CARDIOVASCULAR

1. **Regarding propranolol which is correct**
    a. It antagonizes catecholamines at α- and β- adrenoreceptors
    b. It stimulates renin secretion by catecholamines
    c. It increases plasma TGs
    d. It increases plasma HDL
    e. It blocks β_1 receptors in bronchial smooth muscle

2. **Regarding Amiodarone which is false**
    a. It causes hyperthyroidism
    b. It achieves higher levels in cardiac tissue than plasma
    c. It is a non-competitive α blocker
    d. It has a half life of 24hours
    e. It markedly prolongs the QT interval

3. **Important effects of digoxin on heart muscle include**
    a. Increased force of contraction
    b. Decreased AV conduction velocity
    c. Increased ectopic automaticity
    d. Decreased ejection time
    e. All of the above

4. **The effects of digoxin include all except**
    a. An increase in cardiac intracellular K^+
    b. An increase in cardiac intracellular Na^+
    c. An increase in cardiac intracellular Ca^{2+}
    d. An increase in cardiac contraction
    e. A reduced sympathetic outflow to the heart

5. **Regarding lignocaine which is correct**
    a. It lengthens the action potential duration by blocking Na channels
    b. The dose does not need to be altered in liver disease
    c. It is limited in its use by the high rate of cardiotoxicity
    d. Its clearance is reduced by cimetidine
    e. It is a class IC antiarrhythmic

6. **Lignocaine (2 CORRECT)**
    a. Is a potent suppressor of normal cardiac activity
    b. Appears to act exclusively on the Na channel
    c. Has a Ca channel blocking effect
    d. Has sympatholytic action
    e. Has low first pass metabolism
    f. Blocks K channels
    g. Has a half life of 50 min
    h. Is metabolized in liver by dealkylination
    i. Is metabolized in the bloodstream by plasma cholinesterases

7. **Sotolol**
    a. Is a β_1-selective adrenoceptor blocker
    b. Has a bioavailability of ~ 50% due to first pass effect
    c. Has no local anaesthetic action
    d. Has class I antiarrhythmic properties only
    e. Has class I and IV antiarrhythmic properties

8. **Amiodarone**
    a. Is a weak Ca blocker
    b. Is an effective Na^+ channel blocker
    c. Is a non-competitive inhibitor of β-receptors
    d. Affects clearance of Warfarin and Digoxin
    e. All of the above

9. **Amiodarone**
    a. Is only effective in the suppression of ventricular arrhythmia
    b. Causes peripheral vasodilation via α adrenergic effects
    c. Commonly causes corneal opacification
    d. Increases warfarin clearance
    e. Decreases AV nodal refractory period

10. **Verapamil**
    a. Does not affect the delayed after potentials seen in digitalis toxicity
    b. Preferentially blocks depolarizing Ca channels
    c. Has a marked effect on the SA node as the tissue relies predominantly on Ca channels for impulse production
    d. Its toxicity causes AV nodal block refractory to atropine
    e. Is not associated with the development of peripheral oedema

11. **Quinidine**
    a. Causes sinus tachycardia by both direct and indirect effects
    b. Lengthens the QT interval by its effect on Na channels
    c. Has no direct effect on K channels
    d. Is largely excreted unchanged in the urine
    e. Excretion is enhanced in alkaline urine

12. **Warfarin**
    a. Is an orally administered anticoagulant with low bioavailability
    b. Blocks the α carboxylation of glutamate residues in protein C
    c. Has an anticoagulant action which is immediate
    d. Does not cross the placenta-blood barrier
    e. Causes increases PT

13. **Heparin**
    a. Consists of a heterogenous group of glycoproteins
    b. Acts by decreasing activity of factor VII
    c. Is associated with osteomalacia
    d. Increases the reaction rate of antithrombin III on clotting factors
    e. Is consumed in anticoagulant activity

14. The following drug causes cinchonism

a. Quinidine
b. Procainamide
c. Flecainide
d. Lidocaine
e. Tocainide

15. Amiodarone lengthens the action potential primarily by

a. blocking Na channel in inactivated state
b. blocking K channels
c. weak Ca channel blockade
d. noncompetitive inhibitor of β receptors
e. peripheral vasodilation

