

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?
-Causing rapid peristalsis affecting the contact time and the extent of the absorption of the drug to be effective.
2. How could the presence of food in the stomach affect the rate of absorption?
-Delays gastric emptying time and stimulating bile flow along with affecting GI pH, blood flow or overall interaction of the body with 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:

3. How do you think the distribution of the oral medication affected if a client has less than normal cardiac output?
-The oral medication will not be as affective on the client and could cause more problems due to not having the right amount of blood flow and circulation for the medication to reach its full potential throughout the body functions, can affect BP for example which can either increase or decrease which again can lead to more complications.

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?
-Depending on the persons nutritional status can affect metabolism by causing it to be slow or fast depending on how much you eat per day and what you are eating which can either be beneficial to your health or be harmful which can lead to worsening health factors of the clients overall health, metabolism benefits the body by producing energy and necessary chemicals that our body needs in order to function that we as humans cannot control ourselves.

5. What factors influence the rate of medication metabolism?

-Physiological factors, genetic factors, pharmacodynamic factors 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?

- Very young and very old clients could potentially overdose or misuse of a medication due to mental impairments/dementia, Alzheimer's etc. and for very young not being responsible or knowing the exact correct amount of dosage or to harm themselves in other mental factors depending on the client and their overall mental and emotional state.

7. How can the nurse assess kidney function?

-The nurse can assess kidney function by assessing the client of physical appearance as far as edema, vital signs, blood work (of BUN, Creatine, GFR results), assessing organs etc.