



# Geriatric Curriculum

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## MODULE 2

# Pain Assessment & Management

## Part II: Pharmacologic Therapies



# Part II: Pharmacologic Therapies

## Objectives

1. Describe principles of pharmacologic management of pain in older adults
2. Explain the use of
  - Nonopioids
  - Opioids
  - Adjuvants

Galicia-Castillo & Weiner, 2021; Paice, 2019

# Nonopioids

- Acetaminophen
- NSAIDs

Paice, 2019

# Acetaminophen (APAP)

- For mild to moderate nociceptive pain; first line therapy in frail older adults
- Starting dose is 500 mg
- Evaluate analgesia within 1- 2 hours
- Adverse effects: hepatic, renal, cardiovascular, hematologic, GI
- “Hidden” doses of APAP in combination products

Guerriero et al., 2016; Paice, 2019

# NSAIDs

- Effective for mild to moderate nociceptive pain; inflammatory conditions
- 2 categories: selective and non-selective
- Dosing schedule dependent upon chemical class and specific drug
- Routes: oral, rectal, parenteral, topical
- Initial dose: evaluate within 3 hours and 2-7 days out with repeated dosing



Paice, 2019

# Nonselective NSAIDs

- Limited use in older adults due to adverse effects
- Examples: ibuprophen and naproxen
- Adverse effects:
  - Gastrointestinal
  - Cardiovascular/hematologic
  - Renal
- Precautions and contradictions
- Ceiling effect

# Selective NSAID: COX-2

- Proposed: analgesia with reduced GI risk
- Only COX-2: celecoxib
- Controversy regarding effectiveness long term
- Consider costs/benefits

# Opioids

- When are opioids used?
- What are opioids?
  - Opioid receptors block the release of neurotransmitters
  - Effective regardless of pathophysiology
  - Safe when carefully initiated & titrated
  - Can be delivered by all routes
- Balance analgesia against unwanted adverse effects

Paice, 2019



# Opioids (cont.)

- Titrate to effect (pain relief) or side effects (unacceptable side effects)
- No ceiling dose for opioids
- Opioids are the last resort in common pain problems but ***not*** for palliative care and at end of life



# Opioids (cont'd)

- Common examples; some are nonopioid-opioid combinations-use caution with acetaminophen
- Methadone: useful but challenging
- Contraindicated:
  - Meperidine
  - Mixed agonist-antagonists
- Safe use of opioids: REMS & patient/family education

Paice, 2016; Paice, 2019

# Opioid Adverse Effects

- More common in older adults
- More common with hepatic or renal insufficiency
- Commonly occurs:
  - With initiation of a new analgesic
  - Following an increase in analgesic dose
  - When non-analgesic is introduced that interacts with existing analgesic

# Opioid Adverse Effects (cont'd)

- Balance pain relief with adverse effects
- Opioid-naïve vs. opioid-tolerant
- Common adverse effects:
  - Constipation: tolerance never develops thus prevention is key
  - Sedation
  - Respiratory depression (rare)
  - Urinary retention



# Opioid Adverse Effects (cont'd)

- Common adverse effects
  - Nausea and vomiting
  - Pruritis
  - Mental status changes
  - Myoclonus
- Allergies and adverse effects are not the same

# Principles of Opioid Management

- Addressing barriers to opioid use and definitions
- Dosing and titration
- Duration of analgesic effects
- Opioid rotation
- Equianalgesic conversion

