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?
    - Diarrhea can decrease drug absorption and make the medication less effective

2. How could the presence of food in the stomach affect the rate of absorption?
    - Food slows the rate of absorption, but it is also dependent on the drug and what you eat

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?
    - Reduced cardiac output slows drug distribution

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?
    - Poor nutrition can slow medication metabolism

5. What factors influence the rate of medication metabolism?
    - Age, increase in medication-metabolizing enzymes, first-pass effect, similar metabolic pathways, and nutritional status

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 a nurse for signs and symptoms of drug toxicity?

- Very old and very young clients cannot metabolize and eliminate drugs as efficiently

7. How can the nurse assess kidney function?
    - Assessment, urinalysis, and lab tests can assess kidney function