

1. Which of the following is not used as an antiemetic
  - A. Dexamethasone
  - B. Cannabinoids
  - C. Ondansetron
  - D. Diphenhydramine
  - E. Diphenoxylate
  
2. Which is INCORRECT regarding suxamethonium
  - A. It can increase heart rate
  - B. It can decrease heart rate
  - C. It does not cross the blood-brain-barrier
  - D. It increases intraocular pressure
  - E. It has a short duration of action due to rapid hydrolysis by acetylcholinesterase
  
3. Which of the following tetracyclines does not require dose adjustment in chronic renal failure
  - A. Minocycline
  - B. Doxycycline
  - C. Tetracycline
  - D. Methacycline
  - E. All of the above
  
4. Thiopentone
  - A. Can cause intra-arterial thrombosis
  - B. Is less fat soluble than other intravenous induction agents
  - C. Can cause elevation of intracranial pressure on induction of anaesthesia
  
5. Heparin
  - A. Causes alopecia
  - B. Can be given IM
  - C. Doses need to be halved in the elderly
  - D. Is made of homogenous mucopolysaccharides
  - E. Inhibits antithrombin III
  
6. Anticholinesterases reliably antagonise
  - A. Suxamethonium
  - B. Tubocurarine
  - C. Dantrolene
  - D. Baclofen
  - E. Mivacurium
  
7. Regarding the Vaughn-Williams classification
  - A. Type III antiarrhythmics increase  $K^+$  conductance and prolong the action potential
  - B. X
  - C. X
  
8. Which of the following is correct regarding the serotonin antagonists
  - A. As a group they are more effective in obsessive compulsive disorder than TCAs
  - B. When used with morphine they can precipitate serotonin syndrome
  - C. Fluoxetine does not have an active metabolite
  - D. Paroxetine is more sedative than TCAs
  - E. They are not associated with significant drug interactions
  
9. An example of a protein binding interaction is
  - A. X
  - B. Digoxin-chlorothiazide
  - C. Morphine-chlorpromazine
  - D. Aspirin-tolbutamide

10. Maximum efficacy
- Is the concentration of drug that produces 50% of maximal effect
  - Is the maximum response that can be produced by a drug
  - Is independent of the route of administration
  - Is limited by side effects
  - Is the maximum intensity of the drug
11. LD<sub>50</sub> is
- 50% of the dose that kills most people
  - 50% of the dose at which toxicity occurs
  - 50% of the dose that kills experimental animals
  - The dose required to kill 50% of experimental animals
  - The ratio between TD<sub>50</sub> and ED<sub>50</sub>
12. An elderly woman presents with a serum K<sup>+</sup> of 6.2, which drug is she NOT taking
- Spironolactone
  - Slow K
  - Methyldopa
  - Naproxen
  - Captopril
13. ACE inhibitors
- Cause hypokalaemia
  - Are useful in diabetics
  - Can safely be used in the second and third trimesters of pregnancy
  - Have been associated with angioedema
  - Are lipid soluble and reach the CNS
14. Which of the following is correct regarding the corticosteroids
- With chronic use, they increase bronchial reactivity
  - They have adverse effects on the foetus
  - They directly relax airway smooth muscle
  - Stimulate the release of arachidonic acid
  - Prednisolone and dexamethasone are synthetic
15. Paracetamol forms toxic metabolites via
- N-hydroxylation
  - Glucuronidation
  - Sulphation
  - Oxidation
  - Reduction
16. Paracetamol
- Is a weak anti-inflammatory
  - Has high level of protein binding
  - Does not interfere with uric acid excretion
  - Can only be given orally
  - X
17. Which is incorrect regarding diazoxide
- It has a low level of protein binding
  - It is used in hypertensive emergencies
  - It may cause sodium and water retention
  - It may cause significant hypotension
  - It is structurally related to thiazides
18. The mechanism of action of digoxin is
- It increases intracellular calcium
  - It increases intracellular potassium
  - It decreases intracellular sodium
  - X
  - X

19. Nitrous oxide
- A. X
  - B. X
  - C. Has a MAC of over 100%
  - D. X
  - E. X
20. Benzodiazepines
- A. X
  - B. X
  - C. X
  - D. Have a cyclic structure
  - E. X
21. Erythromycin
- A. When given IV is in the stearate form
  - B. Undergoes hepatic metabolism
  - C. Is active against campylobacter
  - D. Is bacteriostatic only
  - E. Is excreted primarily in the urine
22. Norfloxacin
- A. Is the halogenated form of nalidixic acid
  - B. X
  - C. X
  - D. Xx
  - E. X
23. Acyclovir
- A. Is a thymidine kinase
  - B. Is a guanidine analogue
  - C. Decreases the rate of post-herpetic neuralgia
  - D. May give rise to resistant forms of HSV
  - E. X
24. Which of the following will not cause bronchodilation
- A. Cromoglycate
  - B. Theophylline
  - C. Salbutamol
  - D. Atropine
  - E. Adrenaline
25. Which of the following acts on cell membranes
- A. X
  - B. X
  - C. Ketoconazole
26. Which of the following is correct regarding aminoglycosides
- A. They require an oxygen dependent mechanism to be taken up into the cell
  - B. They synergise with penicillins at high concentrations
  - C. They decrease neuromuscular blockade
  - D. Resistance is plasmid-mediated
  - E. Resistance does not cross species
27. Which of the following is correct regarding verapamil
- A. It has low plasma protein binding
  - B. It causes sodium channel blockade
  - C. It causes skeletal muscle weakness
  - D. It is a positive inotrope
  - E. It is a dihydropyridine

28. A young man presents with hypertension and mydriasis after being given a normal dose of drug. Which of the following is it most likely to be
- Atropine
  - Adrenaline
  - Acetylcholine
  - Aspirin
  - X
29. A patient overdoses on an unknown substance and presents restless, agitated and sweaty with dilated pupils. Which drug is the most unlikely
- Angel trumpet
  - Atropine
  - Adrenaline
  - Aspirin
  - Tricyclic antidepressant
30. Which is not a feature of lithium toxicity
- Tardive dyskinesia
  - Tremor
  - Dysarthria
  - Diabetes insipidus
  - X
31. What occurs in phase III of drug trials
- A large group of patients with the target disease are treated with the drug
  - A small number of patients with the target disease are treated with the drug
  - A small number of patients without the target disease are treated with the drug
  - All patients being treated are monitored for the occurrence of idiosyncratic reactions
  - X
32. Which of the following causes the most tachycardia
- Adrenaline
  - Salbutamol
  - Isoprenaline
  - X
  - X
33. Allopurinol
- X
  - Is used in the acute treatment of gout
  - Has very few side effects
  - Has very low oral bioavailability
  - Is a xanthine oxidase inhibitor
34. Beta-blockers
- X
  - Applied topically may cause systemic effects
  - X
  - X
35. Ipratropium bromide
- Causes most effects within 10 minutes
  - Is well absorbed across the blood-brain-barrier
  - Is safe for use in glaucoma
  - Tolerance is uncommon
  - It has marked CNS effects
36. Aspirin
- Increases plasma volume
  - Does not cross the placenta
  - Is a base
  - Inhibits lipooxygenase
  - Is slowly absorbed in the ileum

37. Metoclopramide
- Increases antral motility
  - Decreases oesophageal pressure
  - X
  - X
38. Which of the following is an ester anaesthetic
- Lignocaine
  - Prilocaine
  - Tetracaine
  - Bupivacaine
  - Ropivacaine
39. Which of the following causes met-haemaglobinaemia
- Lignocaine
  - Tetracaine
  - Bupivacaine
  - Procaine
  - Prilocaine
40. Theophylline
- Metabolism is induced by smoking
  - Slow release needs levels at 6 and 12 hours
  - Causes hyperkalaemia
  - Weakens contraction of the diaphragm in patients with COAD
  - Causes sodium and water retention
41. Naloxone
- Has a half life of 4 hours
  - Can cause acute withdrawal syndrome in heroin overdose
  - Binds specifically with kappa receptors
  - Has an increased half life in the presence of renal failure
  - Produces an abstinence syndrome after withdrawal subsequent to chronic administration
42. Which of the following is correct regarding mannitol
- It affects water reabsorption in the collecting ducts and distal convoluted tubule
  - It cannot be used in patients with impaired renal dynamics
  - It metabolised to glycerol
  - It decreases total body water and total body cation content equally
  - It inhibits water absorption in the proximal tubule, Loop of Henle and collecting ducts
43. How much drug is contained in 2mL of 0.5% w/v solution
- 10 mg
  - 5 mg
  - 1 mg
  - 100 mg
  - 2 mg
44. Which of the following is correct regarding morphine
- The glucuronidated metabolite is excreted in the kidney
  - X
  - X

- |       |        |           |       |       |
|-------|--------|-----------|-------|-------|
| 1. E  | 2. E   | 3. B      | 4. A  | 5. A  |
| 6. B  | 7. A   | 8. A      | 9. D  | 10. B |
| 11. D | 12. C  | 13. B & D | 14. E | 15. A |
| 16. C | 17. A  | 18. A     | 19. C | 20. D |
| 21. C | 22. ?A | 23. D     | 24. A | 25. E |
| 26. A | 27. B  | 28. ?A    | 29. D | 30. D |
| 31. A | 32. C  | 33. E     | 34. B | 35. A |
| 36. A | 37. A  | 38. C     | 39. E | 40. A |
| 41. B | 42. E  | 43. A     | 44. A |       |

