

MANAGING PAIN IN THE ERA OF THE OPIOID CRISIS

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Pain (pan) n. An unpleasant sensation varying in severity, resulting from injury, disease, or emotional disorder

I. *Choosing an analgesic*

- A. Quality of Pain
 - Dull, aching, inflammatory
 - Sharp, piercing, lancinating
 - Neuropathic pain
- B. Quantity of Pain
 - Mild/moderate/severe
- C. Locus of Action
 - Central nervous system
 - Locally, peripherally
 - Combination of both

II. *Acetylsalicylic acid and derivatives*

- A. pharmacologic effects - most of aspirin's useful pharmacologic effects are due to its ability to inhibit prostaglandin synthesis
 - 1. analgesic
 - 2. antipyretic
 - 3. anticoagulant
 - 4. anti-inflammatory
- B. adverse effects
 - 1. uric acid excretion
 - 2. salicylism
 - 3. allergy
 - 4. caustic-acetylsalicylic acid plus water = **acetic acid** and **salicylic acid**

- C. contraindications
 - 1. allergy to aspirin or NSAIDs
 - 2. asthma
 - 3. chronic gastritis
 - 4. anticoagulant (coumadins)
 - 5. pregnancy

III. *Acetaminophen*

- A. Pharmacology of acetaminophen
- B. Mechanism of action
 - 1. COX-3 inhibitor
 - 2. located in the CNS
 - 3. peripheral effects also
- C. Clinical effects
 - 1. analgesic
 - 2. antipyretic
 - 3. **NO** gastritis ☺
 - 4. **NO** clinically significant effects on uric acid ☺
 - 5. **NO** anti-platelet effects ☺
 - 6. **NO ANTI-INFLAMMATORY EFFECTS**
- D. maximum dose
 - Adults (12 years or older)
 - 325 or 500 mg every 4 to 6 hours
 - maximum single analgesic **dose** is 1000 mg (650mg)
 - < 3000 mg/day-McNeil-January 28, 2011
 - Pediatric (less than 12 years old)
 - 10 -15 mg/kg P.O. every 4 -6 hours
 - do not exceed 5 doses in 24 hours

IV. *Non-Steroidal Anti-inflammatory Agents (NSAIDs, NSAIDs)*

- A. Mechanism of action
 - inhibition of cyclooxygenase-1 (COX-1) and/or cyclooxygenase-2 (COX-2)
- B. Combined COX-1 and COX-2 inhibitors
 - 1. ibuprofen (Advil, Motrin, Motrin-IB)
 - maximum adult daily dose-3200 mg
 - Pediatric dosing
 - 7.5 mg/kg every 6 -8 hours
 - 30 mg/kg/day-maximum dose

2. naproxen (Naprosyn)
 3. naproxen sodium-better bioavailability (Anaprox DS)
 - maximum daily dose-1100 mg
 4. Other useful NSAIDs (Cox1 and Cox 2 inhibitors)
 - etodolac (generic)-Lodine® is discontinued
 - 200-400 mg every 6 to 8 hours
 - ketoprofen (generic)-Orudis® is discontinued
 - 50-75 mg every 6 to 8 hours-immediate release
 - 200 mg per day for extended release
 - meloxicam (Mobic®)-Long acting
 - 7.5mg - 15 mg per day
 - do not exceed 15 mg per day
- C. COX-2 inhibitors
1. general information
 - a. no greater efficacy than ibuprofen as an analgesic
 - b. little or no gastric irritation
 2. celecoxib (Celebrex)
 - a. no apparent effect on platelet aggregation
 - b. 100mg/200mg daily
 - c. acute/chronic pain
 - for acute pain 400 mg stat, 200 mg within 24 hrs
- D. contraindications to all NSAIDs
1. previous hypersensitivity to these drugs or aspirin
 2. history of gastritis
 3. anticoagulants-warfarin (Coumadin)
 4. asthma
 5. pregnancy
- E. drug interactions
1. methotrexate (inc. toxicity)
 2. lithium (inc. toxicity)
 3. other NSAIDs (additive side effects)
 4. anticoagulants
 - warfarin (Coumadin)
- V. ***Narcotic (Opioids) derivatives***
- A. clinical goal - to obtund or diminish the patient's awareness of pain
 - B. opiate metabolism-CYP2D6
 - genetic differences
 - **USE CAUTION WITH CHILDREN (See FDA and AAP Recommendations)**

- most common side effect of opiates: Nausea and vomiting
- Hydrocodone is more efficacious than codeine as an analgesic but causes less nausea & vomiting
- opiate-induced N/V occurs in CRTZ located in medulla
- **analgesic efficacy is not related to N/V**
- phenothiazines will block the CRTZ
 - drug interactions between phenothiazines and opiates

Rx Hydrocodone with acetaminophen 7.5/325 mg

Disp. Twelve (12) tablets

Sig: Take one tablet by mouth every four to six hours as needed for the relief of pain.

Do not exceed six tablets in 24 hours

C.. Clinical drug interactions

1. CNS depressants-additive effects
2. phenothiazines-potentiates
3. anti-depressants (MAO inhibitors-Demerol)

D. Tramadol (Ultram)

1. Ultracet-325 mg acetaminophen + 37.5 mg tramadol
2. Two ultracet = 400 mg ibuprofen for pain
3. side effects/contraindications
 - a. seizures
 - b. codeine allergy
 - c. medications that lower seizure threshold
4. Adult dose 50-100mg every 4-6 hours
5. **Controlled substance-has the potential of being addictive**

PRESCRIBE THE LOWEST STRENGTH AND FEWEST DOSES OF ALL OPIOIDS TO DISCOURAGE ABUSE

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