16. The following drug reactions, which is incorrect

a. Procainamide – lupus
b. Sotalol – torsades de pointes
c. Adenosine – flushing
d. Verapamil – constipation
e. Amiodarone – torsades de pointes

17. Warfarin will be potentiated by all of the following except

a. Amiodarone
b. Cimetidine
c. Diazepam
d. Metronidazole
e. Fluconazole

18. LMWH

a. MW = 15 000
b. Inhibits activate factor X
c. Has unpredictable pharmacokinetics
d. Can be used with minimal problems in renal failure
e. Is readily reversed with protamine

19. The following type 1 Na^+ channel blocker shortens action potential

a. Quinidine
b. Lidocaine
c. Flecainide
d. Procainamide
e. Disopyramide

20. The following diuretics may have cross-allergy due to sulphur groups except

a. Acetazolamide
b. Chlorothiazide
c. Frusemide
d. Bumetanide
e. Amiloride

21. The most common adverse effect of a thiazide is

a. low K
b. Mg depletion
c. Impaired glucose tolerance
d. Increased lipids
e. Gout

22. The following IV antihypertensive also inhibits insulin release

a. Hydralazine
b. SNIP
c. Diazoxide
d. Labetalol
e. Fenoldopam

23. Regarding Ca channel blockers which is false

a. Skeletal muscle is not depressed
b. Nimodipine has high affinity for cerebral blood vessels
c. Verapamil also causes Na channel block
d. All act via T type Ca channels
e. Excess effects include cardiac arrest, bradycardia and AV block

24. Nitrates primarily cause relief of angina via

a. Relaxation of arterioles and arteries
b. Relaxation of veins and reduced preload
c. Reduction of afterload
d. Increased collateral flow
e. Dilation of coronary epicardial vessels

25. The major electrical action of digitalis includes all except

a. Increase refractory period at AV node
b. Increased automaticity
c. Decreased PR interval
d. Decreased refractory period at atria and ventricles
e. Negligible effect on conduction velocity in ventricles

26. Digoxin toxicity is more likely in all except

a. Low K
b. High Ca
c. Quinidine therapy
d. Antibiotics
e. High Mg

27. Adverse reaction of frusemide includes all except

a. Low K metabolic acidosis
b. High Ca
c. Low Mg
d. Gout
e. Ototoxicity

28. The following is true for adrenaline except

a. It acts via G-proteins
b. α receptor stimulation results in decreased cAMP production
c. it may be administered via inhalation, orally or parenterally
d. it has no active metabolites
e. in cardiac arrest it facilitates CPR via peripheral vasoconstriction

29. Heparin

a. Inhibits clotting by decreasing AT III effects
b. Oral bioavailability is 20-30%
c. Is low plasma protein bound
d. Molecular weight ranges from 3000 – 60 000
e. Binds to AT III causing a conformational change

30. Aspirin

a. is hydrolysed to acetone and salicylate
b. exhibits first order kinestics with elimination in low doses
c. is mostly conjugated by the liver and excreted in the bile
d. reversibly blocks the COX enzyme
e. causes an immediate doubling of bleeding time

31. Amiodarone

a. effects Na, K channels but not Ca channels
b. has antianginal effects
c. has a short half life
d. increases peripheral resistance
e. has little effect on the lung

32. GTN has its major effects on angina via

a. Reducing coronary vasospasm
b. Reducing RAAS effect
c. Reducing afterload and preload
d. Coronary vasodilation
e. Systemic vasoconstriction

33. Warfarin

a. Is 90% bioavailable
b. Inactivates Vit K
c. Can cause venous thrombosis
d. Loading should be initiated with 0.5mg/day
e. Effect is ameliorated by metronidazole via a bactericidal effect

34. Most β blockers

a. Have half lives 3-10 h
b. Have a small volume of distribution
c. Have poor oral bioavailability
d. Are highly lipid soluble and hence cross the BBB
e. Are rarely excreted unchanged

35. dobutamine
    a. has no arrhythmogenic effect
    b. decreases myocardial oxygen consumption
    c. is a non selective β agonist
    d. predominantly affects D_2 receptors in the CNS
    e. may be used in heart failure

