

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?
___A concern would be whether the medication was properly absorbed, in order for absorption to occur the GI tract must be functional. If the client is experiencing diarrhea it is likely the medication was not fully absorbed. _____

2. How could the presence of food in the stomach affect the rate of absorption?
___The presence of food in the body may delay or enhance the rate of absorption depending on the type of medication. _____

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? ___It could result in the medication not being as effective due to the lack of necessary cardiac output needed to distribute the medication through the blood stream. _____

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? ___Certain nutrients can either allow or hinder medication metabolism from preventing enzymes from functioning normally. _____

5. What factors influence the rate of medication metabolism?___Factors that influence the rate of medication metabolism include, age, genetic characteristics, CYP

enzymes, and the specific route of administration (sublingual, transdermal, parenteral, rectal)._____

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?___Very young clients have immature liver function which reduces metabolism rate and older clients have a hard time absorbing, metabolizing, and excreting medications which is why they should be monitored closely._____
7. How can the nurse assess kidney function? ____The nurse should assess and evaluate clients who are at risk for adverse effects to the medication through acquiring lab results._____