

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 the client having diarrhea the drug will move too quickly through the GI tract and it will have less absorption, which may lower the effects of the drug.

2. How could the presence of food in the stomach affect the rate of absorption?

The presence of food in the stomach can 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:

3. How do you think the distribution of the oral medication affected if a client has less than normal cardiac output?

If a patient has less than normal cardiac output, the rate the drug distributes is slower. This because low cardiac output equals lower blood flow and drugs are spread through blood flow so ultimately, slower blood flow equals slower 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? **Poor nutrition can slow down metabolism and good nutrition can relate to normal or a faster metabolism. Poor nutrition > slower metabolism > can increase risk of toxicity. Good nutrition > normal/quicker metabolism > safer regarding the metabolism of drugs.**

5. What factors influence the rate of medication metabolism? **Age, genetics, liver function, and current meds**

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? **Young and older patients require specific/modified doses that are safer to their bodies because they are at an increased risk for drug toxicity and adverse affects. In younger patients their bodies are not fully mature making them higher risk, and in older patients their bodies are slowing down also increasing their risk.**
7. How can the nurse assess kidney function? **The nurse can view/monitor the patients lab values, assess urine output and monitor for signs of drug accumulation to assess kidney function.**