

Week 2

Pharmacology MCQs

1. The clinical effectiveness of a drug depends on all of the following EXCEPT:

- A. Route of administration
- B. Potency
- C. Distribution
- D. Efficacy
- E. Clearance

2. Clearance:

- A. Involves drug elimination at three major sites
- B. Is independent of GFR
- C. May be capacity limited
- D. Is defined as the rate of elimination divided by drug dose
- E. Can be measured by calculating the area under the dose-response curve

3. For a drug which has an hepatic extraction ratio of 0.5 and is 60% absorbed across the gut, which of the following statements is TRUE?

- A. Its extraction ratio will be directly proportional to hepatic blood flow
- B. Its bioavailability is 30%
- C. Its bioavailability cannot be calculated and will depend on hepatic blood flow
- D. Intravenous administration may not significantly improve bioavailability
- E. Rectal administration will not alter first pass effect

4. In drug biotransformation, Phase II reactions :

- A. Convert a drug to a more polar metabolite by introducing or unmasking a functional group (-OH, -NH₂, -SH₂)
- B. Always follow Phase I reactions
- C. Only occur in the liver.
- D. Involve a combination of an endogenous substrate (eg glucuronic acid) with a functional group of the drug to form a polar conjugate that is readily excreted.
- E. Are terminal events and always render the drug inactive.

5. Which of the following statements with respect to binding of drugs to receptors is FALSE?

- A. Without spare receptors, given a high enough dose, an agonist can have its maximal effect even in the presence of an irreversible antagonist
- B. Partial agonists act as a competitive antagonist to a full agonist
- C. With spare receptors, irreversible antagonists need not inhibit normal agonist activity at low levels
- D. Without spare receptors, given a high enough dose, an agonist can have its maximal effect even in the presence of a competitive antagonist
- E. A drug with a low equilibrium dissociation constant (KD) is tightly bound to a receptor

6. With regard to drug permeation, which of the following statements is FALSE?

- A. Passive diffusion is the most common mechanism.
- B. The ratio of lipid-soluble to aqueous soluble form for a weak acid or base is expressed by the Henderson-Hasselbalch equation.
- C. Small molecules like iron move rapidly across cell membranes proportional to the concentration gradient
- D. According to Fick's Law of Diffusion the flux of molecules across a membrane is inversely proportional to the permeability coefficient
- E. Special carrier molecules exist for certain substances too insoluble in lipid to diffuse passively through membranes.

7. Volume of Distribution:

- A. Is directly proportional to the concentration of the drug.
- B. Is always defined in relation to plasma.
- C. That is greater than the physical volume of the body implies that the drug is not homogeneously distributed.
- D. Is directly proportional to the rate of elimination.
- E. For digoxin is very low.

8. For drugs that exhibit first order kinetics:

- A. Elimination is saturable at therapeutic concentrations.
- B. Clearance is proportional to drug concentration.
- C. Half life is constant.
- D. Zero order kinetics are never reached.
- E. Rate of elimination is proportional to drug concentration.

9. Which of the following routes of administration has reduced efficacy due to hepatic first pass effect?

- A. Transdermal fentanyl
- B. Topical amethocaine
- C. Volatile anaesthetics
- D. Rectal indomethacin
- E. Sublingual GTN

10. Variation in drug responsiveness within an individual can be due to all of the following EXCEPT:

- A. Alteration in concentration of drug that reaches the receptor.
- B. Variation in concentration of an endogenous receptor ligand.
- C. Variation in therapeutic index.
- D. Alterations in number or function of receptors.
- E. Changes in components of response distal to receptor.

