Chapter 18
Drugs for the Control of Pain

Pain Assessment
- Subjective experience for clients
- Numerical scales and surveys assist in assessment.
- Effective pharmacotherapy depends on
  - Assessment of degree of pain
  - Determining underlying disorders

Acute Pain
- Intense
- Defined period of time

Chronic Pain
- Over six months’ duration
- Interferes with daily activities

Nociceptor Pain
- Due to injury to tissues
- Sharp, localized
- Dull, throbbing, aching
Neuropathic Pain

- Due to injury to nerves
- Burning, shooting, numbing

Pain Transmission

- Nociceptor stimulation
- Spinal cord receives pain impulse through
  - Aδ fibers
  - C fibers

Interruption of Pain Transmission

- Several target areas
  - Peripheral level
  - CNS level
- Pharmacological
- Nonpharmacological

Substance P

- Neurotransmitter
- Passes on pain message
- Affected by other neurons

Endogenous Opioids

- May modify sensory information, interrupting pain transmission
- Endorphins, dynorphins, ekaphalins

Nonpharmacological Pain Management

- Few or no side effects
- In place of or as an adjunct to pain medication
- Lower doses of pain medication may be needed
Nonpharmacological Therapies

- Acupuncture, massage, heat or cold
- Relaxation, chiropractic manipulation, TENS

Treatment for Intractable Cancer Pain

- Radiation or chemotherapy
- Relieving nerve stimulation
- Surgery
- Nerve block

Opioid Receptors

- Opioid agonist drugs: stimulate receptors
- Opioid antagonist drugs: block receptors
- Receptors: mu, kappa, sigma, delta, epsilon

Pharmacology

- Morphine: activates mu and kappa receptors
- Pentazocine: mixed agonist/antagonist
- Naloxone: inhibits mu and kappa receptors

Opioid Toxicity

- Severe respiratory depression
- Medical emergency

Naloxone (Narcan)

- Inhibits mu and kappa receptors
- Reverses respiratory depression
- Used to diagnose cause of overdose
### Treatment for Opioid Dependence

- Switch from IV and inhalation forms to oral form
- Oral form is methadone
- Does not cure but avoids withdrawal symptoms
- Treatment may continue for many months and years
- Called **methadone maintenance**

### Newer Treatment

- Early treatment: buprenorphine (Subutex)
  - Mixed opioid agonist-antagonist
  - Sublingual route
- Later maintenance: Suboxone

### Goal for Migraine Therapy

- Stop migraines in progress
- Prevent migraines from occurring

### Two Major Drug Classes to Stop Migraines in Progress

- Triptans and ergot alkaloids
- Both stimulate serotonin (5-HT)

### Triptans

- Selective for 5-HT receptor subtypes
- Act by constricting certain blood vessels in brain

### Ergot Alkaloids

- Interact with adrenergic, dopaminergic, and serotonin receptors
- Promote vasoconstriction, stop ongoing migraines
Drugs for Migraine Prophylaxis

- Beta-adrenergic blockers, calcium channel blockers
- Antidepressants, antiseizure drugs

Role of Nurse

- Careful monitoring of client’s condition
- Providing education
- Obtaining medical history
- Obtaining list of allergies
- Assessing client’s pain level
- Obtaining history of medications and alcohol and CNS-depressant use

Opioid Therapy

- Assess potential for opioid dependency
  - Have narcotic antagonists available to reverse negative effects
- Assist with activity
- Monitor urine output for retention
- Monitor client’s bowel habits for constipation

Opioid Antagonist Therapy

- Continue careful monitoring of client’s condition
  - Especially respiratory status
- Have resuscitative equipment available

Nonopioid Analgesics

- Careful monitoring of client’s condition and providing education is necessary
- Thorough assessment for hypersensitivity, bleeding disorders
- Through assessment for gastric ulcers, severe renal/hepatic disease, pregnancy

Nonopioid Analgesics

- Obtain laboratory tests on renal and liver function
- Pain assessment
- Monitor for side effects
Antimigraine Agents

- Assess frequency and intensity of the migraine headaches
- Obtain medical history
- Assess client’s stress levels, coping mechanisms, neurological status

Antimigraine Agents

- Provide a quiet, calm environment
- Apply cold packs to help lessen pain
- Assess pain level before medication administration
- Monitor for side effects

Morphine Animation

Click here to view an animation on the topic of morphine.