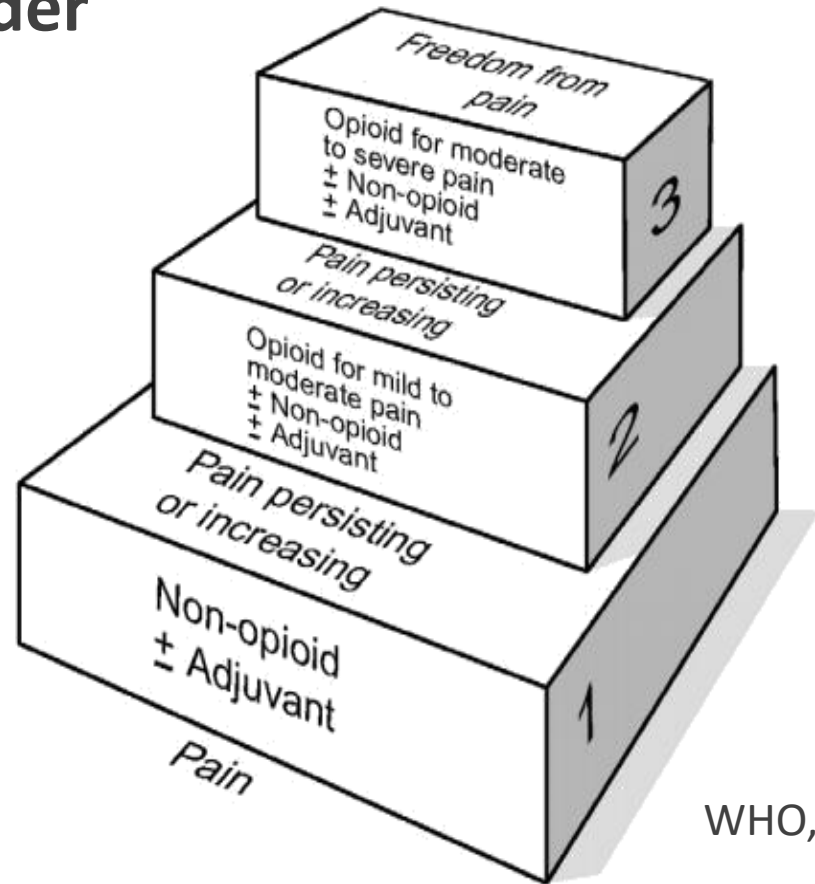
# Addressing Barriers to Opioid Use

- Common barriers in using opioids: fear of addiction
- Clarification of terms is necessary
  - Substance use disorder (SUD)
  - Physical dependence
  - Tolerance
  - Addiction
  - Pseudoaddiction

Compton et al., 2019

# Dosing & Titration

## WHO 3-Step Analgesic Ladder



WHO, 2021



# Duration of Analgesic Effects

- Immediate release (IR) or short-acting for intermittent pain, breakthrough pain (BTP), or constant pain and when advancing to extended release (ER)
- Extended release (ER) or long-acting (e.g., 12, 24, or 72 hours) for constant pain
- For BTP
  - Calculate 10-20% of 24 hr oral opioid dose, give every 1-2 hr
  - Calculate 50-100% of the hourly IV/SQ rate given every 15 minutes
- Titrate to effect

# Opioid Rotation

- Rotate when:
  - An opioid is ineffective even with adequate titration
  - When adverse effects are unmanageable
- Use equianalgesic conversion methods



# Equianalgesic Conversion

- Conversion methods for rotating and changing:
  - From one opioid to another
  - From one administration route to another
- Use of equianalgesic tables is necessary, but use the data cautiously

# Opioid Rotation

- Adjust for “incomplete cross-tolerance
- Reduce new analgesic by 30-50% when rotating to the new drug or step-wise conversion
- Example: Opioid conversion discussion [video]

<https://vimeo.com/reliaslearning/review/325307530/e08043781e>

# Co-analgesics /Adjuvants

- Medications developed and marketed for another medical condition (e.g., depression) but found also to be effective for pain
- Multipurpose adjuvants include:
  - Anticonvulsants
  - Antidepressants
    - Tricyclic antidepressants (TCAs)
    - Newer antidepressants
  - Corticosteroids
  - Local/topical anesthetics
  - Other



# Anticonvulsants

- Useful in acute and chronic pain
- Reduce the conduction of pain signals along damaged nerves
- “Newer” second-generation
  - gabapentin
  - pregabalin
  - others available

# Tricyclic Antidepressants (TCAs)

- Block chemical neurotransmitters for pain in the spinal cord and the brain
- TCAs have significant anticholinergic effects along with interactions with other drugs; especially significant postural hypotension
- Desipramine and nortriptyline are preferred over amitriptyline or doxepin in the older adult due to less severe anticholinergic effects
- Patient/family education is important!

# “Newer” Antidepressants

- Two classifications:
  - SNRIs: analgesic properties (e.g., duloxetine and venlafaxine)
  - SSRIs: evidence in treating pain is lacking
  
- SNRIs:
  - Greater potency, fewer side effects than TCAs
  - Double benefit: treat depression and pain



# Corticosteroids

- Produce anti-inflammatory and immune suppressive effects
- May be effective in special cases
- Examples, e.g., prednisone, dexamethasone
- Benefits
- Adverse effects

# Local Anesthetics

- Inhibit movement of ions across the neural membrane
- Oral, topical, IV, Subq, spinal administration for neuropathic pain
- Local/topical
  - Lidocaine
  - Capsaicin

# Cannabis: A Few Words

- Pros/cons
- Clinical practice recommendations
- Research is limited

Theisen, 2019

# Adjuvants: Interventional Therapies

- Intra-articular steroid injections
- Epidural steroid injections
- Neurolytic blocks
- Neuroablative procedures
- Other: vertebroplasty, kyphoplasty



Paice, 2019

# Cancer Therapies to Relieve Pain

- Radiation
- Surgery
- Chemotherapy
- Hormonal therapy
- Others

Rutter et al., 2016; Sun et al., 2019

# Other Issues

- Polypharmacy
- Safety and efficacy
- Cost
- Ethics at end of life
- Education for patients and families

# Summary

- Pain relief is contingent on adequate assessment and use of pharmacologic and nonpharmacologic therapies
- Pain extends beyond physical causes to other causes of suffering and existential distress
- Interdisciplinary care is key to successful pain management