Answers Pharmacology Week 2

- 1. B
- 2. C
- 3. B
- 4. D
- 5. A
- 6. D
- 7. C
- 8. E
- 9. D
- 10. C

Week 4

Pharmacology MCQs

1. Nicotinic receptor sites occur at all of the following EXCEPT:

- Answer A Parasympathetic ganglia
- Answer B Sympathetic ganglia
- Answer C Skeletal muscle
- Answer D Excitatory receptors on Renshaw cell in the spinal cord
- Answer E Bronchial smooth muscle

2. Cholinesterase inhibitor intoxication causes:

- Answer A Ciliary muscle relaxation
- Answer B Dryness of the mouth
- Answer C Focus for distant vision
- Answer D Reduced intraocular pressure
- Answer E Mydriasis

3. The cholinesterase inhibitor with the shortest duration of action is:

- Answer A physostigmine
- Answer B edrophonium
- Answer C neostigmine
- Answer D parathion
- Answer E malathion

4. Which of the following is NOT a muscarinic action?

- Answer A Sweating
- Answer B Vasodilation
- Answer C Bronchorrhoea
- Answer D Relaxation of the detrusor muscle
- Answer E Penile erection

5. Which clinical finding is least likely to be found in organophosphate poisoning?

- Answer A Tachycardia
- Answer B Miosis
- Answer C Salivation
- Answer D Sweating
- Answer E Diarrhoea

6. The action of noradrenaline at adrenergic neurons is terminated by:

- Answer A** COMT
- Answer B** MAO
- Answer C** Reuptake
- Answer D** Diffusion out of the synaptic cleft
- Answer E** All of the above

7. Activation of alpha-1 receptors causes:

- Answer A** increased heart rate
- Answer B** vasodilatation
- Answer C** mydriasis
- Answer D** bronchodilation
- Answer E** sphincter relaxation

8. Which agonist is not correctly paired with its adrenoceptor?

- Answer A** Phenylephrine - α 1
- Answer B** Clonidine - α 2
- Answer C** Dobutamine - β 1
- Answer D** Procaterol - β 2
- Answer E** Prazosin - α 2

9. Atropine:

- Answer A** irreversibly blocks muscarinic receptors
- Answer B** has less interaction with nonmuscarinic receptors than most synthetic muscarinic drugs
- Answer C** in low doses can be associated with bradycardia due to a β blocking action
- Answer D** causes mydriasis, cycloplegia and increased lacrimal secretion
- Answer E** administered topically as an eye drop has a shorter duration of action than homatropine

Answers Pharm Week 4

1. E
2. D
3. B
4. D
5. A
6. E
7. C
8. E
9. B

Week 6

Pharmacology MCQs

1. Glycerol Trinitrate:

- A. Is light sensitive
- B. Has 50% oral bioavailability
- C. Dilates arteries more than veins
- D. Decreases cardiac contractility
- E. Decreases cardiac ejection time

2. In relation to antihypertensives:

- A. Verapamil is less cardio-depressant than nifedipine
- B. ACE inhibitors are effective inhibitors of the kallikrein system
- C. Enalapril is conjugated to the more active pro-drug
- D. Nitroprusside is metabolised in red blood cells
- E. Captopril bioavailability is improved when it is taken with food

3. All of the following antihypertensives act directly on vascular smooth muscle EXCEPT:

- A. Hydralazine
- B. Minoxidil
- C. Trimethaphan
- D. Nitroprusside
- E. Diazoxide

4. The Coronary Steal Phenomenon:

- A. Occurs when two branches from separate coronary vessels have differing degrees of obstruction.
- B. Can be overcome by hydralazine.
- C. Occurs when perfusion pressures are increased.
- D. Is due to decreased nitric oxide release in venules.
- E. Is the reason dipyridamole is used to demonstrate areas of poor cardiac muscle perfusion.

5. Metoprolol:

- A. Is relatively non-cardioselective.
- B. Is safe in asthmatics.
- C. Is approximately equipotent as a β_1 blocker to propranolol.
- D. Has a degree of α blocking action.
- E. Decreases blood pressure primarily as a result of decreasing peripheral vascular resistance.

6. Amiodarone:

- A. Is an effective sodium channel blocker with a high affinity for activated channels.
- B. Has no effect on the duration of the action potential.
- C. Is a non-competitive inhibitor of beta adrenoreceptors.
- D. Is commonly associated with torsade de pointe, due to prolongation of the QT interval.
- E. Causes peripheral vasodilatation due to its alpha agonist effects.

