General Principles of Pain Control for the Dying
(Part II)

GOALS:

- To learn how to perform a complete pain assessment.
- To become familiar with the WHO analgesic ladder.
- To learn basic prescribing rules for non-opioid and opioid analgesics.
- To learn how to manage the side effects of opioid analgesics.
- To learn adjuvant options to traditional analgesics.

I. THE COMPLETE PAIN ASSESSMENT

A. The holistic view of terminal pain

P Physical problems, often multiple, must be specifically diagnosed and treated

A Anxiety, anger and depression are integral components of real pain

I Interpersonal problems (social problems, financial stress, and family tensions) aggravate pain and patients perception of pain.

N Non-acceptance or spiritual distress can cause severe suffering opioids won't help.

B. The Clinical Assessment of Pain:

1. Believe the patient's complaint of pain
2. Take a careful history of the pain complaint
3. List and prioritize each pain complaint
4. Evaluate the psychological state of the patient
5. Obtain a drug and alcohol dependence history

6. Perform a careful medical and neurological exam

7. Diagnose the cause of the pain

8. Outline a therapeutic approach to suite the individual

9. Reassess the patient's response

II. THE WHO ANALGESIC LADDER

- The concurrent use of opioids and non-opioids (NSAIDs or acetaminophen) often provides more analgesia than does either of the drug classes alone.

- The combination of opioids plus non-opioids may achieve a "dose-sparing" effect such that lower doses of opioids now produce pain relief with fewer side effects.

III. NON-OPIOID ANALGESICS

- have a ceiling effect on their analgesic potential

- do not produce tolerance or physical/ psychological dependence

A. Acetaminophen

- 650 mg q 4 h or 1000 mg q 6 h
- acetaminophen ceiling is 4 grams/day
- no anti-inflammatory effect
- doesn't affect platelets

B. NSAIDs

- Inhibit cyclooxygenase which catalyzes the conversion of arachidonic acid to prostaglandin and leukotrienes and thus decreases levels of inflammatory mediators generated at the site of tissue injury

- Inflammatory mediators sensitize nerves to painful stimuli

- Primary adverse effects are renal failure, hepatic dysfunction, bleeding, and gastric ulceration

- If a patient doesn't respond to a maximum dose of a NSAID in one class, another class should be tried

    a) Salicylates

    b) Acetylated salicylates (aspirin)

    c) Nonacetylated salicylates (sodium salicylate, choline magnesium trisalicylate-Trilasate)

    d) don't profoundly affect platelet aggregation or alter bleeding time

    e) Propionic Acids (ibuprofen, oxaprozasin-Daypro)

    f) Arylacetic Acids (naproxen, fenoprofen-Nalfon, ketoprofen-Orudis)

    g) Indoles (indomethacin, ketoralac-Toradol, tolmetin-Tolectin, sulindac-Clinoril)

    h) Oxicams (piroxicam-Feldene)

IV. OPIOIDS

A. Oral morphine is the drug of choice.

B. Avoid PRN dosing.

C. Routes of administration:

- IV: 5-10 minutes
- SQ or IM: 20 - 40 minutes
- PO: 20 - 60 minutes
- PR or SL: 20-40 minutes
- transdermal: 12 -18 hours

D. The Drugs:

- Morphine: contraindicated in morphine allergy, asthma, renal dysfunction, and hepatic dysfunction

- Fentanyl: contraindicated in allergy only, no active metabolites therefore can be used in hepatic and renal dysfunction, less sedating

- Hydromorphone: no active metabolites therefore can be used in hepatic and renal dysfunction, less sedating, higher potential for abuse (higher street value)

- Oxycodone

- Do not use Demerol (meperidine)

E. Dosing:

- Choose an initial drug and dose: Opioid naïve: 20-40 mg morphine elixir q4, Opioid tolerant: 40-60 mg morphine elixir q4, Cut initial dosing by 50-75% for elderly patients

- Titrate drug to desired analgesic effect and tolerable side effects: Increase morphine by 30-100% daily

- Select breakthrough drug, dose and schedule: hourly breakthrough dose should be 50-100% of the four hour dose or 1/3 of the 12 hour dose

F. Equianalgesic dosing

- Knowing several opioids and their equianalgesic dosing will help you switch between drugs and manage side effects more efficiently.
- Some handy formulas:
    - 2 Tylenol #3 (60mg codeine) = 2 Vicodin (10 mg hydrocodone) = 1 Percocet (5 mg oxycodone) = 7.5-10 mg of morphine elixir
    - 2 Percocet = 15-20 mg of oral morphine
    - 30 mg oral morphine = 10 mg iv morphine
    - 25 mcg/hr fentanyl patch = 10 mg oral morphine every 4 hours
    - 5 mg oral morphine q4 = MS Contin 15 mg q12
    - 2.5 mg oral hydromorphone = 10 mg oral morphine

- 10 mg oral hydromorphone = 1.5 mg iv hydromorphone

- Use the formulas to convert iv to oral dosing

Example: MSO4 gtt @ 4 mg/hr = 96 mg iv MSO4 = 288 mg po MSO4/d

- » Morphine elixir 50 mg po q4
- » MS Contin 90 mg po q8
- » Fentanyl patch 100 mcg/hr + 25 mcg/hr -----> Breakthrough: 25 mg MSIR q2

G. PCA

1. When writing PCA orders you need to indicate:

a. Loading Dose:

- Two times the maintenance (PCA) dose, as calculated by lean body mass.
- This dose can be repeated every 10 minutes to a total of 3 doses.

b. Maintenance (PCA) Dose:

- Patient weight is a useful starting point to determine PCA dosing.

c. Lockout Interval:

- This is the period during which the PCA unit is refractory to further demands by the patient.

d. Continuous infusion:

- Not required.
- This can account for the patient's at home opioid requirements.
- Can also be added as the patient's opioid requirements are established (usually 2/3/ of the average hourly usage).

