

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?
Having diarrhea may decrease the absorption of the medication
How could the presence of food in the stomach affect the rate of absorption?
Food in the stomach slow the rate of absorption

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:

2. How do you think the distribution of the oral medication affected if a client has less than normal cardiac output? **Medication will take longer to distribute throughout the body because of poor blood circulation**

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:

3. How might nutritional status affect metabolism? **If a patient is malnourished they could possibly not have the enzymes needed to metabolize medications.**
4. What factors influence the rate of medication metabolism? **Age, First-Pass effect, Increase in some medication-metabolizing enzymes, similar metabolic pathways, 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:

5. Why would very young and very old clients need to be closely monitored by nurse for signs and symptoms of drug toxicity? **Very young and very old people have limited medication metabolizing capabilities**
6. How can the nurse assess kidney function? **Monitor BUN and creatinine levels**