Answers Pharm Week 6

- 1. E
- 2. D
- 3. C
- 4. E
- 5. C
- 6. C

Week 8

Pharmacology MCQs

1. Heparin targets all of the following factors EXCEPT:

- A. Factor Va
- B. Factor IIa
- C. Factor XII
- D. Factor Ixa
- E. Factor Xa

2. Which of the following statements about warfarin is FALSE?

- A. It blocks gamma-carboxylation of glutamate residues of several clotting factors and protein C
- B. It's bioavailability is 100%
- C. Over 99% of racemic warfarin is bound to plasma albumin
- D. Pregnancy is an absolute contraindication
- E. Ethanol and phenothiazines cause a decrease in the anticoagulant effect by induction of hepatic enzymes.

3. With regard to NSAIDs other than aspirin, which of the following is FALSE?

- A. Inhibit prostaglandin biosynthesis
- B. Irreversibly inhibit cyclooxygenase
- C. Food doesn't effect their bioavailability
- D. Are distributed to synovial fluid
- E. Are contraindicated in patients with angioedema to aspirin

4. Regarding substances acting on the GIT, which of the following is INCORRECT?

- A. Sucralfate requires an acid pH to be active
- B. Pepsin requires an acid pH to be active
- C. Omeprazole requires an acid pH to be active
- D. Octreotide requires an acid Ph to be active
- E. Lipase requires a pH greater than 4.0 to be active

5. Concerning metoclopramide, which of the following is INCORRECT?

- A. It is a cholinergic agonist
- B. It is a dopaminergic antagonist
- C. It can have side effects caused by decreased prolactin release
- D. It can have extrapyramidal side effects
- E. It may cause tardive dyskinesia

6. With respect to drugs active on the GIT:

- A. Co-administration of cimetidine and warfarin requires an increase in warfarin dosage to maintain a therapeutic INR
- B. Metoclopramide acts primarily as an antiemetic by promoting gastric emptying
- C. Ondansetron is an effective antiemetic due to its selective action at the 5HT₄ receptors
- D. Omeprazole is a proton pump inhibitor that can inhibit 100% of gastric acid secretion
- E. Sucralfate is a mucosal protective agent which can be co-administered with antacids

7. Which of the following statements is FALSE?

- A. Ipecac fluid extract contains cardiotoxic alkaloids
- B. Omeprazole irreversibly inhibits H⁺/K⁺/ATPase
- C. Ranitidine may cause reversible hepatitis
- D. Atropine inhibits the gastrin response
- E. Prochlorperazine may cause tardive dyskinesia

8. All of the following drugs have antiemetic properties EXCEPT:

- A. Chlorpromazine
- B. Domperidone
- C. DTHC
- D. Promethazine
- E. Thioridazine

WEEK 8 PHARMACOLOGY ANSWERS:

- 1. A
- 2. E
- 3. B
- 4. D
- 5. C
- 6. D
- 7. D
- 8. E

Week 9

Pharmacology MCQs

Question All of the following drugs have the potential to precipitate torsade de pointes EXCEPT:

Answer A Amiodarone

Answer B Sotalol

Answer C Quinidine

Answer D Procainamide

Answer E Disopyramide

Question All of the following drugs have the potential to induce lupus erythematosus EXCEPT:

Answer A Hydralazine

Answer B Methyldopa

Answer C Procainamide

Answer D Quinidine

Answer E Prazosin

Week 10

Pharmacology MCQs

1. Celecoxib:

- Answer A Is a nonspecific COX inhibitor
- Answer B Reduces the production of prostaglandin E2
- Answer C Decreases the production of leukotrienes
- Answer D Inhibits COX-1 at therapeutic doses
- Answer E Interferes with platelet aggregation

Prostaglandins are produced within the body's cells by the enzyme cyclooxygenase (Cox). There actually are two Cox enzymes, Cox-1 and Cox-2. Both enzymes produce prostaglandins that promote inflammation, pain, and fever. However, only Cox-1 produces prostaglandins that support platelets and protect the stomach.

