**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 decreases the amount of time the medication has to be absorbed so decreased absorption and therapeutic effects.
   How could the presence of food in the stomach affect the rate of absorption? Food can slow gastric emptying which decreases absorption depending on the medication.

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:

**2.** How do you think the distribution of the oral medication affected if a client has less than normal cardiac output? Slower blood flow can delay the distribution of the drug to other tissues and organs which might reduce the effect.

**3.** 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 nutritional status can cause decreased liver enzymes levels required for metabolism and impair liver function and increase risk for toxicity.
5. What factors influence the rate of medication metabolism?
   Age, Liver Function, Smoking/ Alcohol, Nutritional Status.

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? Both groups have reduced kidney function, so drugs stay in their body longer.

7. How can the nurse assess kidney function? Check for signs of Fluid Retention, Decreased Urine Output, Elevated Lab Test for Creatinine and Blood Urea Nitrogen.