# Pharmacology

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Oct 97

1. Maximum efficacy
  - a. Is independent of route of administration
  - b. Gives information about the degree of receptor binding and response
  - c. Is limited by side effects
  - d. Is the concentration of drug that produces 50% of maximal effect
  - e. Is the maximum intensity of the drug
  
2. Propranolol
  - a. Is a highly selective  $\beta$ -blocker
  - b. Is largely protein bound
  - c. Has poor lipid solubility
  - d. Has partial agonist activity
  - e. Has no local anaesthetic action
  
3. Local anaesthetics preferentially
  - a. Affect large fibres before small fibres
  - b. Affect unmyelinated nerves before myelinated nerves
  - c. Block C type fibres before A type fibres
  - d. Block sensory fibres before motor fibres in mixed nerves
  - e. Block central before peripheral fibres in mixed nerves
  
4. Which of the following antiarrhythmics produces shortening of the QT interval
  - a. Quinidine
  - b. Procainamide
  - c. Lignocaine
  - d. Sotalol
  - e. None of the above
  
5. Which of the following antiarrhythmics has minimal effect on healthy myocardial cells
  - a. Lignocaine
  - b. Adenosine
  - c. Flecainide
  - d. Amiodarone
  - e. Propranolol
  
6. Which of the following is INCORRECT regarding drugs used in Parkinson's disease
  - a. Carbidopa blocks dopa decarboxylase peripherally
  - b. Dopamine cannot cross the blood-brain-barrier
  - c. Carbidopa decreases the side effects of L-dopa
  - d. Bromocriptine causes more hypotension than L-dopa
  - e. Bromocriptine causes more CNS effects than L-dopa
  
7. Bromocriptine
  - a. Generates its anti-Parkinsonian effects by acting on D<sub>2</sub> receptors
  - b. X
  
8. Which of the following is INCORRECT regarding salbutamol
  - a. May cause a transient decrease in oxygen tension in the blood
  - b. It acts via adenylyl cyclase
  - c. It causes hyperkalaemia
  - d. It can be given orally, parenterally or via inhalation
  - e. Bronchodilation persists for 3-4 hours
  
9. Which of the following is INCORRECT regarding phenytoin
  - a. It is well absorbed orally
  - b. It displays first order kinetics at low concentrations and zero order kinetics at higher concentrations
  - c. It has a high level of protein binding
  - d. It causes agranulocytosis in 5% of patients
  - e. It causes abnormalities in vitamin D metabolism

10. Which of the following is correct regarding ipratropium bromide
- Effect lasts for >4 hours after administration
  - It is well absorbed when given orally
  - The onset of peak action is 10 minutes post inhalation
  - Tolerance is common
  - It has marked CNS effects
11. Isoprenaline
- Increases myocardial oxygen consumption when compared with dobutamine
  - Is contraindicated down an ETT
  - Affects  and  receptors
  - X
  - X
12. Sodium cromoglycate
- is well absorbed when taken orally
  - stabilises the mast cell in response to IgA and IgE
  - is only given via inhalation
  - is not used prophylactically
  - causes rapid bronchodilation
13. metformin
- is a sulphonylurea
  - requires functioning  islet cells
  - is associated with obesity
  - has been known to cause lactic acidosis
  - acts by increasing pancreatic release of insulin
14. How many mgs of drug are contained in 2mL of 0.5% w/v solution?
- 1 mg
  - 10 mg
  - 100 mg
  - 1000 mg
  - 5 mg
15. Regarding muscle relaxants, which of the following is true
- Aminoglycosides increase the efficacy of suxamethonium
  - Gallamine is excreted in the bile after hepatic metabolism
  - Vecuronium is an isoquinolone derivative
  - Atracurium causes hypotension in volume depleted patients
  - Pancuronium causes histamine release
16. Glyceryl trinitrate
- Acts after being converted to nitric oxide
  - Is metabolised to met-haemoglobin
  - Acts primarily on atherosclerotic vessels to dilate them
  - Reduces afterload but does not affect preload
  - Increases collateral coronary blood flow
17. Regarding cephalosporins
- There is no cross-reactivity with penicillin
  - Cefoxitin is a 3<sup>rd</sup> generation drug
  - 2<sup>nd</sup> generation drugs have less Gram negative action than 1<sup>st</sup> generation
  - X
  - X
18. Which of the following is considered safe in pregnancy
- ACE inhibitors
  - Heparin
  - Phenytoin
  - Warfarin
  - Lithium

19. Which is true regarding amiodarone
- It has type I and IV antiarrhythmic properties
  - Its most serious side effect is decreased renal function
  - It increases the clearance of digoxin
  - X
  - X
20. Which of the following acts at the NMDA receptor?
- Glycine
  - Glutamate
  - GABA
  - Aspartate
  - x
21. Regarding the GABA receptor
- GABA<sub>A</sub> causes increased conductance of K<sup>+</sup>
  - GABA<sub>A</sub> causes increased efflux of Cl<sup>-</sup>
  - Agonists at GABA<sub>A</sub> hyperpolarise the cell
  - X
  - X
22. Which of the following doesn't cause constipation
- Verapamil
  - Digoxin
  - Imipramine
  - Codeine
  - Chlorpromazine
23. Regarding the opioids
- There is no withdrawal syndrome following prolonged use of naloxone
  - Tolerance develops readily to miosis and constipation
  - Kappa receptors are responsible for supraspinal analgesia and addiction
  - X
  - X
24. Dextropropoxyphene
- Is structurally very similar to methadone
  - Is a potent analgesic opioid
  - When combined with paracetamol has good anti-inflammatory properties
  - Is a phenylpiperidine
  - In overdose causes death from hepatic toxicity
25. Aspirin
- Has anti-inflammatory, analgesic and anti-pyretic properties
  - Increases prostaglandin and leukotriene synthesis
  - Is a reversible cyclooxygenase inhibitor
  - Is a base
  - Excretion is enhanced by acidifying the urine
26. Digoxin
- Increases intracellular calcium
  - Increases intracellular potassium
  - Is a positive chronotrope
  - Is a negative inotrope
  - Increases atrioventricular conduction velocity
27. Which of the following is correct regarding heparin
- It inhibits anti-thrombin III
  - It decreases formation of fibrin
  - It acts on factor VII
  - It acts on prothrombin
  - It inhibits the action of protein C



28. Streptokinase
- is a complex lipopolysaccharide
  - is synthesised by the human kidney
  - binds to the proactivator plasminogen
  - activates the plasminogen that is bound to fibrin
  - is more dangerous than tPA in those over 75 years of age
29. Which of the following is INCORRECT regarding corticosteroids
- They have adverse effects on the foetus
  - They cause changes by binding to intracellular proteins
  - X
  - X
  - X
30. Which is incorrect regarding Salbutamol
- It may cause a transient decrease in oxygen tension
  - It acts via adenylyl cyclase
  - It causes hyperkalaemia
  - It can be given orally, parenterally or via inhalation
  - Bronchodilation persists for 3-4 hours
31. Frusemide
- Is not as strong as thiazide diuretics
  - Decreases urinary calcium
  - Acts in the thin ascending limb of the loop of Henle
  - Relaxes smooth muscle
  - Is useful as prophylaxis in acute mountain sickness
32. Which of the following alkalinises the urine?
- Hydrochlorothiazide
  - Mannitol
  - Spirolactone
  - Acetazolamide
  - Frusemide
33. Zidovudine
- Inhibits thymidine kinase
  - Causes thrombocytosis
  - Must be given parenterally
  - Penetrates CSF poorly
  - Is eliminated primarily in the urine
34. Which of the following is correct regarding the toxicity of paracetamol
- Sulphonation generates the toxic metabolite
  - The toxic metabolite is generated via phase II reaction
  - Toxicity increases with decreased glutathione levels
  - Toxicity is enhanced with cimetidine
  - Toxicity is related to depletion of sulphates
35. Which of the following is oxidised in the liver
- Paracetamol
  - Phenytoin
  - Procainamide
  - Adrenaline
  - Methadone
36. Which of the following is NOT a phase II reaction
- Methylation
  - Glucuronidation
  - Acetylation
  - Sulphonation
  - Oxidation



# Pharmacology

Apr 2000

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1. Acyclovir is active against all of the following EXCEPT
  - A. CMV
  - B. VZV
  - C. HSV
  - D. EBV
  - E. HIV
  
2. Pentamidine
  - A. Is toxic to pancreatic B cells
  - B. Achieves high levels in CNS following oral administration
  - C. Can be used for prevention of *M. avium-intracellulare* in HIV patients
  - D. Has a low volume of distribution
  - E. Is toxic to hepatocytes
  
3. Interferons
  - A. Are directly antiviral
  - B. Exert virus-specific antiviral activities
  - C. Can be used to treat Kaposi's sarcoma
  - D. X
  - E. X
  
4. Ticlopidine
  - A. Decreases platelet aggregation by inhibiting the ADP pathway of platelets
  - B. Has no GI side effects
  - C. Inhibits prostaglandin metabolism
  - D. X
  - E. X
  
5. Prazosin
  - A. Has a half life of 18 hours
  - B. Adversely affects lipid profiles
  - C. Produces a reflex bradycardia
  - D. Has a first dose hypotensive effect
  - E. Can increase cardiac output by decreasing preload and leaving afterload unchanged
  