2. Ipratropium bromide:

- Answer A Is a tertiary amine compound
- Answer B Is a muscarinic agonist
- Answer C Is available as an intravenous formulation
- Answer D Is a synthetic analogue of atropine
- Answer E Is not of use in CAL

3. With respect to bronchodilators:

- Answer A Theophylline modifies the late response in asthma
- Answer B Salbutamol inhibits adenylyl cyclase
- Answer C Beta 2 receptors are most sensitive to noradrenaline
- Answer D Disodium cromoglycate is effective in reducing the symptomatic severity of perennial asthma
- Answer E Antimuscarinic agents have no role in the treatment of CAL

4. Salbutamol:

- Answer A Is a selective beta 2 antagonist
- Answer B Can reduce serum potassium levels
- Answer C Reduces the therapeutic effect of ipratropium
- Answer D Delivered by metered aerosol can result in up to 50% of the dose being deposited in the mouth or pharynx
- Answer E Is contraindicated in patients with in cardiac failure

5. Sumatriptan:

- Answer A Is contraindicated in patients with glaucoma
- Answer B Cannot be repeated within a 24 hour period
- Answer C Is metabolized by an isoenzyme of MAO
- Answer D Is a 5-HT1 antagonist
- Answer E Causes vasodilatation

6. Cimetidine:

- Answer A Is not well adsorbed to charcoal
- Answer B Has significant H1 action
- Answer C Potentially can cause rebound hyperacidity when abruptly withdrawn
- Answer D Stimulates cytochrome P450 metabolism
- Answer E Can result in the decreased the effect of benzodiazepines

Answers Pharmacology Week 10

1. B
2. D
3. D
4. B
5. C
6. C

Week 12

Pharmacology MCQs

1. Concerning erythromycin, which of the following statements is FALSE?

- Answer A** Cholestatic hepatitis is most likely with the estolate formulation.
- Answer B** Erythromycin does not alter the outcome of acute diphtheria infection.
- Answer C** Erythromycin does not alter the course of whooping cough once past the catarrhal stage.
- Answer D** Erythromycin may worsen QT prolongation due to terfenadine.
- Answer E** Different erythromycin formulations can result in significantly different serum levels of active drug after oral administration.

2. Regarding betalactams antibiotics, which of the following statements is FALSE?

- Answer A** Betalactam antibiotics inhibit transpeptidation of the peptidoglycan chains of the bacterial cell walls.
- Answer B** Betalactam antibiotics attach to specific penicillin-binding proteins that serve as drug receptors on bacteria.
- Answer C** Pseudomonas aeruginosa produces betalactamases that hydrolyse cephalosporins and penicillins.
- Answer D** Carbapenems are resistant to penicillinases and metallo-beta-lactamases.
- Answer E** Alterations in target penicillin binding proteins are responsible for methicillin resistance in staphylococci.

3. Concerning antibiotics, which of the following statements is TRUE?

- Answer A** Resistance to methicillin in staphylococci is mediated by an alteration in penicillin-binding-proteins (PBPs).
- Answer B** Cefotaxime does not achieve good levels in the CSF.
- Answer C** Beta-lactamase inhibitors (eg clavulanic acid) are not active against plasmid-encoded beta-lactamases.
- Answer D** Oral bioavailability of erythromycin is approximately 80%.
- Answer E** Gentamicin readily enters cells.

4. Acyclovir acts by:

- Answer A** Inhibiting reverse transcriptase
- Answer B** Blocking viral adsorption to the host cells
- Answer C** Blocking packaging and assembly of viral particles
- Answer D** Inhibiting viral DNA polymerase
- Answer E** Inhibiting HIV-1 protease

5. Trimethoprim:

- Answer A** Stimulates bacterial dihydrofolic acid reductase
- Answer B** Is a weak acid and so is concentrated in prostatic tissue
- Answer C** Is ineffective against chlamydia
- Answer D** Dosage does not need to be reduced in patients with renal impairment
- Answer E** In combination with sulphamethoxazole, causes a high frequency of adverse effects in AIDS patients

