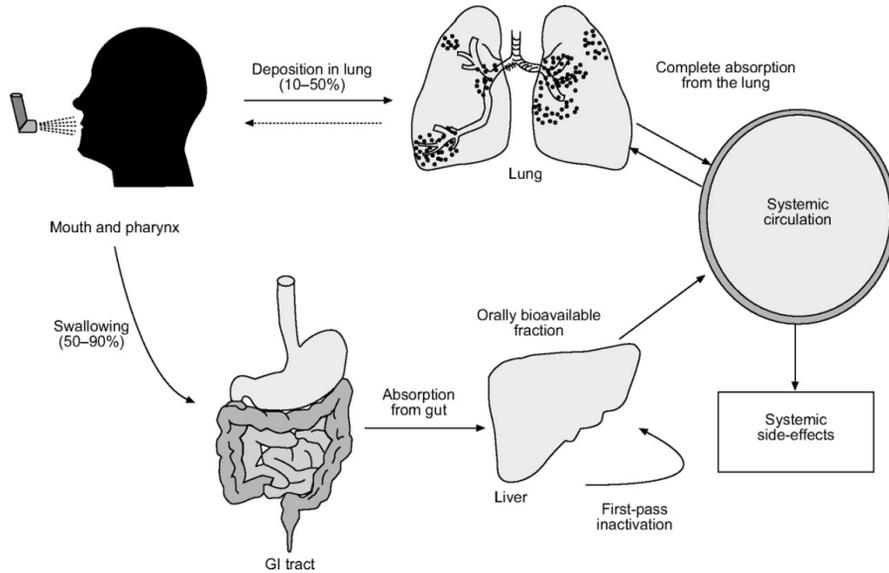
Nebulized and Sublingual Opioids

- Nebulized opioids provide no advantage over other routes of administration for dyspnea or pain
- Sublingual morphine – only 18% absorbed through sublingual mucosa
- Sublingual absorption of other agents:
 - Fentanyl 51%
 - Buprenorphine 55%
 - Methadone 34%
 - Oxycodone 16%



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Nebulized and Sublingual Opioids



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Principles: long acting Medications

- Sustained release medications
- Immediate release for breakthrough pain
- Distinguish types of breakthrough pain
 - => if the patient is receiving a continuous infusion of an opioid, breakthrough doses are calculated as 50-100% of the hourly rate.



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Principles of Equianalgesia

- Determine equal doses when changing drugs or routes of administration
- Reduce by 25% when changing drugs
- Use of morphine equivalent

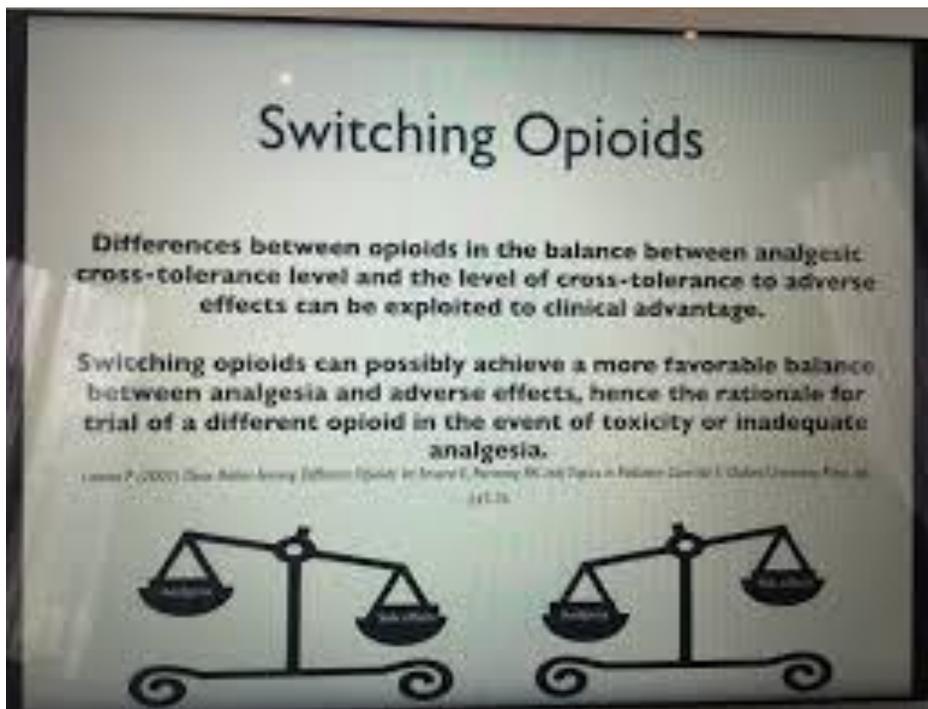
Principles of Use of Opioid Rotation

- Use when one opioid is ineffective even with adequate titration
- Use when adverse effects are unmanageable

