

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?
If a client is experiencing diarrhea, this could reduce drug absorption because of the GI tract being 'sped up'.
2. How could the presence of food in the stomach affect the rate of absorption?
The presence of food in the stomach could reduce drug absorption due to the change in pH and stability in the stomach, it could take longer for medications to work.

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 is affected if a client has less than normal cardiac output? If a client has less than normal cardiac output, the drug distribution may be slowed due to a less than normal amount of blood being pumped throughout the body.

LIVER: Most biotransformation takes place in the liver. Metabolizing 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? Nutritional status may affect metabolism because someone who has a deficiency to certain electrolytes or enzymes may have a decrease in being able to absorb different medications.
5. What factors influence the rate of medication metabolism? Internal: sex, age, hormones. External: diet, environment.

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 a nurse for signs and symptoms of drug toxicity? At a very young or very old age clients kidneys may not be able to excrete the drugs, causing a 'build up' of the drug to accumulate leading to drug toxicity.
7. How can the nurse assess kidney function? I&Os. Blood tests