Pharmacokinetics Class Preparation

Nursing 101

GI SYSTEM*:* The oral medication reaches the systemic circulation through the GI system. As a result, numerous factors can affect the absorption of the pill.

Questions:

1. A client is experiencing diarrhea. How could this affect absorption of an oral drug?
   - Diarrea can change the absorption of oral medication. Diarrhea speeds up the movement through the digestive tract reducing the time the meds are being absorbed.
2. How could the presence of food in the stomach affect the rate of absorption?
   - Food can alter drug absorption by changing the physiological conditions of the GI tract.

CARDIOVASCULAR SYSTEM: Once the pill is absorbed into the bloodstream, it is carried or delivered to the sites of pharmacologic action where the drug produces its effects.

Question:

3. How do you think the distribution of the oral medication affected if a client has less than normal cardiac output?
   - Decreased cardiac output can slow the delivery of medication.

LIVER: Most biotransformation takes place in the liver. Any decrease in the ability of the liver to metabolize medication could lead to an accumulation of the active drug in the bloodstream. This could put the client at risk for toxic effects and adverse reactions.

Questions:

4. How might nutritional status affect metabolism?
   - If the body is lacking in nutrition this could slow the bodies metabolism and reduce organ functions.
5. What factors influence the rate of medication metabolism?
   - Physiological conditions (age, diet, hormone balance)
   - Pathological conditions (impaired liver or kidney function)
   - Genetic factors
   - Drug-drug interactions
   - Stereochemistry

KIDNEYS: Drug excretion/elimination occurs mainly through the kidneys into the urine. If there is any impairment in kidney function, medications may not be excreted at the anticipated speed. Subsequent medication administration may lead to accumulation and potential toxicity.

Questions:

6. Why would very young and very old clients need to be closely monitored by nurse for signs and symptoms of drug toxicity?
   - Infant and children have underdeveloped organ systems and older clients can have age-related changes in metabolism and reduced organ function. For both clients these factors make them more sensitive to even small doses of drugs.
7. How can the nurse assess kidney function?
   - Monitoring the pt's output characteristics, monitor fluid retention, and monitor vitals.