6. Which of the following is INCORRECTLY paired?

- Answer A** Ceftriaxone + inhibition of cell wall synthesis
- Answer B** Vancomycin + inhibition of cell wall synthesis
- Answer C** Teicoplanin + inhibition of protein synthesis
- Answer D** Chloramphenicol + inhibition of protein synthesis
- Answer E** Gentamicin + penetration of bacterial cell envelope via active transport

Pharmacology MCQ Answers Week 12

1. E
2. D
3. A
4. D
5. E
6. C

Week 14

Pharmacology MCQs

1. Which of the following statements regarding lithium is FALSE?

- Answer A** Renal clearance of lithium is increased in the presence of oral diuretics.
Answer B Lithium is frequently given in divided doses to avoid gastric distress.
Answer C When a patient begins taking lithium the volume of distribution will be the same as total body water.
Answer D Tremor is one of the most frequent adverse side effects of lithium treatment.
Answer E Polyuria associated with lithium treatment is largely due to the loss of ability of the collecting tubules to respond to ADH.

2. Which of the following street and generic names are INCORRECTLY matched?

- Answer A** Angel dust – phencyclidine
Answer B Ice – lysergic acid diethylamide
Answer C Ecstasy – MDMA (methylenedioxymethamphetamine)
Answer D Speed – methamphetamine
Answer E Speedball – heroin + cocaine IV

3. Which of the following is NOT a recognised adverse side effect of MAO inhibitors?

- Answer A** Drowsiness
Answer B Dry mouth
Answer C Hypertension
Answer D Weight gain
Answer E Headache

4. Diazepam:

- Answer A** Is metabolised in the liver to inactive desmethyldiazepam and active temazepam.
Answer B Excretion of parent drug is significantly reduced in chronic renal failure.
Answer C Activate GABA(A) receptors in CNS.
Answer D Acts at all levels in the CNS.
Answer E Increases the duration of REM sleep.

5. Naltrexone:

- Answer A** Has high oral bioavailability.
Answer B Is safe in the presence of liver disease.
Answer C Can be used effectively in combination with disulfiram for the treatment of alcoholism.
Answer D Has few side effects in the absence of exogenous opioids.
Answer E Increases alcohol craving.

6. Regarding phenytoin, which of the following statements is FALSE?

- Answer A** Nystagmus is an early sign of phenytoin toxicity.
Answer B At therapeutic concentrations, the rate of elimination of phenytoin is dose dependent.
Answer C At therapeutic concentrations, phenytoin's major action is to block Na⁺ channels and inhibit generation of repetitive action potentials.
Answer D Phenytoin's clinically inactive metabolites are excreted in urine.
Answer E Phenytoin induces microsomal enzymes, resulting in decreased levels of other drugs, notably carbamazepine.

7. Nitrous oxide:

- Answer A** Is not very soluble in blood and so has a high blood:gas partition coefficient.
Answer B Levels in blood can be doubled if the rate of ventilation is doubled.
Answer C Has a MAC (Mean Alveolar Concentration) of >100% indicating that it has low potency.
Answer D Has been associated with megaloblastic anaemia, even after brief exposure.
Answer E Is metabolised in red blood cells.

8. Lignocaine:

- Answer A** Has good oral bioavailability.
Answer B Is an ester type local anaesthetic.
Answer C Is metabolised by liver microsomal cytochrome P450.
Answer D Acts by blocking voltage gated Ca⁺⁺ channels.
Answer E Is a Class 1A antiarrhythmic.

9. In the eye:

- Answer A** Alpha adrenoreceptors cause contraction of the circular pupillary muscle.
Answer B Cyclospasm is a feature of organophosphate poisoning.
Answer C Beta agonists will reduce intraocular pressure.
Answer D Antipsychotic agents such as chlorpromazine have no effect.
Answer E Diuretics have no use in glaucoma.

