

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 causes the stomach to empty out faster than normal which could cause the medication to be emptied out before it can fully administer the full concentration and work.
2. How could the presence of food in the stomach affect the rate of absorption?
If there is food in the GI tract the medication could have a harder time passing through the epithelial cells in the GI tract because they are blocked by food.

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 medication will be delayed in distribution by the delayed cardiac output which could affect the concentration of the drug.

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
Clients who are malnourished can lack the factors that are necessary to produce medication-metabolizing enzymes.
5. What factors influence the rate of medication metabolism?__
Age, enzymes, the liver, metabolic pathways, and nutrition.

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?

Drug metabolism is decreased at the beginning of life and decreases as we age, this results in medications becoming accumulated in the body. When drugs are accumulated in the body it can lead to toxicity.

7. How can the nurse assess kidney function?

By keeping an eye on any urine that is excreted and by keeping an eye out for any pain or tenderness.