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? **The patient is losing fluids from their body rapidly so anything consumed or administered would not have much time for the body to absorb before it is excreted**
2. How could the presence of food in the stomach affect the rate of absorption? **It can decrease the rate of absorption because the body now has to digest and absorb nutrients from the food along with the medication making it a longer process.**

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? **The distribution of medication would be below normal. Their heart cannot pump blood as effectively meaning medication would take longer to be distributed throughout the body.**

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? **Malnourished patients may have a deficiency in the necessary components to produce enough medication-metabolizing enzymes. This imparts medication metabolism**
5. What factors influence the rate of medication metabolism? **Age, nutrional status, surplus of medication-metabolizing enzymes, other metabolic pathways.**

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?_**As you age your body begins to experience decreased functioning. Their kidney function may not be as good as it used to be leading them to an increased risk of drug toxicity. Older individuals also tend to experience bladder problems which may also lead to risk of infections which would likely require more medication that their body may excrete at a slower rate.**
7. How can the nurse assess kidney function? **Monitor I&O, bladder scans, urine test**