Quiz

All the following are possible consequences of phase-I biotransformation reaction EXCEPT:
A)Production of a pharmacologically inactive metabolite
B)Conversion of a pharmacologically inactive to an active substance
C)Conversion of one pharmacologically active to another active substance
D)Combination of a drug with an endogenous substance
E)Production of a toxic metabolite
Ans:D

Conjugation of a drug with glucuronic acid:
A)Increases its water solubility
B)Is an example of a phase-I biotransformation reaction
C)Involves cytochrome P-450
D)Occurs in the same rate in adults and in the newborn
E)Usually results in increased activity of the drug
Ans:A

Which of the following statements is INCORRECT:
A)Unionized drug is lipid-soluble and diffusible.
B)Ionized drug is lipid-insoluble and non-diffusible.
C)Weak base drugs are best absorbed in the intestine
D)Weak acid drugs become less ionized in an acidic medium
E)Acidification of urine enhances renal reabsorption of weak base drugs
Ans:E

Quiz

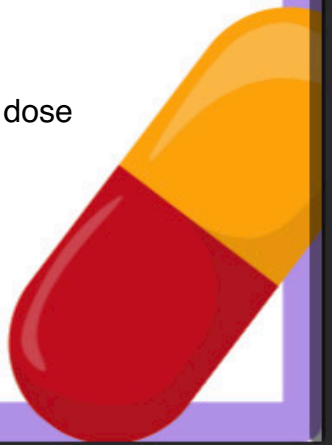
Which of the following is an enzyme inducer?
A)cimetidine
B)chloramphenicol
C)rifampicin
D)oestrogens
E)erythromycin
Ans:C

Drugs which are lipid soluble:
A)do not usually penetrate CNS
B)generally have very long elimination half lives
C)are readily excreted by kidney without prior metabolism
D)All of the above
E)None of the above
Ans:E

A 74-year-old man was admitted to the hospital for treatment of heart failure. He received 160 mcg of digoxin intravenously, and the plasma digoxin level was 0.4 ng/mL. If the desired plasma concentration of digoxin for optimal therapeutic activity in heart failure is 1.2 ng/ml, and the patient has an estimated Vd of 400 L, calculate the additional dose of digoxin needed for this patient to achieve the desired plasma concentration.

* A)128 mcg
* B)160 mcg
* C)320 mcg
* D)480 mcg
* E)640 mcg

Ans:C



Quiz

Drug A is a weakly basic drug with a (pKa =
7.8). If administered orally, at which of the following sites of absorption will the drug be able to readily pass through the membrane?

* A)Mouth (pH approximately 7.0)
* B)Stomach (pH of 2.5)
* C)Duodenum (pH approximately 6.1)
* D)Jejunum (pH approximately 8.0)
* E)Ileum (pH approximately 7.0)

* Ans:D

A 40-year-old male patient (70 kg) was recently diagnosed with infection invoMng methicillin-resistan S. aureus. He received 2000 mg of vancomycin as an IV loading dose. The peak plasma concentration of vancomycin was 28.5 mg/L. The apparent volume of distribution is: *

A)1 L/kg
B)7 L/kg
C)10 L/kg
D) 14 L/kg
E)70 L/khg
Ans: A

Quiz

A 64-year-old female patient (60 kg) is treated with experimental Drug A for type 2 diabetes.
Drug A is
available as tablets with an oral bioavailability of 90%. If the Vd is 2 L/kg and the desired steady-state plasma concentration is 3.0 mg/L, which of the following is the most appropriate oral loading dose of Drug A? *

* A)6mg
* B)6.66mg
* C)108 mg
* D)360 mg
* E)400 mg

* Ans:E

A 55-year-old man with chronic cardiac failure currently takes multiple medications, including digoxin.
He is brought to the emergency department because of slurred speech and inappropriate behavior. It turns out that he has not taken his digoxin for the last 2 weeks. The physician gives 125 microgram as standard dose. Twenty-four hours later, his serum levels were reported to be 2 ng/mL (= 2 microgram/L). The target therapeutic level is 0.8 ng/mL. What dose of digoxin should he receive? *

* A)25 mcg (microgram)
* B)50 mcg (microgram)
* C)75 mcg (microgram)
* D)100 mcg (microgram)
* E)125 mcg (microgram)

* Ans:B

Quiz

A 58-year-old man is recovering in the hospital following a heart attack. He is started on clopidogrel.
The initial loading dose, is higher than his normal daily maintenance dose. Which of the following represents the calculation for a maintenance dose? *

* A)= 0.7 x Vd /t1/2
* B)= amount of drug in body/drug plasma concentration
* C)= Cp x CL /F
* D)= Cp x Vd /F

* Ans: C

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 hrs. What percentage of the original plasma load of ibuprofen will remain in his blood when afternoon practice starts in 4 hrs? *

(A) 0%
(B) 12.5%
(C) 25%
(D) 50%
(E) 75%

Ans:C

A 27-year-old female with vulvovaginal candidiasis is given a one-time 100 mg dose of oral fluconazole. She has no other pertinent medical problems and takes no prescription medications. Administration of the medication results in a peak plasma concentration of 20 mcg (microgm)./mL. What is the apparent volume of drug distribution? *