6. Zidovudine
  - A. Is a protease inhibitor
  - B. Has a short serum half life
  - C. Has no activity against retroviruses
  - D. Inhibits viral thymidine kinase
  - E. Commonly causes thrombocytosis
  
7. Which of the following is correct regarding penicillin G
  - A. Hyponatraemia is not reported
  - B. It has good penetration to the eye
  - C. 100 000 U intrathecally can cause seizures
  - D. 50% of people who claim to have an allergy will have an allergic response on further exposure
  - E. X
  
8. Which of the following causes hypoprothrombinaemia and bleeding disorders
  - A. Cefuroxime
  - B. Cephalexin
  - C. Cefaclor
  - D. Cefotetan
  - E. Ceftazidime

9. Naloxone
- A. Has a half life of over 4 hours
  - B. Has a half life of less than 1 hour
  - C. Has a half life of between 2-3 hours
  - D. Has a half life of between 1-2 hours
  - E. Has a half life of between 3-4 hours
10. Pethidine
- A. Causes raised CSF pressure
  - B. X
  - C. X
  - D. X
  - E. X
11. Which of the following is correct regarding Diazepam
- A. It does not engender psychological dependence
  - B. It is metabolised to oxazepam
  - C. Xx
  - D. X
  - E. X
12. Which of the following is correct regarding Metformin
- A. It is a sulphonylurea
  - B. It can cause a significant lactic acidosis
  - C. It is similar to chlorpropamide
  - D. Its action is dependent on insulin
  - E. It requires functioning pancreatic B cells for its action
13. Phenytoin
- A. Has low protein binding
  - B. Causes agranulocytosis in 5% of patients
  - C. Displays zero order kinetics at low concentrations and first order kinetics at higher concentrations
  - D. Has poor oral bioavailability
  - E. Can cause abnormalities of vitamin D metabolism
14. Which is the INCORRECT pairing of drug and effect
- A. Phenytoin – gum hypertrophy
  - B. Carbamazepine – blood dyscrasias
  - C. Phenobarbitone – enzyme induction
  - D. Ethosuximide – hirsutism
  - E. Carbamazepine – ataxia
15. Which local anaesthetic causes met-haemoglobinaemia
- A. Lignocaine
  - B. Tetracaine
  - C. Bupivacaine
  - D. Procaine
  - E. Prilocaine
16. Benztropine causes
- A. Miosis
  - B. Diarrhoea
  - C. Confusion
  - D. Bronchorrhoea
  - E. GIT haemorrhage
17. A patient on phenytoin has a seizure and is found to have a low level. Which of the following is LEAST likely to have caused this
- A. Phenobarbitone
  - B. Non-compliance
  - C. Hypoalbuminaemia
  - D. Disulfiram
  - E. Erythromycin

18. Heparin
- A. Inhibits antithrombin III
  - B. Causes alopecia
  - C. Decreases the rate of conversion of prothrombin to thrombin
  - D. Decreases the rate of conversion of fibrinogen to fibrin
  - E. Decreases the rate of conversion of factor VII to VIIa
19. 2mL of 0.5% w/v solution contains how much drug
- A. 1mg
  - B. 5mg
  - C. 10mg
  - D. 20mg
  - E. 100mg
20. Adenosine
- A. Blocks  $K^+$  channels
  - B. Opens  $Cl^-$  channels
  - C. Has a half life of about 10 minutes
  - D. Profoundly blocks the SA node
  - E. Suppresses calcium-dependent action potentials
21. Regarding cromolyn, which is INCORRECT
- A. It inhibits IgE-mediated mast cell degranulation
  - B. Is used prophylactically
  - C. Causes acute bronchodilation
  - D. Is only given via inhalation
  - E. X
22. Atracurium
- A. Has a longer duration of action than vecuronium
  - B. Is not associated with histamine release
  - C. Is a steroid derivative
  - D. Is eliminated by non-renal and non-hepatic mechanisms
  - E. X
23. Which of the following is INCORRECT regarding pancuronium
- A. It is a steroid
  - B. It does not stimulate histamine release
  - C. It is renally excreted
  - D. It has a shorter duration of action than vecuronium
  - E. X
24. Which of the following antiseptics is commonly used in clinical practice
- A. 70% ethyl alcohol
  - B. 30% ethanol
  - C. Formaldehyde
  - D. Isopropyl alcohol
  - E. All of the above
25. Metronidazole
- A. Commonly causes constipation
  - B. Inhibits alcohol dehydrogenase
  - C. Is effective treatment for urogenital trichomoniasis
  - D. Is not useful in treating giardiasis
  - E. Has been shown to be teratogenic in humans
26. Erythromycin
- A. Is predominantly renally excreted
  - B. Is a cell wall inhibitor
  - C. Is bacteriostatic only
  - D. Is effective against *Campylobacter jejunii*
  - E. When given IV is in the stearate form

27. A young patient is given a normal dose of a drug in the emergency department. They develop tachycardia, hypertension and dilated pupils. The drug is most likely to be
- A. Adrenaline
  - B. Atropine
  - C. Aspirin
  - D. Acetylcholine
  - E. X
28. Cisapride
- A. Has a half life of 6-8 hours
  - B. Decreases lower oesophageal sphincter pressure
  - C. Is well absorbed orally
  - D. It is a potent anti-dopamine agent
  - E. It decreases colonic motility
29. Sumatriptan
- A. Is a partial  $\mu$  agonist
  - B. Is contraindicated in angina
  - C. X
  - D. X
  - E. X
30. Mannitol
- A. Inhibits water absorption in the proximal tubule, Loop of Henle and collecting ducts
  - B. Is metabolised to glycerol
  - C. Decreases total body water and total body cation content equally
  - D. Is of no value when renal dynamics are compromised
  - E. It affects water reabsorption in the collecting ducts and distal convoluted tubule
31. Metoclopramide
- A. Increases tone in the pyloric sphincter
  - B. X
  - C. Decreases oesophageal pressure
  - D. X
  - E. Increases antral contractility
32. Regarding the treatment of Parkinson's disease
- A. Antimuscarinics are better for the treatment of tremor than dopamine agonists
  - B. Administration of L-dopa with a dopa decarboxylase inhibitor decreases the side effect profile
  - C. X
  - D. X
  - E. X
33. Dantrolene is a good choice in the treatment of malignant hyperpyrexia because
- A. It antagonises the effects of suxamethonium
  - B. It inhibits prostaglandin synthesis
  - C. It decreases calcium release from the sarcoplasmic reticulum in skeletal muscles
  - D. X
  - E. X
34. Which of the following is safest in pregnancy
- A. Lithium
  - B. Phenytoin
  - C. Warfarin
  - D. ACE inhibitors
  - E. Heparin
35. In a female patient on an ACE inhibitor, which of the following is most likely to impair hypotensive effects
- A. Indomethacin
  - B. Atenolol
  - C. Spironolactone
  - D. Irbesartan
  - E. Frusemide

36. Regarding enzyme induction
- A. It is irreversible
  - B. It takes about 4 months to develop
  - C. It results in an increase in smooth endoplasmic reticulum
  - D. It results in an increase in rough endoplasmic reticulum
  - E. X
37. Which of the following is correct regarding ethanol metabolism
- A. The MEOS pathway is the main pathway
  - B. The alcohol dehydrogenase pathway is inducible
  - C. It obeys first order kinetics
  - D. Most alcohol dehydrogenase is found in the stomach
  - E. X
38. Which of the following is correct regarding fluoxetine
- A. Serotonin syndrome is characterised by muscle weakness, hyperpyrexia and confusion
  - B. It can be removed by haemodialysis
  - C. It can cause malignant hyperpyrexia
  - D. It is an enzyme inhibitor
  - E. It is safe in overdose due to minimal drug interactions
39. Dobutamine
- A. Results in conversion of ATP to AMP
  - B. Can decrease systemic vascular resistance (afterload)
  - C. X
  - D. X
  - E. X
40. Clearance
- A. Is proportional to liver blood flow
  - B. X
  - C. X
  - D. X
  - E. X
41. Regarding pharmacokinetics and pharmacodynamics
- A. Diffusion is inversely proportional to surface area and directly proportional to thickness
  - B. The  $LD_{50}$  is 50% of the dose that kills most people
  - C. The  $LD_{50}$  is 50% of the dose at which toxicity occurs
  - D. Efficacy is the maximum response produced by a drug
  - E. X
42. Regarding bioavailability
- A. Drugs given PR have no first pass metabolism
  - B. Transdermal drugs have no first pass metabolism
  - C. IV drugs undergo first pass metabolism
  - D. It is inversely proportional to extraction ratio
  - E. X
43. Which of the following is INCORRECT regarding nitrates
- A. They increase collateral coronary blood flow
  - B. They demonstrate tachyphylaxis/tolerance
  - C. They demonstrate physical dependence
  - D. They selectively dilate atherosclerotic vessels
  - E. They decrease preload but do not affect afterload
44. Which of the following is correct regarding propranolol
- A. It is a highly selective  $\alpha_1$  antagonist
  - B. It is poorly lipid soluble
  - C. It has sodium channel blocking activity
  - D. It has partial agonist activity
  - E. It has a high oral bioavailability

