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

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 (Barnako R. JAMA 1998)

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

Pain Assessment
Age-related Considerations
• Poorly validated pain-assessment instruments
• Multiple concurrent illnesses
• Under-reporting of symptoms
  - Expect pain with aging
  - Do not want to bother their physician
  - Do not want to be viewed as a "bad" patient
  - Do not think their pain can be alleviated
  - Fear diagnostic tests
  - Fear addiction
• Cognitive impairment

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

Pain Assessment Tools
Cognitively Intact Adults
• Pain scales
  - Visual analog scale
  - Numeric rating scales
  - Pain thermometer
  - Facial pain scale
• Brief pain inventory
  - Assesses pain history, location, intensity and interference with activities
  - Translated and validated in many languages
• Geriatric pain measure
  - Multidimensional questionnaire
  - Validity and reliability in European and US older adults

Prevalence of Chronic Pain

Pain Assessment Tools
Cognitively Intact Adults

Pain Behaviors
Cognitively Impaired Older Adults
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
General Principles
• Start pain management with non opiates
• When using opiates: Start low and go slow... AND monitor frequently
• Increase in gradual increments
• "Rational polypharmacy" to use lower doses of all and minimize side effects. 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
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

Opioid Safety and Risks

- Side effects are common
- Organ toxicities are rare
  - Suppression of hypothalamic-pituitary-gonadal axis
  - >50 mg (MSO 4 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 (MSO 4 equivalents) assoc w/ 9x increase in overdose risk

Opioid Side Effects

- Constipation (need stimulant laxatives, not bulk-forming)
- Nausea and vomiting
- Sedation
- Psychomotor and cognitive impairment, delirium
- Pruritis
- Urinary retention
- Respiratory Depression (usually preceded by sedation)
- At high dose, myoclonus and hallucinations

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

Exploit Synergism

Morpheine, Gabapentin, or Their Combination for Neuropathic Pain

Exploit Synergism Rational Polypharmacy

Morphine, Gabapentin, or Their Combination

- Ian Gilron, M.D., Joan M. Bailey, R.N., M.Ed.; Dongsheng Tu, Ph.D.; Ronald R. Holdren, Ph.D., Donald F. Weaver, M.D., Ph.D., and Robby L. Houklin, M.D.
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

Adjuvant Analgesics and Others

- Adjuvant Analgesics
  - Diverse group of medications that are non-NSAID, non-acetaminophen, non-opioid
  - Primary FDA indication other than pain
  - Analgesic in selected circumstances
    - Antidepressants
    - Anticonvulsants
    - Antispasmodics/Muscle relaxants
    - Topical anesthetics (i.e., lidocaine)
    - No controlled comparative trials in the elderly

Chronic Pain Management

Goal Setting (Six As)

- improve Analgesia (pain control)
- improve ADLs (function)
- improve Affective state
- improve Adaptive behaviors
- avoid Adverse effects
- avoid Addiction

NOT necessarily decrease drug dose

Chronic Opioid Monitoring Plan

“Universal Precautions”

- Agreements “contracts”, informed consent
- Monitor for benefit and harm with frequent face-to-face visits
- Monitor for adherence, addiction and diversion
  - Urine drug testing
  - Pill counts
  - Prescription monitoring program data

Opioid Use in the Elderly

- Questions?