Opioid (Narcotic) Analgesic

- **Prototype drug**: Opioid agonists (morphine)
- **Mechanism of action**: interacts with specific receptors
- **Primary use**: for analgesia and anesthesia
- **Adverse effects**: respiratory depression, sedation, nausea, and vomiting

Opioids with Mixed Agonist-Antagonist Activity

- **Example**: Talwin
- Stimulate opioid receptor, thus causing analgesia
- Withdrawal symptoms and side effects not as intense as those of opioid agonists

Opioid Antagonists

- **Prototype drug**: naloxone (Narcan)
- **Mechanism of action**: interact with receptors
- **Primary use**: to reverse respiratory depression and other acute symptoms
Nonopioid Analgesics

- **Prototype drug:** acetaminophen (Tylenol)
- **Mechanism of action:** to treat fever: at the level of the hypothalamus and causes dilation of peripheral blood vessels enabling sweating and dissipation of heat
- **Primary use:** treatment of fever and to relieve pain
- **Adverse effects:** uncommon with therapeutic doses

Nonsteroidal Anti-inflammatory Drugs (NSAIDs)

- **Prototype drug:** ibuprofen (Motrin)
- **Mechanism of action:** to inhibit cyclooxygenase and prevent formation of prostaglandins
- **Primary use:** for mild or moderate pain and to reduce inflammation
- **Adverse effects:** GI upset, acute renal failure

Salicylates

- **Prototype drug:** aspirin (ASA)
- **Mechanism of action:** as anticoagulant, antipyretic, anti-inflammatory, and analgesic
- **Adverse effects:** with high doses may cause GI distress and bleeding
- May increase action of oral hypoglycemic agents

Selective Cox-2 Inhibitors

- **Prototype drug:** celecoxib (Celebrex)
- **Mechanism of action:** is similar to the NSAIDs
- **Primary use:** to relieve pain, fever, inflammation
- **Adverse effects:** mild and related to GI system

Centrally Acting Agents

- **Prototype drug:** tramadol (Ultram)
- **Mechanism of action:** has weak opioid activity
- **Primary use:** as centrally acting analgesic
- **Adverse effects can include:** CNS, GI, CV and dermatologic effects

Antimigraine Agents

- **Tripans**
- **Prototype drug:** sumatriptan (Imitrex)
- **Mechanism of action:** to act as serotonin agonists, constricting certain intracranial vessels
- **Primary use:** to abort migraines with or without auras
- **Adverse effects:** GI upset
**Ergot Alkaloids**

- **Mechanism of action:** to promote vasoconstriction
- **Primary use:** to terminate ongoing migraines
- **Adverse effects:** GI upset, weakness in the legs, myalgia, numbness and tingling in fingers and toes, angina-like pain, tachycardia

**Opioid (Narcotic) Analgesic**

- **Mechanism of action:** to interact with specific receptors
- **Primary use:** to relieve moderate to severe pain; some used for anesthesia
- **Examples:** Hydrocodone, OxyContin, Percocet

**Opioid Antagonists**

- Used to reverse effects of opioids
- Used for overdose or overly aggressive pain therapy
- **Examples:** Revex, Narcan, Trexan

**Nonopioid Analgesics**

- Used for fever, inflammation, and analgesia
- Used for mild or moderate pain associated with inflammation
- **Examples:** Celebrex, Cataflam, Dolobid, Lodine, Nalfon

**Antimigraine Agents**

- **Tripans**
  - Serotonin agonists
  - Act by constricting certain intracranial vessels
- **Ergot alkaloids**
  - Serotonin agonists
  - Act as vasoconstrictors
  - Terminate ongoing migraines
- **Migranal, Axert, Relpax, Frova**

**Drugs for Control of Pain**

- **Assessment**
  - Carefully monitor client’s condition
  - Assess vital signs, especially respiratory status
  - Assess client’s pain level: character, duration, location, intensity of pain
Drugs for Control of Pain (continued)

- Obtain history of medications, alcohol use
- Obtain medical history and history of migraine headaches
- Assess client’s stress levels and coping mechanisms
- Monitor for side effects and potential for dependency

Nursing diagnosis

- Knowledge deficit—condition, therapeutic regimen, side effects
- Risk for dependency related to opioid therapy

Planning

- Goal is to explain proper use of medication
- Client to be free of pain without dependency

Implementation

- Encourage compliance with medication regimen
- Provide additional education

Evaluation

- Client should have pain control with limited side effects, no dependency.
- Client verbalizes importance of taking prescribed medications.

Table 18.2 Opioids for Pain Management
Opioids for Pain Management

Table 18.2b Opioids for Pain Management

Nonopioid Analgesics

Table 18.3b Nonopioid Analgesics

Antimigraine Drugs

Table 18.4b Antimigraine Drugs