45. A 42 year old male with typical ischaemic chest pain is seen in the ED. Further investigation leads to a diagnosis of 'vasospasm'. Which drug is most likely to have caused this
- A. Adrenaline
  - B. X
  - C. X
  - D. X
  - E. X
46. A young man presents with dilated pupils, confusion and hyperpyrexia. Which of the following is LEAST likely to account for these effects
- A. Atropine
  - B. Datura
  - C. Morphine
  - D. X
  - E. X
47. Which of the following is correct regarding pralidoxime
- A. It inhibits presynaptic acetylcholine release
  - B. It cleaves organophosphate from acetylcholinesterase
  - C. It cleaves acetylcholinesterase enzyme
  - D. It regenerates acetylcholine
  - E. X
48. Which of the following is INCORRECT regarding vecuronium
- A. It has minimal cardiovascular effects
  - B. It is predominantly renally excreted
  - C. It has significantly longer duration of action than pancuronium
  - D. X
  - E. X
49. Insulin does NOT cause
- A. Decreased glycogenolysis in the liver
  - B. Increased glycogen synthesis in the liver
  - C. Increased lipolysis in the liver
  - D. X
  - E. X
50. Penicillins reach high concentrations in
- A. Vitreous humor
  - B. CSF with normal meninges
  - C. Proximal tubular fluid in the kidneys
  - D. Sputum
  - E. Breast milk
51. Regarding ergot alkaloids, which of the following is incorrect
- A. they may cause vasodilation, leading to flushing and increased skin temperature of "St Anthony's Fire"
  - B. They may cause diarrhoea
  - C. they act at alpha adrenoceptors
  - D. they act at dopamine receptors
  - E. they act at serotonin receptors
52. Which of the following raises the pH of urine the most
- A. Acetazolamide
  - B. Frusemide
  - C. Chlorothiazide
  - D. Mannitol
  - E. Spironolactone
53. The metabolism of paracetamol to its toxic metabolite is via which reaction
- A. Glucuronidation
  - B. Sulphation
  - C. Hydroxylation
  - D. Oxidation
  - E. Reduction



54. Histamine when injected locally would be expected to produce all of the following EXCEPT

- A. An increase in contractility of GI smooth muscle
- B. A decrease in systemic vascular resistance
- C. A decrease in myocardial contractility
- D. X
- E. X

55. Propofol

- A. Accumulates
- B. Can produce abnormal muscle movements
- C. Has minimal effects on the CVS
- D. X
- E. X

1. E		2. A		3. C		4. A		5. D	
6. B		7. A		8. D		9. D		10.	?A
11.	B	12.	B	13.	E	14.	D	15.	E
16.	C	17.	D	18.	B	19.	C	20.	E
21.	C	22.	D	23.	D	24.	A	25.	C
26.	D	27.	A	28.	C	29.	B	30.	A
31.	E	32.	B	33.	C	34.	E	35.	A
36.	C	37.	B	38.	D	39.	?B	40.	?A
41.	D	42.	B	43.	B	44.	C	45.	?A
46.	C	47.	B	48.	C	49.	C	50.	C
51.	A	52.	A	53.	C	54.	C	55.	B

# Pharmacology

Sep 2000

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1. Regarding paracetamol toxicity

- A. Toxicity is related to glutathione consumption
- B. Toxicity is enhanced with cimetidine
- C. Sulphonation generates the toxic metabolite
- D. The toxic metabolite is generated via phase II reaction
- E. Toxicity is related to depletion of sulphates

2. Paracetamol

- A. Is only given orally
- B. Is highly protein bound
- C. Does not cause hyperuricaemia
- D. Has weak anti-inflammatory properties
- E. X

3. Dextropropoxyphene

- A. When combined with paracetamol is a strong anti-inflammatory
- B. Overdose causes death from hepatotoxicity
- C. Is chemically related to methadone
- D. Is a potent analgesic opioid
- E. X

4. Calculate the half life of a drug with a clearance of 8.4 L/hour and Vd 5L/kg in a 70kg man

- A. 24 hours
- B. 12 hours
- C. 30 hours
- D. 56 hours
- E. >60 hours

5. Which of the following is INCORRECT regarding the treatment of Parkinson's disease

- A. L-dopa is contraindicated in acute psychosis
- B. Bromocriptine has less side effects than L-dopa
- C. Administration of L-dopa with a dopa decarboxylase inhibitor decreases side effects
- D. Dopamine cannot cross the blood-brain-barrier
- E. Bromocriptine causes more hypotension than L-dopa

6. Which of the following is correct regarding barbiturates

- A. They increase the duration of opening of GABA-mediated chloride channels
- B. They do not affect warfarin metabolism
- C. Acidifying the urine is useful in phenobarbitone overdose
- D. They increase the frequency of opening of GABA-mediated chloride channels
- E. X

7. Which of the following is correct regarding ethyl-alcohol

- A. It is excreted unchanged via the lungs
- B. It causes CNS excitation followed by CNS depression
- C. X
- D. X
- E. X

8. Which of the following is correct regarding Acyclovir

- A. The dose is 10-20mg 5 times daily
- B. It does not work on viruses with a thymidine kinase
- C. It does not work on CMV
- D. It is a guanosine analogue
- E. X

9. Which of the following is correct regarding metronidazole
- A. it has been shown to be teratogenic in humans
  - B. it causes a disulfiram-like reaction
  - C. it inhibits alcohol dehydrogenase
  - D. a single dose is recommended for treatment of Giardiasis
  - E. it does not cause a metallic taste in the mouth
10. Which of the following inhibits bacterial cell wall synthesis
- A. Cephalosporins
  - B. Tetracycline
  - C. Ciprofloxacin
  - D. Metronidazole
  - E. Erythromycin
11. Tetracycline
- A. May cause photosensitivity
  - B. Does not cause discoloration of tooth enamel
  - C. X
  - D. X
  - E. X
12. Gentamicin
- A. Is water soluble but unstable in solution
  - B. Is an antibiotic which is oxygen-dependent
  - C. may be given orally
  - D. has a wide therapeutic index
  - E. is not nephrotoxic
13. Which of the following antibiotics is resistant to beta-lactamase
- A. Piperacillin
  - B. Cloxacillin
  - C. Amoxicillin
  - D. Penicillin
  - E. Ampicillin
14. Which of the following is NOT an action of glucagon
- A. Smooth muscle relaxation
  - B. Positive inotrope
  - C. Positive chronotrope
  - D. Gluconeogenesis stimulation
  - E. Mobilisation of skeletal muscle glycogen
15. Adenosine
- A. Opens  $K^+$  channels
  - B. Opens  $Cl^-$  channels
  - C. Has a half life of 10 minutes
  - D. Profoundly blocks the SA node
  - E. Blocks calcium-dependent action potentials
16. Which of the following is INCORRECT regarding theophylline
- A. It causes direct bronchodilation
  - B. Seizures may occur without any preceding neurological warning signs
  - C. Overdose of slow release tablets will give a peak serum level in 6 hours
  - D. Metabolism is induced by smoking
  - E. Strengthens contraction of the diaphragm in patients with COAD
17. Allopurinol
- A. Is metabolised by xanthine oxidase
  - B. Has no side effects
  - C. Is useful in the treatment of acute gout
  - D. Has low oral bioavailability
  - E. x

18. Which of the following is correct regarding ipratropium bromide
- A. The onset of peak action is 10 minutes post inhalation
  - B. Tolerance is common
  - C. It has marked CNS effects
  - D. It may precipitate closed angle glaucoma
  - E. It has 100% oral bioavailability
19. Which of the following is INCORRECT regarding trimethoprim
- A. It is synergistic with sulphonamides
  - B. It disrupts folate synthesis
  - C. It is less toxic to humans than to bacteria
  - D. It is bacteriocidal
  - E. It is bacteriostatic
20. Which of the following is INCORRECT regarding aminoglycosides
- A. Resistance is plasmid-mediated
  - B. Resistance does not cross species
  - C. They require an oxygen dependent mechanism to be taken up into the cell
  - D. They synergise with penicillins
  - E. They decrease neuromuscular blockade
21. Which of the following is INCORRECT
- A. Disinfectants clean non-living fields
  - B. Antiseptics clean living fields
  - C. Antiseptics in low dose can promote bacterial growth
  - D. Alcohol kills all bacteria and spores
  - E. X
22. Digitalis
- A. Is a positive inotrope
  - B. Is a negative inotrope
  - C. Decreases ventricular excitation
  - D. Causes a decrease in intracellular sodium
  - E. Causes hypokalaemia in overdose
23. Which of the following is correct regarding Cisapride
- A. It has 80% oral bioavailability
  - B. It is a potent anti-dopamine agent
  - C. The dose needs to be reduced in renal failure
  - D. It decreases colonic motility
  - E. Has a half life of 6-8 hours
24. Which of the following is most potent
- A. Cortisol
  - B. Cortisone
  - C. Aldosterone
  - D. Corticosterone
  - E. Deoxycortisone
25. Which of the following does not cause constipation
- A. Verapamil
  - B. Digoxin
  - C. Warfarin
  - D. Chlorpromazine
  - E. Codeine