Other Issues

- Polypharmacy
- Cost => www.needymeds.com
- Compounding

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SWITCHING OPIOIDS

- Switch if lack of effectiveness or intolerable side effects
- Initial dose of new opioid should be 50% of the original opioid used
- Discontinue if pain remains unresponsive after 3 or 4 different opioids

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OPIOID SWITCHING

- Indication is dose-limiting opioid side-effects preventing opioid dose escalation
- Changing opioids is often accompanied by change in ratio between analgesia and side-effects^{*,**}
- Following a prolonged period of regular dosing with one opioid, equivalent analgesia may be attained with a dose of a second opioid that is smaller than that calculated from an equianalgesic table

^{*}Galer BS, Coyle N, Pasternak GW, et al. Individual variability in the response to different opioids: report of five cases. *Pain* 1992; 49:87-91

^{**}Portenoy RK. Opioid tolerance and responsiveness: research findings and clinical observations. In: Gebhart GF, Hammond DI, Jensen TS, editors. *Progress in Pain Research and Management*. Seattle: IASP Press, 1994: 615-619

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Morphine sulphate

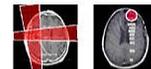
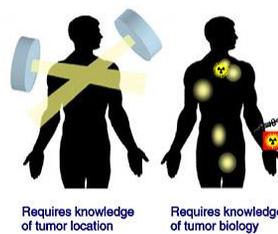
- Use co-analgesic medications as appropriate
- Prescribe an antiemetic for regular use should nausea or vomiting develop
- Prescribe laxative
- Warm patient of possibility of initial drowsiness
- Controlled release morphine sulphate, B.I.D. or sustained release morphine sulphate, O.D. should be considered in long term treatment.
- Subcutaneous, intramuscular injection only in patient who becomes difficult in swallowing or vomiting persists.

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Cancer Therapies to Relieve Pain

- Radiation
- Surgery
- Chemotherapy
- Hormonal therapy
- Others

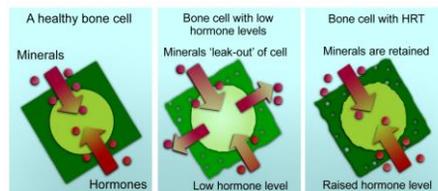
External Beam Targeted Radionuclide



- Brain Tumor Targeted Radiotherapy:
 - Less toxic effects to normal brain
 - Can be designed for treating small deposits of tumor cells infiltrating normal brain

How Hormone Therapy Works

When a lack of hormones act on the bone cells, minerals (calcium) are not retained in the bone structure to build the strength of the outer layer, and it wastes away.

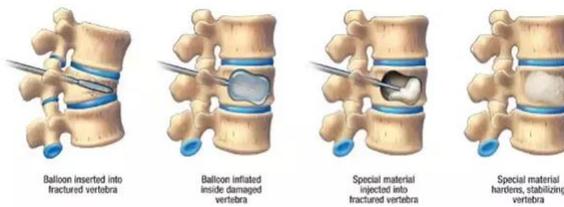
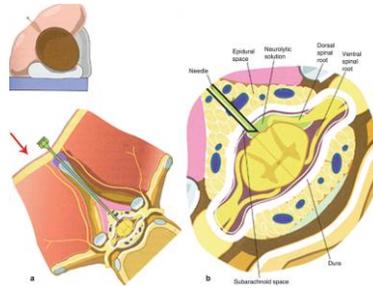


With HRT, the additional hormones 'lock-on' to the receptors of the cell and repair the imbalance between minerals absorbed and minerals returned to the bloodstream.