10. Which of the following is a live virus vaccine?

- Answer A** Typhoid
Answer B Tetanus
Answer C Hepatitis B
Answer D Rabies
Answer E Measles

11. Regarding glucocorticoids:

- The major glucocorticoid in humans is cortisol
- A normal adult male secretes 100mg of cortisol each day
- Feedback suppression of pituitary ACTH occurs within hours
- Absence of cortisol increases the response of vascular and smooth muscle tone to catecholamines
- Inhibition of leucocyte and tissue macrophages is NOT an action of glucocorticoids

12. Regarding active immunisation:

- The measles vaccine is an inactivated virus
- The hepatitis B vaccine is preferably given by subcutaneous injection
- Booster doses for yellow fever are not required
- Primary immunisation for haemophilus influenzae type B involves two doses given one month apart
- The meningococcal vaccine should be given to asplenic individuals

13. Insulin:

- Is a large protein
- Is metabolised solely by the kidney
- Receptor consists of alpha and beta subunits
- Has less hypoglycaemic action than C-peptide
- Has an increased affinity for its receptor in the presence of hydrocortisone

14. In the eye:

- Alpha adrenoreceptors cause contraction of the circular pupillary muscle
- Cyclospasm is a feature of organophosphate poisoning
- Beta agonists reduce intraocular pressure
- Chlorpromazine has no effect on the eye

Diuretics have no use in glaucoma

15. With regard to cortisol:

- 40% is converted to cortisone
- The physiologically active portion is normally ~50% of total in circulation
- Most cortisol is reduced and dehydrogenated in the liver
- CBG is decreased in pregnancy
- Stress decreases the half-life of cortisol

Answers Pharmacology MCQs Week 14

1. A
2. B
3. C
4. D
5. D
6. B
7. C
8. C
9. B
10. E

11. A
12. E
13. C
14. B
15. C

Week 16

Pharmacology MCQs

1. A normal anion gap is maintained in poisoning with:

- Answer A Methanol
- Answer B Salicylates
- Answer C HCl
- Answer D Metformin
- Answer E Iron

2. Carbon Monoxide:

- Answer A Binds to sulfhydryl groups in enzymes
- Answer B Causes anaemia
- Answer C Binds strongly to the bone marrow, brain and kidney
- Answer D Average concentration of CO in the atmosphere is 200ppm
- Answer E Main adverse effects are from hypoxia

3. In paracetamol poisoning, which of the following statements is FALSE?

- Answer A Toxicity is favoured by Phase II metabolism
- Answer B Toxicity is increased in glutathione deficiency
- Answer C Hypoglycaemia on presentation indicates significant liver damage.
- Answer D Hepatotoxicity is more likely in patients on anticonvulsants.
- Answer E N-acetylbenzoquinoneimine (NAPQI) forms covalent bonds with hepatic proteins causing toxicity

4. Methanol:

- Answer A is metabolised to oxalic acid
- Answer B causes a metabolic acidosis due to inhibition of cytochrome c
- Answer C binds to activated charcoal
- Answer D produces renal damage due to crystal formation
- Answer E is slowly absorbed orally

5. Which of the following drug/sign of toxicity pairs is INCORRECTLY matched?

- Answer A Quinine - blindness
- Answer B Phenytoin - ataxia
- Answer C Aspirin - tinnitus
- Answer D Clonidine - bradycardia
- Answer E Fluoxetine - sedation

6. Activated charcoal binds poorly with all of the following EXCEPT:

- Answer A Iron
- Answer B Lithium
- Answer C Phenobarbitol
- Answer D Tolbutamine
- Answer E Methanol

7. In the elimination of toxins:

- Answer A Hemoperfusion does not improve fluid and electrolyte balance.
- Answer B The efficiency of haemodialysis is a function of the molecular weight, endogenous clearance and protein binding of the specific toxin.
- Answer C Toxins with large volumes of distribution are poorly removed by haemodialysis.
- Answer D Embolization of adsorbed particles is a potential complication of haemoperfusion.
- Answer E All of the above.

Answers Pharmacology MCQs Week 16

- 1. C
- 2. E
- 3. A
- 4. B
- 5. E
- 6. C
- 7. E

Week 17

Pharmacology MCQs

1. Which of the following statements regarding lithium is FALSE?

- Answer A** Renal clearance of lithium is increased in the presence of oral diuretics.
Answer B Lithium is frequently given in divided doses to avoid gastric distress.
Answer C When a patient begins taking lithium the volume of distribution will be the same as total body water.
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Answer C Beta agonists will reduce intraocular pressure.
Answer D Antipsychotic agents such as chlorpromazine have no effect.
Answer E Diuretics have no use in glaucoma.