2. Frequent monitoring of the patient, pain scores, and level of sedation will allow for appropriate titration of PCA to the most effective pain control.

3. Initial dosing parameters for opioid naive patients:

4. As you exhaust your oral and transdermal options, other considerations include home PCA with subcutaneous pumps, epidurals, and intrathecal injections.

V. MANAGING THE SIDE EFFECTS OF OPIOID ANALGESICS

A. Constipation

- Tolerance to the constipating effects of opioids doesn't occur.
- Cathartics should be administered on a regular schedule.
- Mild constipation can be managed by increased fiber (Metamucil) or a mild laxative (MOM).
- Severe constipation can be treated with a stimulating cathartic drug (bisacodyl, senna, lactulose).
- Stool softeners (docusate) are of limited benefit because of colonic resorption of water from the forming stool and should be given in combination with a stimulating cathartic agent.

B. Sedation

- Common when opioid doses are increased substantially.
- Tolerance to the sedating effects usually develops rapidly.
- Can try reducing the amount of opioid in each dose and increasing the frequency.
- Can try switching to another opioid (morphine to hydromorphone or fentanyl).
- Can add caffeine, dextroamphetamine (2.5- 7.5 mg po bid) or methylphenidate (5-10 mg po qd)

C. Nausea and Vomiting

- Can try switching to another opioid (morphine to oxycodone or fentanyl).
- Can manage with antiemetics (chlorpromazine, prochlorperazine, haloperidol, metoclopramide) on a regular schedule for several days and then switch to prn dosing.
- If antiemetic is added, watch for increased sedation.

D. Respiratory Depression

- Patients receiving long-term opioids usually develop tolerance to their respiratory depressant effects.

- May occur if pain is abruptly relieved and sedative effects are no longer opposed by the stimulating effects of pain.

- In a symptomatic patient physical stimulation may be enough to prevent significant hypoventilation.

- Symptomatic respiratory depression (causing a respiratory acidosis) should be treated carefully using a dilute solution of naloxone (0.4 mg naloxone in 10 cc saline administered as 0.5 cc boluses q minute until RR = 8-10). Remember, the half life of naloxone is 30-45 minutes.

E. Withdrawal

- Manifested as anxiety, irritability, hot flashes, rigors, joint pain, lacrimation, rhinorrhea, diaphoresis, nausea, vomiting, abdominal cramps, and diarrhea.

- Patients are at the highest risk for withdrawal when their pain is abruptly relieved by another method (e.g. cordotomy or other neuroablative procedure).

- To avoid the opioid abstinence syndrome give ½ of the original opioid dose per day for 2 days, then reduce the daily dose by 25% every 2 days thereafter until the total dose is less than or equal to the equivalent of 30 mg of oral morphine per day. Then discontinue all opioids after 2 more days.

- Transdermal clonidine (0.1-0.2 mg/day) may reduce the symptoms of opioid withdrawal.

VI. ADJUVANT THERAPIES

A. Anticonvulsants

- Used to manage neuropathic pain, especially when it is lancinating.

- Phenytoin, carbamazepine, valproate, and clonazepam suppress spontaneous neuronal firing and are used to control lancinating pain complicating nerve injury.

B. Antidepressants

- Tricyclic antidepressants are useful as adjuvant analgesics in the management of neuropathic pain, especially when it is burning.

- Tricyclics are helpful through mood elevation, potentiation of opioid analgesia, and direct analgesic properties.

- Most widely reported experience is with amitriptyline.

- Analgesic failure is usually due to low serum levels and more than 150 mg per day of amitriptyline is often needed.

- Onset of analgesic effects occurs within 1-2 weeks of initiation of therapy and peaks at 4-6 weeks.

- Initiate treatment with amitriptyline 10-25 mg qhs and increase by 10-25 mg every 2-4 days until 150 mg qhs is reached.

C. Benzodiazepines

- Reduces the anxiety associated with pain.

D. Antihistamines

- Hydroxyzine (25-50 mg q 6h) is a mild anxiolytic, analgesic, and antiemetic; it is also useful for the pruritis associated with opioids.

E. Corticosteroids

- Indicated for the emergency management of cerebral and spinal cord compression.
- Decadron (16-24 mg/day) or prednisone (40-100 mg/day) may be added to opioids for the management of pain in lumbar or brachial plexopathy.

F. Antibiotics

G. Radiation

H. Chemotherapy

I. Surgery

J. Acupuncture

K. TENS

L. Relaxation techniques

M. Therapeutic touch

N. Pastoral Services