Chapter 62

Classification of Medications
Classification of Medications

• Cross-sensitivity
  – Medications that share common actions may also share common adverse effects.

• Classification of medications
  – Helps to implement appropriate nursing actions before administering medication to a client

• Proper data gathering and follow-up
  – Helps to prevent possible overdose or other adverse reactions that could be life threatening
FDA Pregnancy Categories

- Categories of risk potential during pregnancy, as related to benefits
  - Category A
  - Category B
  - Category C
  - Category D
  - Category X
- No drugs should be administered to pregnant women unless absolutely necessary.
Is the following statement true or false?

Anaphylactic reactions may result from the administration of any drugs.
Answer

True

Severe, total-body life-threatening adverse reactions are anaphylactic reactions and may result from the administration of any drug.

Although these reactions are rare, death can result if proper treatment is not instituted immediately.
Interactions

• Interactions between food and medication
  – Some medications interact negatively with certain foods.
  – Some medications should always be taken with food, whereas others should be taken on an empty stomach.

• Interactions between drugs
  – Vary from decreased effectiveness of the drug to overdose of the drug.
Antibodies and Anti-Infective Agents

- Anti-infective agents are used to treat infections.
  - Antibiotics
    - Broad-spectrum or narrow-spectrum
    - Bacteriostatic agents or bactericidal agents
    - Reduce the virulence of a pathogenic organism
    - Instruct the client to take the full prescribed dose of an antibiotic, even though the symptoms subside.
Speed of Action of Medications

- Controlled release (CR)
- Delayed release (DR)
- Extended release (ER)
- Immediate release (IR)
- Sustained release (SR)
- Depot, decanoate injections
- Transdermal patches
Effectiveness

• An effective antibiotic
  – Is soluble in water, diffuses readily into body tissue
  – Does not cause an adverse or allergic reaction, or affect the normal flora
  – Is well absorbed by the GI tract
  – Is not an antagonistic to other antibiotics

• Antibiotic-resistant organisms
  – Indiscriminate use of antibiotics
Selection of the Appropriate Antibiotic

- Culture and sensitivity (C&S) test
  - Penicillins
  - Cephalosporins
  - Tetracyclines
  - Aminoglycosides
  - Macrolide antibiotics
  - Sulfonamides and other urinary antiseptics
  - Other anti-infectives
Question

Is the following statement true or false?

Antibiotic therapy should not start until after the specimen for C&S is forwarded to the laboratory for analysis.
Answer

True

To ensure the accuracy of test results, antibiotic therapy should not start until after the specimen for C&S is obtained and forwarded to the laboratory for analysis.

If antibiotic therapy begins before the specimen is secured, the numbers and types of bacteria present in the specimen could be reduced, which may result in inappropriate, and perhaps ineffective, antibiotic selection.
**Question**

Is the following statement true or false?

Clients taking tetracyclines should not take antacids such as Gelusil, Tums, or Milk of Magnesia.
**Answer**

True

The presence of iron, calcium, magnesium, or aluminum in the stomach influences tetracycline absorption.

Therefore, clients taking tetracyclines should not take antacids such as Gelusil, Maalox, Mylanta, Tums, or Milk of Magnesia.

Oral calcium supplements will also inhibit absorption and should be taken at least 1 hour before or 3 hours after taking tetracyclines.
Medications That Affect the Integumentary System

- Topical dermatologic agents
- Transdermal medications
- Soothing agents, pain relief, anesthetics
- Antiseptics, antifungals
- Corticosteroids
- Pediculicides
- Miscellaneous
Medications That Affect the Nervous System

- Stimulants
  - Abuse and adverse effects
- Depressants
  - Analgesics, hypnotics and sedatives, selective depressants
Analgesics

- Analgesics are medications that relieve pain.
- Narcotic agonist analgesics
  - Morphine sulfate, hydromorphone hydrochloride, codeine
- Nonnarcotic analgesics
  - Salicylates, nonsalicylate analgesics
- Nonsteroidal anti-inflammatory drugs (NSAIDs)
Hypnotics and Sedatives

- Hypnotic
  - Medication that produces sleep.
- Sedative
  - Medication that has a calming or quieting effect.
- Barbiturates
- Benzodiazepines
- Miscellaneous hypnotics and sedatives
Anticonvulsants

• Anticonvulsant
  – Medications that help prevent or control various types of seizure activity.

