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 inflammation in the intestines which shorts the time that a drug will stay in the GI tract.

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

   Food takes up space which delays the movement of a drug into the small intestine. With some medications, taking it with food will actually make it get absorbed faster.

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 client has less than normal cardiac output, the drug may not reach the sites of pharmacologic action due to less blood flow.

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? ___Nutritional status can change the liver's ability to produce enzymes that are needed for the liver to metabolize medications.
5. What factors influence the rate of medication metabolism? metabolizing enzymes, decreased hepatic function and two medications using the same pathway may influence the rate of medication metabolism._

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?__Very young and very old clients need to be closely monitored by the nurse because their liver and kidneys immature or diminished. If the kidneys do not work properly, there is a risk of medications building up in their body and causing toxicity.
7. How can the nurse assess kidney function? The characteristics of a client's urine output and any bladder distention can help assess kidney function