

Medication Administration: Class Preparation

Pharmacokinetics of an Oral Medication

Nursing 101 Fall 2021

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?
Not enough time in the GI track for absorption.
2. How could the presence of food in the stomach affect the rate of absorption?
Barrier blocking the epithelial cells that line the GI tract.

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? **Delay medication distribution.**

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 be deficient in the factors that are necessary to produce specific medication-metabolizing enzymes.**
5. What factors influence the rate of medication metabolism? **A genetic predisposition, chronic liver disorders, advanced heart failure, interactions with other medications, 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? **Adults taking many medications are at risk for CYP450 metabolism.**

7. How can the nurse assess kidney function? Palpation and percuss the costovertebral area. Creatinine tests.