Lilley: Pharmacology for Canadian Health Care Practice, 2nd Canadian Edition

Chapter 02: Pharmacological Principles

Test Bank

MULTIPLE CHOICE

1. A patient is receiving two different drugs, which, at their current dose forms and dosages, are both absorbed into the circulation in identical amounts. Which of the following terms best describes that the drugs have the same absorption rates?
a. Equivalent
b. Synergistic
c. Compatible
d. Bioequivalent

ANS: D
Two drugs absorbed into the circulation at the same amount (in specific dosage forms) have the same bioavailability; thus, they are bioequivalent.

"Equivalent" is incorrect because the term "bioavailability" is used to express the extent of drug absorption. "Synergistic" is incorrect because this term refers to two drugs given together whose the resulting effect is greater than the sum of the effects of each drug given alone. "Compatible" is incorrect because this term is a general term used to indicate that two substances do not have a chemical reaction when mixed (or given, in the case of drugs) together.

DIF: Cognitive Level: Comprehension REF: pp. 23, 24

2. A patient is receiving medication via intravenous injection. Which of the following statements should the nurse provide for patient education?
a. The medication will cause fewer adverse effects when given intravenously.
b. The medication will be absorbed slowly into the tissues over time.
c. The medication's action will begin faster when given intravenously.
d. Most of the drug is inactivated by the liver before it reaches the target area.

ANS: C
Intravenous injections are the fastest route of absorption.

The route does not affect the number of adverse effects. The intravenous route is not a slow route of absorption. The route does not affect the number of allergic reactions.

DIF: Cognitive Level: Comprehension REF: p. 26

3. Which of the following statements is *true* regarding parenteral drugs?
a. They bypass the first-pass effect.
b. They decrease blood flow to the stomach.
c. They are altered by the presence of food in the stomach.
d. They exert their effects while circulating in the bloodstream.

ANS: A
Drugs given by the parenteral route bypass the first-pass effect, but they still must be absorbed into cells and tissues before they can exert their effects.

Enteral drugs (drugs taken orally), not parenteral drugs, decrease blood flow to the stomach and are altered by the presence of food in the stomach. Parenteral drugs must be absorbed into cells and tissues from the circulation before they can exert their effects; they do not exert their effects while circulating in the bloodstream.

DIF: Cognitive Level: Analysis REF: p. 28

4. Which of the following descriptions best explains a drug's half-life?
a. The time it takes for the drug to elicit half its therapeutic response
b. The time it takes one-half of the original amount of a drug to reach the target cells
c. The time it takes one-half of the original amount of a drug to be removed from the body
d. The time it takes one-half of the original amount of a drug to be absorbed into the circulation

ANS: C
A drug's half-life is the time it takes for one-half of the original amount of a drug to be removed from the body. It is a measure of the rate at which drugs are removed from the body.

"The time it takes for the drug to elicit half its therapeutic response," "The time it takes one-half of the original amount of a drug to reach the target cells," and "The time it takes one-half of the original amount of a drug to be absorbed into the circulation" are not correct definitions of half-life.

DIF: Cognitive Level: Comprehension REF: pp. 32, 33

5. The term "duration of action" refers to which of the following descriptions?
a. The time it takes for the drug to elicit a therapeutic response
b. The time it takes a drug to reach its maximum therapeutic response
c. The length of time it takes to remove a drug from circulation
d. The time during which drug concentration is sufficient to elicit a therapeutic response

ANS: D
Duration of action is the time during which drug concentration is sufficient to elicit a therapeutic response.

The time it takes for the drug to elicit a therapeutic response defines a drug's "onset of action." The time it takes a drug to reach its maximum therapeutic response defines a drug's "peak effect." "The length of time it takes to remove a drug from circulation" addresses a drug's elimination and does not define duration of action correctly.

DIF: Cognitive Level: Comprehension REF: p. 33

6. Which of the following statements explains how a drug interacts with enzymes?
a. By altering cell membrane permeability
b. By "fooling" a receptor on the cell wall
c. By enhancing the drug's effectiveness within the cells
d. By "fooling" the enzyme to bind with it instead of its normal target cell

ANS: D
When drugs interact with enzymes, they inhibit the action of a specific enzyme by "fooling" the enzyme into binding to it instead of to its normal target cell. Thus, the target cells are protected from the action of the enzymes to result in a drug effect.

The alteration of cell membrane permeability, the "fooling" of a receptor on the cell wall, and the enhancement of the effectiveness of drugs within cells do not occur with selective enzyme interactions.

DIF: Cognitive Level: Comprehension REF: p. 34

7. When administering a new medication to a patient, the nurse reads that it is highly protein bound. Which of the following consequences will result?
a. Renal excretion will take longer.
b. The drug will be metabolized quickly.
c. The duration of action of the medication will be longer.
d. The duration of action of the medication will be shorter.

ANS: C
Drugs that are bound to plasma proteins are characterized by longer duration of action.

Protein binding does not make renal excretion longer and does not increase metabolism of the drug. Protein binding of a drug means that the duration of action is longer, not shorter.

DIF: Cognitive Level: Application REF: p. 30

8. When monitoring a patient on an insulin drip to reduce blood glucose levels, the nurse notes that the patient's glucose level is extremely low, and the patient is lethargic and difficult to awaken. Which type of adverse drug reaction is the nurse observing?
a. An adverse effect
b. An allergic reaction
c. An idiosyncratic reaction

d. A pharmacological reaction

ANS: D
A pharmacological reaction is an extension of the drug's normal effects in the body. In this case, the insulin lowered the patient's blood glucose levels too much.

An adverse effect is a predictable, well-known adverse drug reaction (ADR) that results in minor or no changes in patient management. An allergic reaction (also known as a *hypersensitivity reaction*) involves the patient's immune system. An idiosyncratic reaction is unexpected and is defined as a genetically determined abnormal response to normal dosages of a drug.

DIF: Cognitive Level: Comprehension REF: p. 38

9. A patient is experiencing chest pain and needs to take a sublingual form of nitroglycerin. Which of the following instructions should the nurse give to the patient regarding placement of the tablet?
a. Under the tongue
b. In the space between the cheek and the gum inside the mouth
c. At the back of the throat for easy swallowing
d. On a non-hairy area on the chest

ANS: A
The sublingual route is located under the tongue.

Placing the tablet in the space between the cheek and the gum inside the mouth describes the buccal route. Placing the tablet at the back of the throat for easy swallowing describes the oral route. Placing the tablet on a non-hairy area on the chest describes the topical or transdermal route.

DIF: Cognitive Level: Comprehension REF: p. 25

10. The nurse is administering medications to a patient who is in liver failure due to end-stage cirrhosis. The nurse is aware that patients with liver failure are most likely to have problems with which pharmacokinetic phase?
a. Absorption
b. Distribution
c. Metabolism
d. Excretion

ANS: C
The liver is the organ that is most responsible for drug metabolism. Decreased liver function will most affect a drug's metabolism.

The absorption of a drug is not affected by liver function. Distribution is not affected by liver function. Excretion is affected only because decreased liver function may not transform drugs into water-soluble substances for elimination via the kidneys, but it is not the best answer for this question.

DIF: Cognitive Level: Application REF: p. 30