• Seizures are involuntary and abnormal nervous system activity.

• Most serious seizure disorders are classified as epilepsy.

• Phenytoin, clonazepam, carbamazepine, diazepam, valproic acid, magnesium sulfate
Adrenergic Medications

- Adrenergics or sympathomimetics
  - Epinephrine or a substance that acts like epinephrine
- Catecholamines
- Noncatecholamines
Medications That Affect the Endocrine System

- Thyroid replacement hormones
  - Thyroxine ($T_4$), triiodothyronine ($T_3$).
- Steroids
  - Cortisone
- Insulin
  - Exubera is the first noninjectable insulin.
Medications That Affect the Sensory System

- Medications affecting the eye
  - Mydriatics and miotics
  - Ophthalmic antibiotics
  - Agents that reduce intraocular pressure
  - Other ophthalmic medications

- Medications affecting the ear
  - Anti-infectives, analgesics, and cerumenolytics
Medications That Affect the Cardiovascular System

- Cardiotonics
  - Medications that stimulate or strengthen the heart’s pumping action
  - Digitalizing dose, maintenance dose
- Antiarrhythmics
  - Medications that regulate heart rhythm
- Vasoconstrictors and vasodilators
  - Medications that primarily act on the blood vessels
Antihypertensives

- Diuretics
- Beta (β) blockers
- Calcium channel blockers
- Angiotensin-converting enzyme (ACE) inhibitors
- Angiotensin II receptor blockers (ARBs)
- Miscellaneous agents
Question

Is the following statement true or false?

Beta blockers, like most cardiac medications, can be discontinued abruptly.
Answer

False

Most cardiac medications, particularly beta blockers, cannot be discontinued abruptly. This creates a high risk of rebound angina.
Medications That Affect the Blood

- Iron replacement preparations
- Vitamins
- Coagulants
- Anticoagulants
- Blood products
  - Whole blood
  - Blood components
  - Platelets
Antineoplastic Medications

• Chemotherapy: Administration of antineoplastic medications
  - Alkylating agents
  - Antineoplastic antibiotics
  - Antimetabolites
  - Antimitotics
  - Hormonal agents, corticosteroids
  - Antiangiogenics
  - Biologicals
Medications That Affect the Immune System

- Medications used to treat allergies
  - Antihistamines
    - Diphenhydramine
    - Chlorpheniramine
  - Corticosteroids
  - Immune sera and vaccines
Medications That Affect the Respiratory System

- Bronchodilators
- Antiasthmatic medications
- Respiratory stimulants
- Antitussives
  - Narcotic antitussives, nonnarcotic antitussives
- Expectorants
- Antihistamines
- Decongestants
Medications That Affect the GI Tract

- Mouth and Teeth
  - Mouthwashes, stannous fluoride
- Stomach
  - Antacids
  - Histamine (H₂) antagonists
  - Proton pump inhibitors
  - Antiflatulents
  - Antispasmodics
Medications That Affect the GI Tract (cont’d)

- Medications that produce or stop vomiting
  - Emetics
  - Antiemetics
    - Dimenhydrinate (Dramamine)
    - Prochlorperazine HCl (Compazine)
    - Ondansetron (Zofran)
    - Metoclopramide
Medications That Affect the GI Tract (cont’d)

- Intestine
  - Cathartics
    - Bulk-producing agents
    - Irritant cathartics
    - Lubricant cathartics
    - Saline cathartics
    - Osmotic agents
  - Fecal softeners
  - Antidiarrheals
Medications That Affect the Urinary System

• The urinary tract
  − Diuretics
    • Xanthine diuretics
    • Thiazide diuretics
    • Loop diuretics
    • Other diuretics

• Muscle tone of the urinary bladder
  − Urinary antiseptics and antispasmodics
Medications That Affect the Reproductive Systems

- Male sex hormones (androgens)
- Ovarian hormones
  - Estrogen, progesterone
- Contraction of uterine muscle
- Family planning
- Sexually transmitted infections
- Erectile dysfunction
End of Presentation