Chapter 10 Antitubercular Drugs

Antitubercular Drugs: Actions and Uses

- Bacteriostatic against the *M. tuberculosis* bacillus: act to inhibit bacterial cell wall synthesis, which slows the multiplication rate of the bacteria; and bactericidal such as INH, rifampin
- Used with other drugs to treat exception isoniazid (INH)

Antitubercular Drugs: Actions and Uses

- Used for :
  - For Standard Treatment
  - May be used as prophylactic treatment

Latent TB Treatment

- These people are what we might call a carrier
- When tested show have disease but it is not active at the time
- Will not be able to spread the disease since not active
- 5%–10%Can become active with disease if not treated
- Treated for 6-9 monthsw/daily or biweekly dosing
- rifapentine/INH combination taken weekly for 12 weeks.
- Box 10.2

Antitubercular Drugs: Treatment

- Standard treatment:
  - Initial phase-lasts approximately 2 months
    - rifampin (Rifadin), INH, pyrazinamide, and ethambutol (Myambutol)
  - Continuing phase-cont. approximately 4 months
    - only the drugs rifampin and INH
- Retreatment:
  - Includes the use of four or more antitubercular drugs
  - Treatment is individualized based on the susceptibility of the microorganism

Ethambutol: Adverse Reactions

- Generalized reactions:
  - Dermatitis and pruritus; joint pain; anorexia; nausea and/or vomiting
- More severe reactions:
  - Anaphylactoid reactions; optic neuritis

Ethambutol: Contraindications and Precautions

- Contraindicated in patients:
  - With a history of hypersensitivity to the drug; younger than 13 years
- Used cautiously in patients:
  - During pregnancy (pregnancy category B); with hepatic or renal impairment; with diabetic retinopathy or cataracts

Isoniazid: Adverse Reactions

- Generalized reactions:
  - Nausea and/or vomiting; epigastric distress; fever; skin eruptions; hematologic changes; jaundice; hypersensitivity
- Toxicity:
  - Peripheral neuropathy
  - Severe, and sometimes fatal hepatitis

Isoniazid: Contraindications and Precautions

- Contraindicated in patients:
  - With a history of hypersensitivity to the drug
- Used cautiously in patients:
  - During pregnancy (pregnancy category C) or lactation and in patients with hepatic and renal impairment

Isoniazid: Interactions

Interactant drug	Effect of interaction
Aluminum salts	Reduced absorption of isoniazid
Anticoagulants	Increased risk for bleeding
Phenytoin (Dilantin)	Increased serum levels of phenytoin
Alcohol (in beverages)	Higher incidence of drug-related hepatitis

Pyrazinamide: Adverse Reactions

- Generalized reactions:
  - Nausea and/or vomiting; diarrhea; myalgia; rashes
- Hepatotoxicity:
  - Symptoms may range from none (except for slightly abnormal hepatic function test results) to a more severe reaction such as jaundice

Pyrazinamide: Contraindications, Precautions, and Interactions

- Contraindicated in patients with known hypersensitivity to the drug; acute gout; severe hepatic damage
- Use cautiously in patients during pregnancy and lactation; with hepatic and renal impairment; with HIV; with diabetes mellitus
- Interaction: with allopurinol, colchicine, and/or probenecid—its effectiveness decreases

Rifampin: Adverse Reactions

- Generalized reactions:
  - Nausea, vomiting
  - Epigastric distress, heartburn, fatigue
  - Vertigo, rash
  - Reddish-orange discoloration of body fluids
  - Hematologic changes, renal insufficiency

Rifampin: Contraindications, Precautions, and Interactions

- Contraindicated in patients with known hypersensitivity to the drug
- Used cautiously in patients with renal or hearing impairment; during pregnancy and lactation
- Interactions: with antiretrovirals, digoxin; oral contraceptives; isoniazid; oral anticoagulants; oral hypoglycemics; chloramphenicol; phenytoin; verapamil

Nursing Process: Assessment

- **Preadministration assessment: Objective S/S**
- General client appearance (weight loss, sweating)
- Vital signs (temperature—especially fever, pulse, respirations, and blood pressure)
- Description of the infection—cough, color of sputum if productive
- Results of radiographic studies, sputum culture, and sensitivity tests
- Laboratory results—complete blood count, hepatic/kidney function tests

Nursing Process: Assessment

- **Preadministration assessment: Subjective S/S**
- Current symptoms of the infection (malaise, fatigue, chills, loss of appetite)
- Drug history, particularly if treated before for TB
- Social history, association with those who might have had TB
- Travel history to areas where the disease is prevalent

Nursing Process: Assessment

- Preadministration assessment:
  - Assess a family history and a history of contacts, if the patient has active TB
- Ongoing assessment:
  - Observe the patient daily for the appearance of adverse reactions and report if found
  - Carefully monitor vital signs daily

Nursing Process: Nursing Diagnoses

- Acute Pain
- Imbalanced Nutrition: Less Than Body Requirements
- Risk for Ineffective Self-Health Management

Nursing Process: Planning

- The expected outcome includes an optimal response to therapy:
  - Management of adverse drug reactions
  - Understanding of and compliance with the prescribed treatment regimen

Nursing Process: Implementation #1

- Promoting an optimal response to therapy:
  - Allow time for the patient and family members to ask questions
    - Refer the patient to other health care workers, such as a social service worker or a dietitian

Nursing Process: Implementation #2

- Monitoring and managing patients' needs:
  - Acute Pain: frequent parenteral injections
    - Be careful to rotate the injection sites
    - Inspect previous injection sites for signs of swelling, redness, and tenderness
    - Notify if necessary

Nursing Process: Implementation #3

- Monitoring and managing patients' needs (cont.)
  - Imbalanced Nutrition: Less Than Body Requirements
    - Be aware of dosing regimen with/without food for ethambutol, pyrazinamide; monitor for gastric upset; use alternative dosing regimen or combination drugs; explain coloration of bodily fluids

Nursing Process: Implementation #4

- Monitoring and managing patients' needs (cont.)
  - Ineffective Therapeutic Regimen Management:
    - To help prevent the problem of noncompliance—directly observed therapy (DOT)

Nursing Process: Implementation #5

- Educating the patient and family: careful patient and family education and close medical supervision are necessary
  - Explain that short-term therapy is of no value in treating this disease
  - Remain alert for statements made by the patient or family that may indicate future noncompliance with the drug regimen

Nursing Process: Evaluation

- The therapeutic effect is achieved
- Adverse reactions are identified, reported, and managed successfully
- Pain or discomfort following IM or IV administration is relieved or eliminated
- Patient and family demonstrate understanding of the drug regimen
- Patient complies with the prescribed drug regimen