* A)1 L
* B)3 L
* C)5 L
* D)10 L
* E)50 L

* Ans:C

Quiz

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? *

(A) 1.0
(B) 2.0
(C) 3.0
(D) 3.3
(E) 5.0
Ans: D

A 29-year-old man presents to his primary care physician complaining of dysuria, urgency, and painful ejaculation. The patient has a past medical history of allergic rhinitis. Physical examination reveals a tender prostate. The patient is given a prescription of sulfamethoxazole to be taken daily (every 12 h) for 30 days. The half-life is 12 h. How long will it take for the medication to reach 90% of its final steady state level? *

* A)10 h
* B)20 h
* C)30 h
* D)40 h
* E)50 h

Ans: D

Quiz

A medical student is doing a summer research project studying five antibiotics to determine potency using the ED50. Antibiotics are placed in plated culture wells with 100,000 CFU of Escherichia coli. The ED50 results for the five antibiotics are shown in the following choices. Based on the results, the most potent antibiotic is *

* A)Antibiotic A ED50 = 100
* B)Antibiotic B ED50 = 2
* C)Antibiotic C ED50 = 80
* D)Antibiotic D ED50 = 20
* E)Antibiotic E ED50 = 50

* Ans:B

A 47-year-old woman who has been diagnosed with bipolar disorder needs a refill on her lithium prescription. She also has hypertension that is well controlled with an ACE inhibitor. Lithium has a narrow therapeutic index. Which of the following describes a narrow therapeutic index? *

* (A) The chance of toxicity is remote at the therapeutic dose
* (B) The ratio of TD50 to ED50 equals 1
* C)The ratio of TD50 to ED50 is less than 1
* D)The therapeutic dose approaches the toxic dose
* E)The therapeutic dose is much greater than the toxic dose

* Ans:D

If 1 mg of lorazepam produces the same anxiolytic response as 10 mg of diazepam, which is correct?

* A)Lorazepam is more potent than is diazepam.
* B)Lorazepam is more efficacious than is diazepam.
* C)Lorazepam is a full agonist, and diazepam is a partial agonist.
* D)Lorazepam is a better drug to take for anxiety than is diazepam.

* Ans:A

Quiz

If 10 mg of oxycodone produces a greater analgesic response than does aspirin at any dose, which is correct?

* A)Oxycodone is more efficacious than is aspirin..
* B)Oxycodone is less potent than is aspirin
* C)Aspirin is a full agonist, and oxycodone is a partialagonist.
* D)Oxycodone and aspirin act on the same drug target

* Ans:A

Which of the following best describes how a drug that acts as an agonist at the A subtype of GABA receptors affects signal transduction in a neuron?

* A)Activation of this receptor subtype alters transcription of DNA in the nucleus of the neuron.
* B)Activation of this receptor subtype opens ion channels that allow sodium to enter cells and increases the chance of generating an action potential.
* C)Activation of this receptor subtype opens ion channels that allow chloride to enter cells and decreases the chance of generating an action potential.

D. Activation of this receptor subtype results in G protein activation and increased intracellular second messenger levels.

Ans:C

In the presence of propranolol, a higher concentration of epinephrine is required to elicit full antiasthmatic activity. Propranolol has no effect on asthma symptoms. Which is correct regarding these medications?

• A. Epinephrine is less efficacious than is propranolol.

B. Epinephrine is a full agonist, and propranolol is a partial agonist.

* C. Epinephrine is an agonist, and propranolol is a competitive antagonist.
* D. Epinephrine is an agonist, and propranolol is a noncompetitive antagonist.

* Ans:C

Quiz

In the presence of picrotoxin, diazepam is less efficacious at causing sedation, regardless of the dose. Picrotoxin has no sedative effect, even at the highest dose. Which of the following is correct regarding these agents?

* A. Picrotoxin is a competitive antagonist.
* B. Picrotoxin is a noncompetitive antagonist.
* C. Diazepam is less efficacious than is picrotoxin.
* D. Diazepam is less potent than is picrotoxin.

* Ans:B

Which of the following up-regulates postsynaptic alphal-adrenergic receptors?

*

A. Daily use of norepinephrine that activates the receptors

* B. A disease that causes an increase in the activity of norepinephrine neurons
* C. Daily use of phenylephrine, an al receptor agonist

D. Daily use of prazosin, an a1 receptor antagonist

Ans:D

Which of the following compounds produces its action by binding to intracellular receptors that bind to nuclear DNA to regulate gene expression:

A)Steroid hormones

B)Insulin

C)Adrenaline

* D)GABA (gamma-amino-butyric acid)
* E)Aspirin

Ans:A

Quiz

Methylphenidate helps patients with attention deficit hyperactivity disorder (ADHD) maintain attention and perform better at school or work, with an ED50 of 10 mg. However, methylphenidate can also cause significant nausea at higher doses (TD50 " 30 mg). Which is correct regarding methylphenidate? *

- A. The therapeutic index of methylphenidate is 3.
  B. The therapeutic index of methylphenidate is 0.3
* C. Methylphenidate is more potent at causing nausea than treating ADHD.
* D. Methylphenidate is more efficacious at causing nausea than treating ADHD.

Ans:A

Some drugs have marked tendency to be stored in the body because they are rapidly absorbed and slowly eliminated. These drugs are known as:
A)synergistic drugs
B)cumulative drugs
C)potentiating drugs
D)prodrugs
E)microsomal enzyme inhibitors
Ans:B

An exaggerated normal pharmacological response to the usual dose of the drug is termed :
A)Tolerance
B)Intolerance
C)Tachyphylaxis
D)Idiosyncrasy
E)Hypersensitivity
Ans:B