26. Which of the following is correct regarding verapamil
- A. It increases myocardial contractility
  - B. It is a positive inotrope
  - C. It causes skeletal muscle weakness
  - D. It blocks active and inactive calcium channels
  - E. x
27. Which of the following is correct regarding warfarin
- A. It is broken down in the GIT
  - B. It is routinely added to transfused blood
  - C. It decreases thromboplastins
  - D. C
  - E. C
28. Which of the following has a pure  agonist effect in the circulation
- A. Adrenaline
  - B. Noradrenaline
  - C. Isoprenaline
  - D. Metoprolol
  - E. Prazosin
29. Carbamazepine
- A. Has active metabolites
  - B. In overdose causes seizures
  - C. Is an enzyme inhibitor
  - D. Enhances sodium channel conductance
  - E. Is not a tricyclic
30. Which of the following does NOT interact with warfarin
- A. Phenobarbitone
  - B. Loop diuretics
  - C. Benzodiazepines
  - D. Cephalosporins
  - E. Barbiturates
31. Regarding antidepressants
- A. Fluoxetine is more sedating than the tricyclic antidepressants
  - B. SSRIs are more effective in OCD
  - C. their effects include elevation of seizure threshold
  - D. sodium bicarbonate worsens arrhythmias in TCA overdose
  - E. all cause marked sedation
32. Hydralazine
- A. Classically has a biphasic response in BP control
  - B. Should not be used in eclampsia
  - C. Causes significant hypotension
  - D. Is predominantly a vasodilator
  - E. Causes an abrupt but transient fall in blood pressure
33. Which if the following is INCORRECT regarding diazoxide
- A. Can be used in hypertensive emergency
  - B. Is structurally related to thiazide
  - C. Has a low level of protein binding
  - D. May cause sodium and water retention
  - E. can cause significant hypotension

34. ACE inhibitors
- A. Can safely be used in the second and third trimesters of pregnancy
  - B. Have been associated with angioedema
  - C. Can cause significant reflex tachycardia
  - D. Can cause hypokalaemia
  - E. Are lipid soluble and reach the CNS
35. Which of the following is correct regarding fibrinolytics
- A. Urokinase is cheap but less selective
  - B. Streptokinase comes from human cells
  - C. TIMI trial states GI haemorrhage is the most common haemorrhagic complication
  - D. GIT haemorrhage within the previous 12 months is a contraindication
  - E. Actrilic acid is a potent fibrinolytic inhibitor
36. Termination of irreversible (non-depolarising) neuromuscular blockade involves
- A. Regeneration of receptors
  - B. An increase in end plate acetylcholine
  - C. X
  - D. X
  - E. X
37. Which of the following is correct regarding GTN
- A. It exerts its action after being converted to nitric oxide
  - B. It causes met-haemoglobinaemia
  - C. It acts on atherosclerotic vessels to dilate them
  - D. Demonstrates physiologic dependence
  - E. Increases collateral coronary blood flow
38. Which of the following has a different mode of action
- A. Insulin
  - B. Glucagon
  - C. ACTH
  - D. PTH
  - E. All of the above
39. Choose the odd one out
- A. Muscarine
  - B. Acetylcholine
  - C. Hyoscine
  - D. Bethanechol
  - E. X
40. Half life
- A. May not be a good indicator of clearance
  - B. Does not increase with age
  - C. Is not dependent on the volume of distribution
  - D. X
  - E. X
41. Stemetil
- A. Can be useful in tardive dyskinesia
  - B. Can cause neuroleptic malignant syndrome
  - C. Has antiemetic effect via 5-HT antagonist activity
  - D. X
  - E. X
42. Alpha-methyl-dopa
- A. Can cause a positive Coombs' test
  - B. Is a potent vasoconstrictor
  - C. Can be given IV or oral
  - D. Can precipitate an SLE-like syndrome
  - E. Can cause agitation

43. How much drug is contained in 2mL of 0.5% w/v solution  
A. 1mg  
B. 5mg  
C. 10mg  
D. 20mg  
E. 100mg

44. Which of the following is an example of a phase II biotransformation  
A. Oxidation  
B. Reduction  
C. Glucuronidation  
D. Dehydration  
E. Hydrolysis

45. Which of the following is an example of a class IV antiarrhythmic  
A. Propranolol  
B. Phenytoin  
C. Sotalol  
D. Verapamil  
E. Lignocaine

- |       |       |       |        |        |
|-------|-------|-------|--------|--------|
| 1. A  | 2. C  | 3. C  | 4. C   | 5. E   |
| 6. A  | 7. A  | 8. D  | 9. B   | 10. A  |
| 11. A | 12. B | 13. B | 14. E  | 15. A  |
| 16. C | 17. A | 18. D | 19. D  | 20. E  |
| 21. D | 22. A | 23. A | 24. ?A | 25. C  |
| 26. D | 27. ? | 28. C | 29. A  | 30. C  |
| 31. B | 32. D | 33. C | 34. B  | 35. ?C |
| 36. B | 37. A | 38. A | 39. C  | 40. A  |
| 41. B | 42. A | 43. C | 44. C  | 45. D  |

# Pharmacology

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Aug 01

1. Regarding opiates
  - a. X
  - b. Methadone and dextropropoxyphene are phenylpiperidines
  - c. They cause diuresis
  - d. They cause urinary retention
  - e. X
  
2. Which of the following anaesthetic agents stimulates the cardiovascular system
  - a. Thiopentone
  - b. Halothane
  - c. Ketamine
  - d. Midazolam
  - e. Propofol
  
3. Side effects of tricyclic antidepressants include all of the following EXCEPT
  - a. Sedation
  - b. Tremor
  - c. Urinary retention
  - d. Psychosis
  - e. Hypertension
  
4. Side effects of phenothiazines include
  - a. Urinary retention
  - b. Seizures
  - c. Corneal, lens and retinal deposits
  - d. Seizures
  - e. Extrapyrmidal effects
  
5. Which of the following is correct regarding acyclovir
  - a) is commonly given in doses of 10-20 mg TDS
  - b) is used to treat CMV
  - c) is a guanosine analogue
  - d) acts to inhibit viral entry into cells
  - e) is only available intravenously
  
6. Which of the following is correct regarding the antivirals
  - a. Valacyclovir is converted rapidly to acyclovir when taken orally
  - b. Valacyclovir is only available intravenously
  - c. Acyclovir blocks transcription of viral DNA to RNA
  - d. X
  - e. X
  
7. Which of the following is NOT true for Norfloxacin
  - a. It is poorly absorbed from the GIT
  - b. It is effective in salmonella enteritis
  - c. It inhibits DNA synthesis in susceptible microbes
  - d. It can increase serum theophylline levels if administered concurrently
  - e. It is mainly excreted by the kidney
  
8. The site of action of erythromycin is
  - a. On the 50S subunit of the ribosome
  - b. On the 30S subunit of the ribosome
  - c. On the 20S subunit of the ribosome
  - d. DNA gyrase
  - e. DNA topoisomerase



9. Which of the following is correct regarding erythromycin
- When given IV is in the stearate form
  - It is excreted in the urine
  - Is bacteriostatic only
  - Is active against campylobacter
  - Is a cell wall inhibitor
10. Regarding Ketoconazole
- It interacts with terfenadine
  - It inhibits bacterial cell wall synthesis
  - X
  - X
  - X
11. Which of the following is not an antiemetic
- THC
  - Omeprazole
  - Haloperidol
  - Metoclopramide
  - Domperidone
12. Which of the following does not cause constipation
- Digoxin
  - Verapamil
  - Imipramine
  - Codeine
  - Chlorpromazine
13. Which is correct regarding the action of verapamil
- It is a positive inotrope
  - It shortens the action potential
  - It blocks both activated and inactivated calcium channels
  - It blocks cardiac sodium channels
  - It causes skeletal muscle weakness
14. All of the following are bronchodilators EXCEPT
- Sodium cromoglycate
  - Ipratropium bromide
  - Salbutamol
  - Adrenaline
  - Salmeterol
15. Cisapride
- It has 80% oral bioavailability
  - It is a potent anti-dopamine agent
  - The dose needs to be reduced in renal failure
  - It decreases colonic motility
  - Has a half life of 6-8 hours
16. Promethazine is a weak base with a pKa of 9.1. Which of the following is correct
- Urinary secretion will increase if bicarbonate is co-administered
  - Urinary secretion will increase if ammonium chloride is co-administered
  - It will be more ionised at blood pH than at gastric pH
  - X
  - X
17. Efficacy is
- The concentration of drug that produces 50% of maximal effect
  - The maximum response that can be produced by a drug
  - Limited by side effects
  - Independent of route of administration
  - X

18. Which of the following is correct regarding therapeutic index
- It is low in drugs that have a large margin of safety
  - It is the ratio of  $ED_{50}$  to  $TD_{50}$
  - It is the ratio of  $TD_{50}$  to  $ED_{50}$
  - X
  - X
19. Which of the following is correct regarding beta adrenergic agonists
- They may decrease arterial oxygen tension after administration
  - They cause hypoglycaemia
  - They stimulate glycogenolysis in the liver and skeletal muscle
  - They decrease cholesterol levels
  - X
20. Atropine causes
- Bronchoconstriction
  - A decrease in gastric acid secretion
  - An initial bradycardia followed by tachycardia
  - An increase in jejunal peristalsis
  - A decrease in intraocular pressure
21. Which of the following is correct regarding ipratropium
- It has 100% GIT absorption
  - It has a long duration of action to allow 4 hourly nebuliser administration
  - The onset of peak action is 10 minutes post inhalation
  - Tolerance is common
  - It has marked CNS effects
22. Which of the following does NOT induce hepatic p450 enzymes
- Rifampicin
  - Cimetidine
  - Carbamazepine
  - Phenytoin
  - X
23. Which of the following is INCORRECT regarding cimetidine
- It inhibits H1 receptors
  - It causes confusion in the elderly
  - It inhibits hepatic enzymes
  - X
  - X
24. Cocaine causes all of the following effects EXCEPT
- Local anaesthesia
  - Reduced catecholamine uptake
  - X
  - X
  - X
25. Side effects of prazosin include
- Reflex tachycardia
  - First dose hypotension
  - Reflex bradycardia
  - Unfavourable effect on lipids
  - Hypertension
26. Pralidoxime exerts its effects by
- Regeneration of acetylcholine
  - Inhibiting presynaptic acetylcholine release
  - Cleavage of acetylcholinesterase from organophosphate molecules
  - X
  - X

