

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? The body won't have enough time to absorb the drug across epithelial cells before expelled. The oral drug might not be absorbed fully.
2. How could the presence of food in the stomach affect the rate of absorption? _Mixing with food could slow the rate of absorption since the medication has to pass through epithelial cells and the food could be blocking them.

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? _The distribution is reduced or delayed. It would take more time for the medication to reach the target areas and start working with less than normal cardiac output. ____

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? _Malnourished clients might not have the ability to produce specific medication- metabolizing enzymes which would affect (possibly decrease) metabolism
5. What factors influence the rate of medication metabolism? __Factors that influence the rate of medication metabolism include age, increase in some 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 nurse for signs and symptoms of drug toxicity?___Kidney function may not be fully developed or may be impaired making it harder for these clients to eliminate medications in a timely manor resulting in toxicity. _
7. How can the nurse assess kidney function? Monitor urine output, BUN and creatinine levels. This can give signs on how the kidney's are functioning and if there are any issues.