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Interventional Therapies

- Neurolytic blocks
- Neuroablative procedures
- Vertebroplasty/kyphoplast



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Non-Pharmacologic Techniques

- Cognitive - behavioral therapies

- Relaxation
- Imagery
- Distraction
- Support groups
- Pastoral counseling



GOD'S HEALING IS AVAILABLE TO ALL WHO SEEK IT.

www.pts.edu/blog



There are five (5) types of imagery:

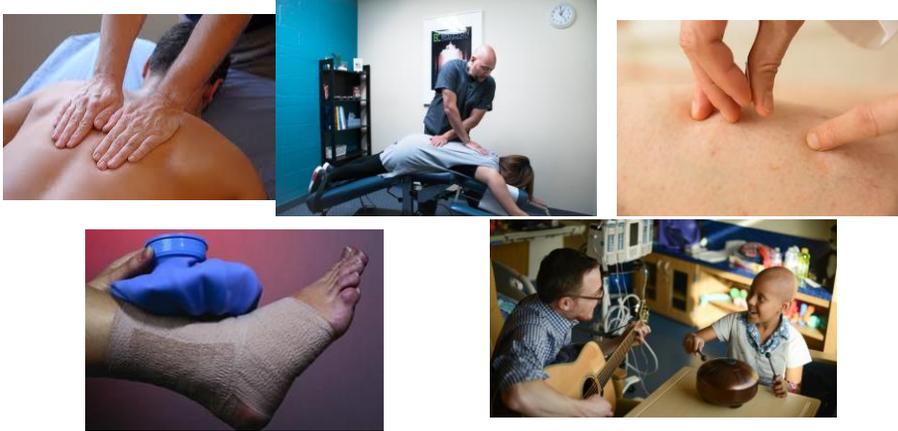
1. Visual – what you see
2. Auditory – what you hear
3. Kinesthetic – what you feel
4. Olfactory – what you smell
5. Gustatory – what you taste



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Non-Pharmacologic Techniques (cont.)

- Physical measures (heat, cold, massage)
- Complementary therapies



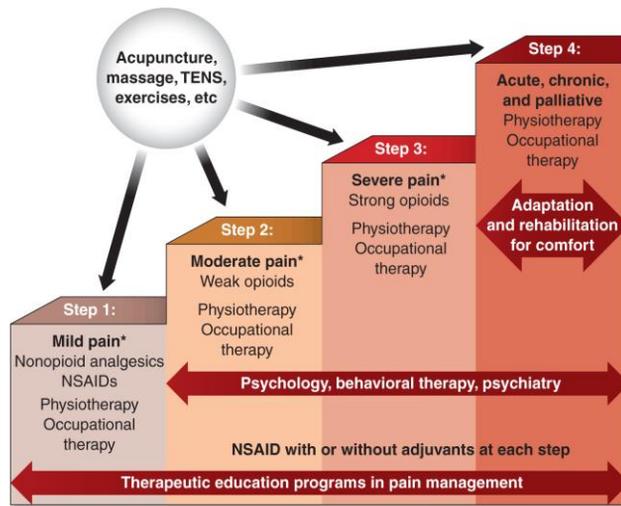
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WHO 3 Step Analgesic ladder Pain Management

- Step 1: Mild pain
- Step 2: Moderate pain
- Step 3: Severe pain

⇒ Nurses, prevent and treat side effects:

- Anticipate
- Prevent
- Treat



NSAID–nonsteroidal anti-inflammatory drug, TENS–transcutaneous electrical nerve stimulation.
*Acute and chronic pain

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Nursing Roles

- Nurses provide Direct clinical care
- Nurses provide teaching to the Patients and their families
- Nurses provide Education for their colleagues
- Nurses Identify system barriers in bringing comfort to their clients

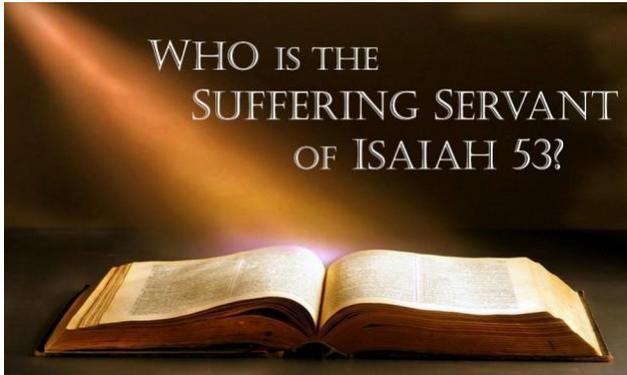


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Conclusion

- Pain relief is contingent on:
 - adequate assessment and
 - use of both drug and non-drug therapies
- Pain extends beyond physical causes to other causes of suffering and existential distress
- Pain management requires interdisciplinary care

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Only the suffering God can help.

— *Dietrich Bonhoeffer* —

AZ QUOTES