27. Which of the following is correct regarding SSRI antidepressants
- They are metabolised into inactive metabolites
  - They are the drugs of choice for obsessive-compulsive disorder
  - Fluoxetine induces liver enzymes
  - Diazepam and SSRIs used together can result in serotonergic syndrome
  - They are associated with minimal drug interactions
28. Opiates and receptor action
- X
  - X
  - X
  - X
  - X
29. Which of the following  $\beta$ -blockers is correctly paired with the receptor on which it acts
- Propranolol  $\beta_2$  receptor only
  - Carvedilol  $\beta_1$  and  $\beta_2$  receptors
  - X
  - X
  - X
30. What is the pKa of aspirin
- 9.5
  - 6.5
  - 3.5
  - 2.5
  - 1.5
31. Which of the following is correct regarding thrombolytics and their actions
- Aspirin irreversibly inhibits cyclooxygenase
  - X
  - X
  - X
  - X
32. Propranolol
- Is a selective  $\beta_2$  blocker
  - Has low lipid solubility
  - Has partial agonist activity
  - Has local anaesthetic activity
  - X
33. Sodium cromoglycate
- Is only given by inhalation
  - Is not useful prophylactically
  - Causes acute bronchodilation
  - Is well absorbed when taken orally
  - X
34. Which of the following is correct regarding the action of amphetamines
- There is increased catecholamine release
  - X
  - X
  - X
  - X
35. Hydralazine
- Rarely causes postural hypotension
  - Is a direct vasodilator
  - Has a short-lived effect
  - Displays a biphasic blood pressure response
  - Should not be used in eclampsia

36. Digoxin
- Is a negative inotrope
  - Increases ventricular excitation
  - Causes a decrease in intracellular sodium
  - Causes hypokalaemia in overdose
  - X
37. Digoxin
- Levels are increased by some antibiotics
  - X
  - X
  - X
  - X
38. Which of the following is correct regarding lithium
- It can cause type II diabetes
  - It is excreted almost entirely in the urine
  - It requires no treatment in overdose
  - Dose does not need adjusting in renal impairment
  - Has high first pass metabolism
39. Anticonvulsants and mechanism of action
- X
  - X
  - X
  - X
  - X
40. Which of the following penicillins is beta-lactamase resistant
- Amoxicillin
  - Piperacillin
  - Benzylpenicillin
  - Cloxacillin
  - X
41. Which of the following is correct regarding cephalosporins
- 2<sup>nd</sup> generation cephalosporins have less gram positive cover than 1<sup>st</sup> generation
  - There is no cross reactivity with penicillins
  - Cefoxitin is a 3<sup>rd</sup> generation drug
  - X
  - X
42. Which of the following is correct regarding local anaesthetics
- They may cause blockade of motor nerves before sensory nerves in large mixed nerves
  - They preferentially block larger fibres
  - They preferentially block unmyelinated fibres
  - They have no cardiac effects
  - They will block A-alpha fibres before A-delta and C fibres
43. The mechanism of action of a beta-lactam is
- To inhibit transpeptidation in peptidoglycan synthesis in the bacterial cell wall
  - X
  - X
  - X
  - X
44. How much drug is in 2mL of 0.5% w/v solution
- 1mg
  - 10mg
  - 100mg
  - 1000mg
  - 1kg

45. Which of the following is INCORRECT regarding heparin
- It acts on factor VII
  - It acts on prothrombin
  - It decreases the formation of fibrin
  - It inhibits antithrombin III
  - X
46. Heparin
- Is measured as active units via bioassay
  - X
  - X
  - X
  - X
47. Which of the following is correct regarding frusemide
- It is ototoxic
  - It is used in the treatment of glaucoma
  - X
  - X
  - X
48. Which of the following drugs alkalinises the urine
- Acetazolamide
  - Frusemide
  - Chlorothiazide
  - Mannitol
  - Spironolactone
49. Which of the following is correct regarding lithium
- Its toxicity may be increased by some antibiotics
  - It needs regular monitoring as it can cause diabetes mellitus
  - It has a wide therapeutic index
  - Co-administration of diuretics can result in toxicity in stable patients
  - Pregnancy can cause changes in metabolism and excretion
50. Which of the following is a side effect of phenytoin
- It causes agranulocytosis in 5% of treated patients
  - It affects vitamin D metabolism
  - X
  - X
  - X
51. Beta blockers
- Applied topically may cause systemic effects
  - X
  - X
  - X
  - X
52. Mechanism of action of adenosine
- Blocks  $K^+$  channels
  - Opens  $Cl^-$  channels
  - Has a half life of about 10 minutes
  - Profoundly blocks the SA node
  - Suppresses calcium-dependent action potentials
53. Which of the following antibiotics acts on cell membranes
- Ketoconazole
  - Ceftriaxone
  - Erythromycin
  - Metronidazole
  - Ciprofloxacin

54. In paracetamol overdose, toxic metabolites are generated from
- Glucuronidation
  - Sulphation
  - N-hydroxylation
  - Oxidation
  - Reduction
55. Sumatriptan
- Is contraindicated in angina
  - Is a partial  $\alpha_1$  agonist
  - X
  - X
  - X
56. Side effects of methyldopa include which of the following
- Positive Coombs test
  - Agitation
  - Pancreatitis
  - X
  - X
57. In the treatment of gout, which of the following is correct
- The use of paracetamol does not affect uric acid concentration
  - X
  - X
  - X
  - X
58. Paracetamol and protein binding
- X
  - X
  - X
  - X
  - X
59. Which of the following drugs has a half life of 6 hours
- Digoxin
  - Aspirin
  - Atenolol
  - Adenosine
  - Amiodarone
60. Which of the following drugs interacts with warfarin
- Ceftriaxone
  - Diazepam
  - Indomethacin
  - Paracetamol
  - Ethanol
61. Half life is used to calculate
- X
  - X
  - X
  - X
  - X
62. A patient has been given a drug which has caused hypertension and pupillary dilation. Which of the following was he given?
- Atropine
  - Adrenaline
  - Ganglion blocker
  - X
  - X

63. Which of the following is considered an effective technique for sterilisation
- a. Fibreoptics treated in an autoclave at 120 degrees for 2 minutes
  - b. Bleach diluted 1 in 10 for 10 minutes for blood
  - c. A single wipe of chlorhexidine over skin for 2 minutes for neurosurgery
  - d. Chlorhexidine to treat spores
  - e. Iodine used somehow to treat spores

- |       |       |       |       |        |
|-------|-------|-------|-------|--------|
| 3. D  | 4. C  | 5. E  | 6. A  | 7. C   |
| 8. A  | 9. A  | 10. A | 11. D | 12. A  |
| 13. B | 14. A | 15. C | 16. A | 17. ?E |
| 18. B | 19. B | 20. C | 21. A | 22. C  |
| 23. B | 24. B | 25. A | 26. ? | 27. B  |
| 28. C | 29. B | 30.   | 31. B | 32.    |
| 33. A | 34. D | 35. A | 36.   | 37. B  |
| 38. B | 39. A | 40. B | 41.   | 42. D  |
| 43. A | 44. A | 45. A | 46. B | 47. D  |
| 48. A | 49. A | 50. A | 51. D | 52. B  |
| 53. A | 54.   | 55. A | 56. C | 57. A  |
| 58. A | 59. A | 60.   | 61.   | 62. A  |
| 63.   | 64.   | 65. E | 66.   | 67.    |

# Pharmacology

April 2006

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1. Which of the following is correct regarding prazosin
  - a. It causes reflex tachycardia
  - b. It causes first dose hypotension
  - c. It causes reflex bradycardia
  - d. It has an unfavourable effect on lipids
  - e. It acts to reduce preload and afterload
  
2. A young man presents to ED following an overdose with dilated pupils, tachycardia and a fever. Which of the following is LEAST likely
  - a. Aspirin
  - b. Atropine
  - c. Datura
  - d. Chlordiazepoxide
  - e. Amitriptyline
  
3. Which of the following is correct regarding bisphosphonates
  - a. 10% of the dose is excreted unchanged
  - b. They increase osteoblast activity
  - c. They have low oral bioavailability
  - d. 90% distributed in the bones
  - e. X
  
4. A young man is treated with a normal dose of a drug and develops tachycardia, hypotension and mydriasis. Which of the following is MOST likely
  - a. Dobutamine
  - b. Atropine
  - c. Adrenaline
  - d. X
  - e. X
  
5. Which of the following does NOT induce immunity
  - a. Pertussis
  - b. Rabies
  - c. Redback venom
  - d. Tuberculosis
  - e. Hepatitis A
  