10. Which of the following is a live virus vaccine?

- Answer A** Typhoid
Answer B Tetanus
Answer C Hepatitis B
Answer D Rabies
Answer E Measles

Answers Pharmacology MCQs Week 17

16. A
17. B
18. C
19. D
20. D
21. B
22. C
23. C
24. B
25. E

Week 21

Pharmacology MCQs

1. Regarding glucocorticoids:

- A. The major glucocorticoid in humans is cortisol
- B. A normal adult male secretes 100mg of cortisol each day
- C. Feedback suppression of pituitary ACTH occurs within hours
- D. Absence of cortisol increases the response of vascular and smooth muscle tone to catecholamines
- E. Inhibition of leucocyte and tissue macrophages is NOT an action of glucocorticoids

2. Regarding active immunisation:

- A. The measles vaccine is an inactivated virus
- B. The hepatitis B vaccine is preferably given by subcutaneous injection
- C. Booster doses for yellow fever are not required
- D. Primary immunisation for haemophilis influenzae type B involves two doses given one month apart
- E. The meningococcal vaccine should be given to asplenic individuals

3. Insulin:

- a. Is a large protein
- b. Is metabolised solely by the kidney
- c. Receptor consists of alpha and beta subunits
- d. Has less hypoglycaemic action than C-peptide
- e. Has an increased affinity for its receptor in the presence of hydrocortisone

4. In the eye:

- A. Alpha adrenoreceptors cause contraction of the circular pupillary muscle
- B. Cyclospasm is a feature of organophosphate poisoning
- C. Beta agonists reduce intraocular pressure
- D. Chlorpromazine has no effect on the eye
- E. Diuretics have no use in glaucoma

5. With regard to cortisol:

- A. 40% is converted to cortisone
- B. The physiologically active portion is normally ~50% of total in circulation
- C. Most cortisol is reduced and dehydrogenated in the liver
- D. CBG is decreased in pregnancy
- E. Stress decreases the half-life of cortisol

Answers Pharmacology Week 21

- 1. A
- 2. E
- 3. C
- 4. B
- 5. C

1. Question: All of the following drugs have the potential to precipitate torsade de pointes EXCEPT:

Answer A: Amiodarone

Answer B: Sotalol

Answer C: Quinidine

Answer D: Procainamide

Answer E: Disopyramide

2. Question: All of the following drugs have the potential to induce lupus erythematosus EXCEPT:

Answer A: Hydralazine

Answer B: Methyldopa

Answer C: Procainamide

Answer D: Quinidine

Answer E: Prazosin

1. A

2. E

With regard to Clonidine, which of the following is false?

1. It is contraindicated in sick sinus syndrome, 2nd and 3rd degree heart block.
2. It is a centrally acting sympatholytic.
3. Drowsiness and a dry mouth are common adverse reactions.
4. Rebound hypertension on cessation of therapy can be severe.
5. Dosage does not need to be altered in renal disease.

Osmotic diuretics do not include which of the following?

1. Inulin.
2. Glycerin.
3. Mannitol.
4. Urea.
5. Demeclocycline.

With regard to Propranolol which of the following is incorrect?

1. It has a wide Vd (4l/kg) and readily enters the CNS.
2. It has a poor bioavailability despite being well absorbed.
3. It causes a decreased CO and decreased TPR.
4. It may cause alterations in the LDL/HDL ratio and BSL.
5. Abrupt discontinuation may cause hypertension, angina and 'nervousness'.

With regard to Atropine which of the following is incorrect?

1. Is cleared by both the liver and kidney.
2. Is well absorbed from the GIT but only has a 50% bioavailability.
3. Has a half-life of about 6 hours.
4. Is widely distributed, rapidly crossing the BBB.
5. In toxic doses causes 'blindness' due to cycloplegia and mydriasis.

Regarding laxatives, which of the following drugs & their mechanisms are not correctly matched?

