MBS230 Pharmacology Test1-deferred

questions

When an inactive form of the drug is being activated in the body, it is called? 1 point

- Toxic metabolite
- Pro-drug
- Pro-metabolite
- Up regulation

Acidic drugs, such bind primarily to which of the following plasma proteins? 1 point

- Alpha-1-fetoprotein
- Gamma Globulin
- Albumin
- Alpha-1-acid glycoprotein

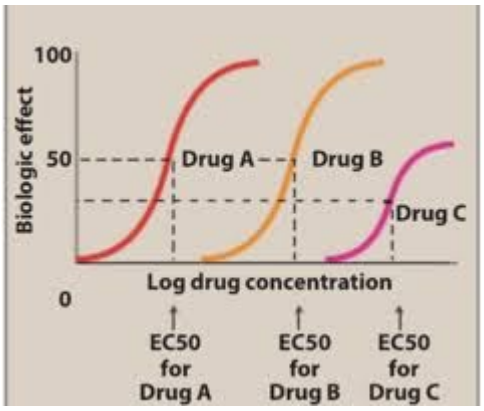
The rate of drug absorption is greatest in

1 point

- The stomach
- The small intestine
- The large intestine
- The rectum

Three novel drugs to treat Alzheimer's disease have undergone phase I trials. A graph of the biologic effect versus log drug concentration is plotted in the following graph. Which of the following statements is true?

1 point



- Drug A is less potent than Drug B
- Drug A has lower efficacy than Drug B
- Drug C shows lower potency than Drugs A and B
- Drug C is best administered orally

Which of the following steps is most critical to achieve a therapeutic drug concentration in plasma? 1 point

- Absorption
- Distribution
- Elimination
- Metabolism

Some of these metabolic reactions decrease with age. Which of the following metabolic reactions is likely still intact in this patient? 1 point

- Glucuronidation
- Hydrolysis
- Oxidation
- Reduction

The loading dose (LD) of a drug is usually based on the 1 point

- Percentage of drug bound to plasma proteins
- Fraction of drug excreted unchanged in the urine
- Apparent volume of distribution (VD) and desired drug concentration in plasma
- Area under the plasma drug concentration versus time curve (AUC)

The cytochrome P450 system includes dozens of enzymes. Which is the most abundant CYP enzyme in human livers? 1 point

- CYP2A6
- CYP2D6
- CYP2E1
- CYP3A4

Biotransformation of the drugs is to render them: 1 point

- Less ionized
- More pharmacologically active
- More lipid soluble
- Less lipid soluble

A patient is given a one-time 100mg dose of drug. Administration of the medication results in a peak plasma concentration of 20µg/mL. What is the apparent volume of drug distribution? 1 point

- 0.2 L
- 50000L
- 5 L
- 2000 L

Local anesthetics block: 1 point

- Calcium channels
- Potassium channels
- Sodium channels
- Dopamine receptors

The therapeutic index of a drug is a measure of its: 1 point

- safety
- potency
- efficacy
- dose variability

A 16-year-old male high school football player takes 800 mg of ibuprofen after morning practice for a sore knee. Ibuprofen has a half-life of about 2 h. What percentage of the original plasma load of ibuprofen will remain in his blood when afternoon practice starts in 4 h? 1 point

- 0%
- 12.5%
- 25%
- 50%

The pharmacokinetic parameter which determines the speed of drug input that must balance the speed of drug elimination to achieve a steady-state concentration 1 point

- clearance
- dosing rate
- bioavailability
- volume of distribution

Which one of these receptor subfamilies has a millisecond response? 1 point

- type 1 ligand-gated ion channels
- type 2 G-protein coupled
- type 3 kinase-linked
- type 4 nuclear receptors

When a non-competitive antagonist to the histamine receptor is injected. Which of the following best describes this agent?the drug 1 point

- binds to the histamine receptor and partially activates it
- binds to the histamine receptor but does not activate it
- binds to the histamine receptor, at the different site and prevents activation
- irreversibly binds to the histamine receptor and renders it ineffective

What is the major second messenger of beta receptor activation that participates in signal transduction? 1 point

- Inositol triphosphates
- calcium
- cAMP
- adenylyl cyclase

Drug B has a half-life of 3 hours. If the initial plasma level of the drug, given as a single dose, is 3600mg/L, what will its plasma level be after 10 hours? 1 point

