Opioid Use in the Elderly
CRIT in the Care of Older Adults

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Postoperative Pain in the Elderly

• In US, ~50% of surgery in adults aged ≥65 years
• Postop pain associated with increase postop complications
• Literature shows older patients...
  – are asked about pain less often
  – receive analgesia less frequently
  – when hospitalized patients with hip fracture and severe cognitive impairment receive 3X less analgesia than cognitively intact patients with similar fractures

Prevalence of Chronic Pain

• 25-50% community dwelling elderly
• 45-80% nursing home elderly
• Low cognitive performance is independent predictor of failure to receive analgesia despite presence of daily recorded pain (Bernabei R. JAMA 1998)

Pain Assessment: pain history, location, intensity and interference with activities

Brief Pain Inventory

Geriatric Pain Measure
Pain In The Setting Of Cognitive Impairment

- As dementia progresses, the intensity of painful conditions usually increase while the administration of analgesics decrease
- Patients may not have the ability to express their pain
- Cognitively impaired may show more facial expressiveness

Pain Assessment Tools

- Pain scales
  - Visual analog scale
  - Numeric rating scales
  - Pain thermometer
  - Facial pain scale

Pain Behaviors
Cognitively Impaired Older Adults

- Facial expressions
- Verbalizations, vocalizations
- Body movements
- Changes in interpersonal interactions
- Changes in activity patterns or routines
- Mental status changes

Pharmacotherapy
Age-related Considerations

- Decline in therapeutic index
- Age-related predisposition to adverse drug effects
  - 2-3 times higher
- Drug-drug interactions
- Drug-disease interactions
  - CHF, chronic liver and renal disease
  - Dementia

Age-related Considerations in Opiates

- Pharmacodynamic changes
  - Increased sensitivity to analgesics
    - Neuropeptide and neurotransmitter production tend to decrease with increasing age.
  - Increased sensitivity to adverse effects
- Pharmacokinetic changes
  - Increased variability of function between individuals makes predicting drug effects more difficult

Age Related Changes to Opioid Pharmacokinetics

- Absorption
  - ↓ GI motility, ↓ gastric acidity
- Distribution
  - ↓ TBW, ↑ proportion adipose tissue, ↓ lean body mass
  - ↓ serum albumin
- Metabolism
  - ↓ liver mass, ↓ hepatic enzyme activity
- Elimination
  - Age related declines in renal and hepatic function
Pharmacotherapy Principles

• **Start low and go slow…**
  – **BUT** monitor frequently

• Increase in gradual increments
• Combine medications so doses can be decreased minimizing side effects “rational polypharmacy”
• Choose agents that work on different points for additive or synergistic results

When Are Opioids Indicated?

• For acute and chronic use
  – Pain is moderate to severe
  – Pain has significant impact on function
  – Pain has significant impact on quality of life

• For chronic use
  – Non-opioid pharmacotherapy has been tried and failed
  – Patient agreeable to have opioid use closely monitored (e.g. pill counts, urine screens)

Opioid Effectiveness

• Opioid responsiveness varies
  – Varies among different types of pain
    • Acute ~100% > Chronic ~50%
    • Nociceptive > Neuropathic
  – Varies among individuals

Medication Selection

• Good Pain History key
  – North Carolina Controlled Substance Reporting System
  – [https://nccsrsph.hidinc.com](https://nccsrsph.hidinc.com)
  – Sign up through Medical Board Website

• Target to the type of pain
  – Neuropathic vs. nociceptive

• Consider non-pharmacologic therapies

Adjuvants

• Topical Preparations
• Acetaminophen
  – Max dose decreased to 3 gms/daily
• NSAIDs
• Anticonvulsants
  – Gabapentin/pregabalin- careful cause significant sedation and renally cleared
• Antidepressants
  – Example would be tricyclic (amitriptyline) but have anticholinergic side effects (urinary retention)
• Non-pharmacologic (TENS, PT/OT)

NSAIDs/Acetaminophen

• Ceiling analgesic effects
• No known analgesic tolerance
• Additive role
• Adverse effects common at high doses
• Epidemiologic studies identify association between NSAIDs, advanced age and risk of ulceration and CHF
• Usually ineffective for neuropathic pain
• Topical NSAIDs (↓ systemic levels) may be safer but no long-term studies
Opiate Selection

- Pain severity
- Duration of drug activity
  - Short acting: hydrocodone, morphine, hydromorphone, oxycodone, oxymorphone
  - Long acting: fentanyl transdermal, extended release formulations
- Route of administration
- Side effect profile

Opioid Selection

- Weak Full Agonists
  - Codeine
  - Hydrocodone
- Weak Agonist/Reuptake Inhibitor
  - Tramadol
  - Tapentadol
- Strong Full Agonist
  - Morphine
  - Oxycodone
  - Hydromorphone
  - Fentanyl
  - Methadone
  - Oxymorphone

Opioids To Avoid In The Elderly: Codeine

- Synthetic so may have a role in patients with true opioid allergies
- Inhibits reuptake on serotonin and norepinephrine receptors
- Very weak Mu-opioid agonist
- Side-effects
  - Dizziness, lowers seizure threshold, confusion
  - Can precipitate a serotonin crisis in patients taking high-dose SSRI

Opioid Safety and Risks

- Side effects are common
  - Nausea, sedation, constipation, urinary retention, sweating
- Organ toxicities are rare
  - Suppression of hypothalamic-pituitary-gonadal axis
  - >50 mg (MSO₄ equivalents) assoc w/ 2X increase in fracture risk
- Addiction
  - 3-19% when treating chronic pain
  - Exceedingly low (<1%) when treating acute pain
- Overdose especially at high doses and when combined w/ other sedatives
  - >100 mg (MSO₄ equivalents) assoc w/ 9x increase in overdose risk

Opioid Side Effects- GI

- Constipation
  - Never resolves
  - Prevent with scheduled softeners plus stimulants (not bulk-forming)
- Nausea and vomiting
  - Been reported that 30% of patients experience nausea- often listed as "allergy"
  - History of motion sickness- try scopolamine patch or medicime
Opioid Side Effects

- **Sedation**
  - If pain controlled, consider decreasing dose by 25%
  - Look at other classes of medication - benzos, antidepressants
  - Rotate to a different opioid
- **Delirium**
  - Non-sedating anti-psychotics for delerium such as haloperidol or risperidone.

- **Pruritis**
  - 2-10% of all patients
  - Usually resolves within a week
  - Centrally mediated
- **Urinary Retention**
- **Respiratory Depression**
  - Especially when combined with other sedating medications
- **Myoclonus (at high doses)**
  - Especially with morphine metabolite build up

Side Effect Management

- Time is your ally: tolerance develops to many side effects: not to constipation
- Multimodal therapy (non-drug therapies, combining drugs that work by different mechanisms)
- Dose reduction or route change
- Opioid rotation: side effects may be less with one drug than another
- Symptom management

Opioid Use in the Elderly

- Questions?