- a. Castor oil – lubricating.
- b. Psyllium – bulk forming
- c. Senna – irritating.
- d. Docusate – stool softening.
- e. Mg[OH]₂ – bulk forming.

Regarding metoclopramide by which of the following is false?

- a. Anticholinergics antagonise its actions.
- b. Dosage ought not to exceed 0.5mg/kg/day.
- c. Dosage ought to be reduced in moderate renal impairment.
- d. It does not act on the chemoreceptor centre in the brain.
- e. It is contraindicated in phaeochromocytoma.

1. Which one of the following causes a decrease in 2,3-DPG production?

- a. Low [H⁺]
- b. Exercise in untrained athlete
- c. Hyperthyroidism
- d. Anaemia
- e. RBC storage for transfusion.

2. Which of the following is NOT true regarding airway resistance?

- a. Lung volume is an important determinant
- b. Medium-sized bronchi are the main cause of resistance
- c. Isoproterenol causes a reduction in resistance
- d. Serotonin increases resistance
- e. Is unaltered by the phase of breathing

1. Regarding serotonin receptors, which of the following is true?

- a. Ergot alkaloids are pharmacologic antagonists.
- b. Ondansetron only acts centrally
- c. Sumatriptan is a 5-HT_{1d} antagonist
- d. Cyproheptadine is a H₁ blocker with 5-HT₂ blocking actions
- e. Diarrhoea is not a known toxicity of ondansetron

2. Regarding methylxanthines, which of the following is false?

- a. Act by phosphodiesterase and adrenoceptor blockade
- b. Eliminated quicker in young smokers
- c. Toxicity includes severe vomiting & diarrhoea
- d. Theophylline is present in tea
- e. Aminophylline is the water soluble form

1. Organophosphate toxicity:-
 - A. Organophosphates exert their toxicity by immediate and irreversible binding to acetylcholinesterase producing a conformational change in the molecular structure
 - B. Subacute proximal weakness (intermediate syndrome) is due to muscular atrophy and is apparently resistant to all treatment modalities.
 - C. Late axonal degeneration appears to be particularly prevalent in certain types of organophosphates and its incidence may be decreased with pralidoxime treatment
 - D. Pralidoxime infusion should be considered if supportive treatments fail to produce a clinical improvement after 48 hours.
 - E. Plasma cholinesterase activity is a sensitive marker of exposure and may be used to guide the end point of pralidoxime treatment

2. Regarding diabetic ketoacidosis (DKA) and hyperosmolar non-ketotic coma: Which was of the following is a pork pie?
 - A. HONK usually more often occurs in an undiagnosed diabetic than a diagnosed one, in contrast to DKA, 90% of cases of which occur in known diabetics
 - B. Precipitants of DKA are characteristically less severe illnesses than precipitants of HONK
 - C. The typical fluid deficit in HONK is much greater than that seen in DKA
 - D. DKA has a substantially greater mortality than HONK
 - E. HONK characteristically has a longer prodrome than DKA

3. Regarding hydrofluoric acid (HFA): the incorrect answer is:-
 - A. HFA is a weak acid which in gaseous and liquid form penetrates tissues easily
 - B. Acts as a protoplasmic toxin by release of fluoride ions which immobilise intracellular Ca & Mg and inhibit intracellular enzymes
 - C. HFA has a direct myocardial depressant effect
 - D. Time from exposure to onset of symptoms is dependent on the concentration of HFA and may be delayed up to 24 hours in exposure to weaker concentrations
 - E. Pain is characteristically severe although is amenable to treatment by tissue infiltration with calcium gluconate 10% and bupivacaine 0.5%

4. Regarding neuroleptic malignant syndrome: All are true except:-
 - A. It may occur after months on a stable drug regimen
 - B. Results from blockade of dopamine receptor blockade in the basal ganglia and hypothalamus
 - C. The syndrome characteristically develops over 60 mins and is usually fully blown by 4 hours
 - D. Specific treatments include cooling, bromocriptine and dantrolene.
 - E. Manifests as altered conscious state ranging from coma, dysphagia, aphonia or dysarthria

Answers: 1.E

2.D

3.E

4.E