6. Which of the following is a live vaccine
  - a. Hepatitis A virus
  - b. Varicella-Zoster virus
  - c. Rabies
  - d. Measles
  - e. Diphtheria
  
7. Which of the following is correct regarding antiemetics
  - a. Ondansetron is a dopamine antagonist
  - b. Metoclopramide increases lower oesophageal sphincter tone
  - c. Erythromycin is a prokinetic agent
  - d. Marijuana acts on central chemoceptors
  - e. X
  
8. Which of the following is correct regarding adenosine
  - a. It has a half life of 5 minutes
  - b. It works on calcium dependent action potentials
  - c. It increases potassium influx to decrease AV conductivity
  - d. It decreases SA node firing
  - e. It is the drug of choice for ventricular tachycardias



9. Paracetamol toxicity is caused by
- Phase II reactions
  - Depletion of sulphates
  - Depletion of glutathione
  - Conjugation with glutathione
  - Co-administration with cimetidine
10. Which of the following is correct regarding bioavailability
- Is inversely proportional to extraction ratio
  - Transdermal route undergoes first pass metabolism
  - Rectal route does not undergo first pass metabolism
  - It is 100% for inhaled drugs
  - Intravenous route undergoes first pass metabolism
11. Adverse effects of penicillin include
- Seizures
  - 50% of people who claim allergy will actually have a reaction on further exposure
  - Hyponatraemia
  - X
  - X
12. Which of the following is correct regarding beta blockers
- They cannot be topically absorbed
  - They can cause glaucoma
  - Glucagon can be used as an antidote
  - X
  - X
13. Which of the following is correct regarding antibiotic resistance
- Erythromycin resistance is caused by changes in the 50S ribosomal subunit receptor site
  - Bacteria resistant to sulphonamides still need PABA
  - X
  - X
  - X
14. What is the mechanism of cytochrome P450 induction
- Rough endoplasmic reticulum hypertrophy
  - Smooth endoplasmic reticulum hypertrophy
  - Increase in acetylation
  - X
  - X
15. Which congenital defect – match is correct
- Ethanol and Ebsteins anomaly
  - Thalidomide and neural tube defects
  - ACE inhibitors and nephrotoxicity
  - X
  - X
16. A patient presents to the ED post ictal and is found to have a sub-therapeutic level of phenytoin. Which of the following would be LEAST likely to cause this
- Hypoalbuminaemia
  - Poor patient compliance
  - Carbamazepine co-administration
  - Isoniazid co-administration
  - Phenobarbital co-administration
17. Which of the following is correct regarding allopurinol
- It is used for acute gout
  - It is metabolised by xanthine oxidase
  - It has low oral bioavailability
  - It has very few side effects
  - X

18. Which of the following is correct regarding aspirin
- It is an irreversible cyclooxygenase inhibitor
  - Decreases plasma volume
  - Does not cross the placenta
  - Its action on platelet aggregation is reversible
  - Excretion is enhanced by acidifying the urine
19. Which of the following is a weak base
- Warfarin
  - Penicillamine
  - Aspirin
  - Amphetamine
  - Ibuprofen
20. Which of the following is correct regarding ibuprofen
- It has less GI effects than aspirin
  - It is excreted unchanged in the urine
  - It is a COX-II selective inhibitor
  - X
  - X
21. Which of the following is correct regarding eicosanoids
- They are the only arachidonic acid derivatives
  - They are vasodilators
  - They include prostaglandins, leukotrienes and thromboxane A<sub>2</sub>
  - X
  - X
22. Which of the following is correct regarding nitrates
- They act on afterload
  - They act on atherosclerotic vessels to dilate them
  - They decrease both preload and afterload
  - They demonstrate physiologic dependence
  - They increase collateral coronary blood flow
23. Which of the following is correct regarding calcium channel blockers
- They selectively act on L-type calcium channels
  - Diltiazem is the prototype of the dihydropyridines
  - X
  - X
  - X
24. ACE inhibitors
- Are used in diabetes
  - Can cause hypokalaemia
  - Are lipid soluble and reach the CNS
  - Can safely be used in the second and third trimesters of pregnancy
  - Have been associated with angioedema
25. Loop diuretics
- Cause alkalosis
  - Cause hypermagnesaemia
  - Cause ototoxicity by increasing lithium toxicity
  - X
  - X
26. Metronidazole
- Is used for treatment of trichomonas infection
  - Has been shown to be teratogenic in humans
  - Inhibits alcohol dehydrogenase
  - Is not effective in treatment of giardiasis
  - Is only available in an intravenous preparation

27. Which of the following techniques is an appropriate form of sterilisation
- Fibreoptics treated in an autoclave at 120 degrees for 2 minutes
  - Bleach diluted 1 in 10 for 10 minutes for blood
  - A single wipe of chlorhexidine over skin for 2 minutes for neurosurgery
  - Chlorhexidine to treat spores
  - Iodine used somehow to treat spores
28. Which of the following is correct regarding ethylene glycol (antifreeze solution)
- Renal dysfunction increases its toxicity
  - Toxicity is due to formation of formic acid
  - Toxicity is due to formation of oxalic acid
  - X
  - X
29. Which of the following is correct regarding benzodiazepines
- Oxazepam is metabolised into diazepam
  - Diazepam is metabolised into oxazepam
  - Flumazenil is an irreversible antagonist
  - Diazepam does not engender psychological dependence
  - X
30. Which of the following is correct regarding SSRIs
- They are metabolised into inactive metabolites
  - They are the drugs of choice for Obsessive-Compulsive disorder
  - Fluoxetine induces liver enzymes
  - Diazepam and SSRIs used together can result in serotonergic syndrome
  - They are associated with minimal drug interactions
31. Choose the correct matching stems
- Cisapride causes a prolonged QT interval
  - X
  - X
  - X
  - X
32. Which of the following is correct regarding cimetidine
- It inhibits H1 receptors
  - It causes confusion in the elderly
  - It inhibits hepatic enzymes
  - X
  - X
33. The safest antibiotic for use in renal failure is
- Doxycycline
  - Tetracycline
  - Erythromycin
  - Penicillin
  - X
34. Which of the following is correct regarding antivirals
- Valacyclovir is metabolised to acyclovir
  - Valacyclovir can be given intravenously
  - Acyclovir blocks transcription of viral DNA to RNA
  - Nomovir acts on HIV-1
  - X
35. Which of the following is correct regarding prochlorperazine
- It works mainly at the level of the GIT
  - Is structurally similar to (tricyclic) antidepressants
  - It can cause neuroleptic malignant syndrome
  - X
  - X

36. Which of the following is correct regarding tricyclic antidepressants
- The phenothiazines are structurally similar to tricyclics
  - They are completely absorbed and have high oral bioavailability
  - Their volumes of distribution tend to be very low
  - They act via inhibition of degradation of noradrenaline and serotonin
  - x
37. Which of the following is correct regarding opiates
- They cause a mild diuresis
  - They can precipitate urinary retention
  - They reduce bladder smooth muscle tone
  - Ganglion blockers will improve urinary flow
  - X
38. Which of the following has anti-thrombolytic effects
- Aspirin
  - Plasminogen
  - Aminocaproic acid
  - Heparin
  - Warfarin
39. Lignocaine acts
- Rapidly on hyperpolarised nerves
  - Preferentially on rapidly firing nerves
  - Preferentially on thicker nerves
  - Lastly on motor nerves
  - x
40. Which of the following is correct regarding methyl-dopa
- It causes a positive Coombs' test
  - It can be given IV or oral
  - It can precipitate an SLE-like syndrome
  - It can cause agitation
  - It is a potent vasoconstrictor
41. Which of the following is INCORRECT regarding theophylline
- It can cause hyperkalaemia
  - It can cause seizures without any other preceding neurological symptoms
  - It interacts with adenosine
  - It is a receptor antagonist
  - Metabolism is induced by smoking
42. Which of the following is correct regarding omeprazole
- It is category X in pregnancy
  - It acts on GIT epithelium
  - It is not indicated in Zollinger-Ellison syndrome
  - X
  - X
43. Volume of distribution
- Is inversely proportional to clearance
  - Is affected by pKa
  - Is generally larger than predicted for patients with ascites
  - Is directly proportional to the drug concentration in plasma
  - Is high in drugs contained in plasma
44. Which of the following is correct regarding aspirin
- In moderate doses it can cause an increased respiratory rate
  - In toxic levels it results in metabolic alkalosis
  - Excretion is enhanced by acidifying the urine
  - It is a reversible cyclooxygenase inhibitor
  - It does not cross the placenta

45. Which of the following is correct regarding ketamine
- It is a cardiac stimulant
  - It reduces laryngeal reflexes
  - It is given as an inhaled anaesthetic with nitrous oxide
  - X
  - X
46. Which of the following is correct regarding muscle relaxants
- Aminoglycosides decrease their efficacy
  - Vecuronium is a steroid derivative
  - Gallamine is excreted in the bile after hepatic metabolism
  - Atracurium causes hypotension in volume depleted patients
  - Pancuronium causes histamine release
47. Which of the following is correct regarding lithium
- It needs regular monitoring as it can cause diabetes mellitus
  - It has a wide therapeutic index
  - Co-administration of diuretics can result in toxicity in stable patients
  - Pregnancy can cause changes in metabolism and excretion
  - It requires no treatment in overdose

