

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?
 - Can speed up passage of meds through the gi tract with less time for absorption
2. How could the presence of food in the stomach affect the rate of absorption?
 - It can slow down absorption by delaying gastric emptying or speed it up by increasing blood flow

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?
 - Less blood is pumped throughout body. Can lead to decreased distribution of oral meds to tissues and organs

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?
 - Can affect livers ability to metabolize drugs. Malnutrition can impair liver functions and potentially slowing down metabolism.
5. What factors influence the rate of medication metabolism?
 - Liver function, genetics, age, medications, diseases, etc

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?
 - Old clients can have declining kidney/liver functions and is crucial for drug metabolism and excretion which makes them more susceptible to drug intoxicity.

7. How can the nurse assess kidney function?
 - Monitoring urine output, checking blood and creatinine levels, or observing for signs of fluid retention or electrolyte imbalances.