- 450
- 375
- 325
- 300

“Nicotinic” sites include all of the 1 point

- Bronchial smooth muscle
- Adrenal medullary cells
- Parasympathetic ganglia
- Skeletal muscle

First pass effect occurs in which one of the following routes of administration? 1 point

- Oral
- Sublingual
- Rectal
- Intravenous

A competitive antagonist is a substance that: 1 point

- binds to one receptor subtype as an agonist and to another as an antagonist
- binds to the same receptor site and progressively inhbits the agonist response
- interacts with receptors and produces suboptimal response
- binds to non specific site of tissues

Bioavailability is the 1 point

- Proportion of administered drug that reaches the systemic circulation in changed form
- Proportion of administered drug that reaches the systemic circulation in unchanged form
- Proportion of susceptibility of body tissues to the given drug
- Ability of administered drug to reach its target of action

Local anesthetics produce: 1 point

- Analgesia, amnesia, loss of consciousness
- Blocking pain sensation without loss of consciousness
- Alleviation of pain with an altered level of consciousness
- Stupor or somnolent state

Physical process by which a weak acid becomes less water-soluble and more lipid-soluble at low pH is 1 point

- Elimination
- First-pass effect
- Permeation
- Protonation

Which drug is the most efficacious? 1 point

- A
- B
- C
- D

What type of drugs can cross the blood-brain barrier (BBB)? 1 point

- Large and lipid-soluble
- Large and lipid-insoluble
- Small and lipid-soluble
- Small and lipid-insoluble

Bioavailability of an agent is maximal when the drug has which of the following qualities? 1 point

- Highly lipid soluble
- More than 100 daltons in molecular weight
- highly bound to plasma proteins
- highly ionised

After how many half-lives is steady-state concentration of drug achieved? 1 point

- 1-2 T 1/2
- 3-5 T ½
- 6-8 T ½
- 9-11 T ½

Surface anaesthesia is used for the following except: 1 point

- Ocular tonometry
- Urethral dilatation
- Tooth extraction
- Anal fissure

In which phase of drug development would teratology and toxicology studies be carried out? 1 point

- 0
- 1
- 2
- 3

The non-ionized lipid soluble drug with low molecular weight is usually absorbed by: 1 point

- Pinocytosis
- Passive diffusion
- Active transport
- Filtration

The addition of glucuronic acid to a drug: 1 point

- Decreases its water solubility
- Usually leads to inactivation of the drug
- Is an example of a Phase I reaction
- Involves cytochrome P450tion 4

A patient receives a single dose of antibiotics following a prostate needle biopsy. He takes 500 mg of ciprofloxacin immediately after completion of the procedure. The half-life of the medication is 8 h. At approximately how many half-lives will it take for 90% of the drug to be excreted from the body? 1 point

- 2.0
- 4.2
- 3.0
- 3.3

First order kinetics of the drugs is called when 1 point

- A constant fraction of the drug is removed in per unit time
- A constant amount of the drug is removed in per unit time
- Total amount of the drug is removed in one hour
- Total amount of the drug is removed in first passage through the kidneys

which equation is true for a zero-order reaction rate of drug? 1 point

- dA/dt = - k
- t½ = 0.693/k
- A = A0e -kt

An undesirable effect of a drug that occurs at therapeutic doses and can be predicted from its pharmacological actions is called: 1 point

- Adverse drug reaction
- Side effect
- Toxic effect
- Idiosyncrasy

Most drug receptors are 1 point

- Small molecules with a molecular weight between 100 and 1000
- Lipids arranged in a bilayer configuration
- Proteins located on cell membranes or in the cytosol
- DNA molecules

The primary route of administration of insulin is: 1 point

- intradermal
- subcutaneous
- intramuscular
- intravenous

Volume of distribution: 1 point

- is always a real volume
- amount of drug in plasma concentration in body
- concentration of drug in plasma amount of drug in blood
- amount of drug in body concentration of drug in plasma

Two drugs A and B have the same mechanism of action. Drug A at a dose of 5 mg produce the same magnitude of effect as drug B at a dose of 500 mg. This means that 1 point

- drug B is less efficacious than drug A
- drug A is more potent than drug B
- toxicity of drug A is less than that of drug B
- drug A is more effective than drug B

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