- |        |        |       |         |       |
|--------|--------|-------|---------|-------|
| 1. B   | 2. D   | 3. C  | 4. B    | 5. C  |
| 6. B&D | 7. B&C | 8. C  | 9. C    | 10. A |
| 11. A  | 12. C  | 13. A | 14. B   | 15. C |
| 16. D  | 17. B  | 18. A | 19. D   | 20. A |
| 21. C  | 22. C  | 23. A | 24. A&E | 25. A |
| 26. A  | 27. ?E | 28. C | 29. B   | 30. B |
| 31. A  | 32. C  | 33. A | 34. A   | 35. C |
| 36. A  | 37. B  | 38. C | 39. B   | 40. A |
| 41. A  | 42. B  | 43. C | 44. A   | 45. A |
| 46. B  | 47. C  |       |         |       |

# Pharmacology – No Answers

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Mar 07

1. Phenytoin
  - a. may cause abnormalities in vitamin D metabolism
  - b. X
  - c. X
  - d. X
  - e. X
  
2. Calculate the half life of digoxin if  $Cl = 8.4L/min$ ,  $Vd = 5L/kg$ , 70kg man
  - a. X
  - b. X
  - c. X
  - d. X
  - e. X
  
3. Muscarinic & Adrenergic receptors
  - a. X
  - b. X
  - c. various effects
  - d. X
  - e. X
  
4. Aspirin
  - a. can cause hyperventilation
  - b. has a pKa of 6.3
  - c. X
  - d. X
  - e. X
  
5. Elderly people have a decreased metabolism of
  - a. propranolol
  - b. lignocaine
  - c. X
  - d. X
  - e. X
  
6. All the following cause constipation except
  - a. verapamil
  - b. imipramine
  - c. codeine
  - d. digoxin
  - e. X
  
7. Frusemide
  - a. lasts six hours
  - b. can cause ototoxicity
  - c. X
  - d. X
  
8. Site of action of diuretics
  - a. thiazides - proximal part of the distal convoluted tubule
  - b. X
  - c. X
  - d. X
  
9. Amiodarone
  - a. prolongs the QT interval
  - b. X
  - c. X
  - d. X

10. Ipratropium

- a. onset of action in 10 minutes
- b. X
- c. X
- d. X
- e. contraindicated in glaucoma

11. Atracurium

- a. is broken down by Hoffman elimination
- b. X
- c. X
- d. X
- e. X

12. Ketamine

- a. is a cardiovascular stimulant
- b. X
- c. X
- d. X
- e. X

13. Complimentary medicine question on

- a. St John's Wort
- b. Echinacea
- c. Garlic
- d. X
- e. X

14. Elderly patients

- a. have decreased total body water
- b. X
- c. X
- d. X
- e. X

15. Adenosine

- a. suppresses calcium-dependent action potentials
- b. X
- c. X
- d. X
- e. X

16. Allopurinol

- a. metabolised by xanthine oxidase
- b. X
- c. X
- d. X
- e. X

17. Acute gout

- a. X
- b. X
- c. X
- d. X
- e. X

18. Steroids

- a. mineralocorticoid effects of commonly used steroids
- b. X
- c. X
- d. X
- e. X

19. Sulphonamides

- a. are analogues of PABA
- b. X
- c. X
- d. X
- e. X

20. Valacyclovir

- a. converted to acyclovir when given orally
- b. X
- c. X
- d. X
- e. X

21. Metronidazole

- a. is an effective treatment for trichomonas
- b. inhibits alcohol dehydrogenase
- c. X
- d. X
- e. X

22. Metformin

- a. does not require functioning pancreatic beta cells to perform its actions
- b. is a sulphonylurea
- c. X
- d. X
- e. X

23. Ondansetron

- a. blocks 5HT<sub>3</sub> receptors
- b. blocks dopamine receptors
- c. X
- d. X
- e. X

24. Metoclopramide

- a. increases antral motility
- b. X
- c. X
- d. X
- e. X

25. With regard to receptors

- a. desensitisation is rapidly reversible, leading to full response on re-exposure
- b. receptor downregulation is a rapid process (minutes)
- c. all receptors are associated with the cell membrane
- d. X
- e. X

26. Bioavailability

- a. is 100% for drugs given rectally
- b. is equal to 1-extraction ratio
- c. X
- d. X
- e. X

27. 2ml of 0.5% w/v is equivalent to

- a. 0.01mg
- b. 0.1mg
- c. 1mg
- d. 10mg
- e. 100mg



28. Which of the following drugs is safe to give in pregnancy

- a. heparin
- b. ramipril
- c. sodium valproate
- d. warfarin
- e. phenytoin

29. Heparin

- a. may cause alopecia
- b. X
- c. X
- d. X
- e. X

30. Penicillin G

- a. achieves high concentration in renal tubules
- b. is well absorbed orally
- c. X
- d. X
- e. X

31. Gentamicin

- a. enters bacteria via an oxygen dependent process
- b. may be given orally
- c. X
- d. X
- e. X

32. Lithium

- a. antagonises antidiuretic hormone
- b. X
- c. X
- d. X
- e. X

33. Marijuana

- a. causes conjunctival erythema and tachycardia
- b. X
- c. X
- d. X
- e. X

34. N-acetyl cystine

- a. is a source of glutathione
- b. X
- c. X
- d. X
- e. X

35. Methylxanthines

- a. may decrease the seizure threshold
- b. adenosine receptor antagonists
- c. X
- d. X
- e. X

36. Salbutamol

- a. may cause an initial fall in pO<sub>2</sub>
- b. X
- c. X
- d. X
- e. X

37. The opiate associated with seizures when given in high dose to patients with renal failure is

- a. Pethidine (meperidine)
- b. oxycodone
- c. morphine
- d. methadone
- e. X

38. A young man presents with typical chest pain, later diagnosed as vasospasm. This is most likely mediated via

- a. alpha receptors
- b. X
- c. X
- d. X
- e. X

1	16	31
2	17	32
3	18	33
4	19	34
5	20	35
6	21	36
7	22	37
8	23	38
9	24	39
10	25	40
11	26	
12	27	
13	28	
14	29	
15	30	

# Pharmacology – No Answers

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## Sep 07

- 1) Calculate the  $t_{1/2}$  of a drug with a renal clearance of 8.4L/h,  $V_d$  of 5L/Kg in a 70Kg male
  - a. 29hours
- 2) Which of the following is not a type 1 biotransformation reaction
  - a. glucuronidation
- 3)  $t_{1/2}$  of naloxone
  - a. 60-90 minutes
- 4) 5mL of 2% of w/v solution contains
  - a. 10mg
- 5) Heparin
  - a. causes alopecia
- 6) Which of the following does NOT alter INR when taking warfarin
  - a. benzodiazepines
- 7) Ticlopidine
  - a. Inhibits ADP induced platelet aggregation
- 8) Metronidazole is effective against
  - a. vaginal trachomoniasis
- 9) Which of the following does not inhibit cell wall synthesis
  - a. erythromycin
- 10) Valacyclovir
  - a. Is converted to acyclovir in the peripheral circulation
- 11) Gentamicin
  - a. enters the cell by via O<sub>2</sub> dependent process
  - b. X
  - c. X
  - d. X
  - e. X
- 12) which of the following does not cause constipation
  - a. digoxin
- 13) A patient arrives to the ED with dilated pupils and hypertension, tachycardia, which is the least likely toxin
  - a. aspirin
- 14) ACE inhibitors
  - a. can cause angio-oedema
  - b. are useful in diabetes
- 15) Hydralazine is
  - a. predominately a vasodilator
- 16) Fluoxetine is
  - a. a liver enzyme inhibitor
- 17) SSRI's are the preferred treatment of
  - a. OCD

- 18) a high degree of tolerance occurs to all effects of morphine except
- miosis
- 19) which of the following is a live virus vaccine
- measles
- 20) local anaesthetics
- preferentially block faster firing nerves
- 21) which of the following is a liver enzyme inducer
- barbiturate
- 22) salbutamol
- does not cause hyperkalaemia
- 23) barbiturates prolong the opening of chloride channels
- 24) methaemaglobinaemia is caused by Prilocaine
- 25) phase 3 drug trials
- involve a large amount of people to reduce bias
- 26) Metoclopramide
- increases lower oesophageal sphincter tension
- 27) Adenosine
- suppresses Calcium-dependent action potential
- 28) Regarding enzyme induction
- results in increased smooth ER amount
- 29) which of the following antibiotics is resistant to  $\beta$ -lactamase
- cloxacillin
- 30) what is the pKa of aspirin
- 3.5
- 31) In paracetamol overdose
- patient is symptomatic immediately after ingestion
  - acetylcysteine binds the toxic metabolite
  - can cause interstitial nephritis
- 32) regarding muscle relaxants
- mivacurium is longest acting
  - blockade caused by suxamethonium can be fully reversed with neostigmine
  - negative inotropic effects of suxamethonium can be attenuated by atropine
- 33) All activate G-protein coupled receptors except
- marijuana
  - GHB
  - LSD
  - Amphetamines
  - Heroin

34) General anaesthetic that also causes bronchodilation is ketamine

35) Marijuana

- a. half-life one hour
- b. perceptual changes are dose-dependent

36) metformin

- a. action depends on functioning beta cells
- b. frequently causes hypoglycaemia
- c. reduces hepatic gluconeogenesis

37) dexamethasone

- a. is 30 times more potent than prednisolone
- b. has significant mineralocorticoid activity
- c. is available only as oral preparation