36. Which of the following act on the vasomotor centre
    a. Prazosin
    b. Methyldopa
    c. Hydralazine
    d. Reserpine
    e. losartan

37. Propranolol
    a. Is a highly selective β blocker
    b. Is poorly lipid soluble
    c. Has sodium channel blocking action
    d. Has intrinsic sympathomimetic activity
    e. Has an oral bioavailability of > 50%

38. Effects of β blockers include
    a. Stimulation of aqueous humour production
    b. Inhibition of bronchial smooth muscle spasm
    c. Stimulation of lipolysis via sympathetics
    d. Stimulation of the release of renin
    e. Inhibition of glycogenolysis in the liver

39. Regarding phenytoin
    a. Oral bioavailability is variable
    b. Binds poorly with plasma proteins
    c. Metabolism is enhanced in presence of inducers of liver metabolism
    d. Elimination kinetics shift from first order to zero order at moderate to high dose
    e. Half life varies from 12-36 hours

40. Drugs with no significant effect on anticoagulant therapy include
    a. Amiodarone
    b. Disulfiram
    c. Fluconazole
    d. Benzodiazepines
    e. Metronidazole

41. ACE inhibitors
    a. Decrease levels of bradykinin
    b. Cause hyperkalaemia less often in patients with diabetes
    c. Are contraindicated in patients on NSAIDS
    d. Decrease glomerular efferent arteriolar resistance
    e. Lead to decreased PG synthesis

42. coronary artery dilation occurs with
    a. adenosine
    b. high K
    c. propranolol
    d. enalapril
    e. none of the above

43. which doesn't prolong the refractory period in normal cells
    a. Amiodarone
    b. lignocaine
    c. sotalol
    d. quinine
    e. procainamide

44. regarding adenosine
    a. its receptors are ion channels
    b. it increases AV nodal conduction
    c. it enhances K conductance
    d. it is the drug of choice in VF
    e. half life = 2 minutes

45. which is not true of diuretics
    a. loop diuretics can be used to treat hypercalcaemia
    b. frusemide is used in the prophylaxis of acute mountain sickness
    c. cirrhotic oedema responds to spironolactone
    d. they may enhance the efficacy of ACE inhibitors
    e. hydrochlorothiazide is useful in diabetes insipidus

46. Which is not the correct site of action
    a. Spironolactone = collecting duct
    b. Triamterene = ascending loop of Henle
    c. Thiazides = proximal part of distal tubule
    d. Frusemide = proximal tubule
    e. Acetazolamide = collecting tubule

47. heparin induced mild thrombocytopenia is caused by
    a. release of lipoprotein lipase
    b. aggregation
    c. thrombosis
    d. anitplatelet antibodies
    e. none of the above

48. Which is not true of warfarin?
    a. It has a half life of 6 hours
    b. It is reversed by FFP
    c. It is 99% protein bound
    d. It affects K synthesis
    e. It is 100% bioavailable

49. Which drugs increase the INR
    a. Benzodiazepines
    b. Barbiturates
    c. Rigampicin
    d. Cholestyramine
    e. Amiodarone

50. Regarding fibrinolytics
    a. All thrombolytics act to convert free plasminogen to plasmin
    b. Urokinase is a human product
    c. tPA and APSAC lack the streptococcal Ag
    d. reactions to tPA and anistreplase are preparation related
    e. tPA does not occur naturally

51. Regarding heparin
    a. Dose reduction is necessary in the elderly
    b. LMW fractions have more effect on thrombin than HMW
    c. It may cause alopecia
    d. It inhibits AT III
    e. Protamine is a competitive antagonist

52. which is false about propranolol
    a. lipid soluble
    b. local anaesthetic action
    c. half life 3-6 hours
    d. beta sympathetic selectivity
    e. 30% bioavailable

53. Which has class III antiarrhythmic properties?
    a. Adenosine
    b. Digoxin
    c. Amiodarone
    d. Lignocaine
    e. Phenytoin

54. captopril
    a. has 95% oral bioavailability
    b. absorption is enhanced if taken with food
    c. is 90% excreted unchanged in urine
    d. is acceptable to be given in the $2^{nd}/3^{rd}$ trimester pregnancy
    e. can cause hypokalaemia

55. atenolol
    a. is a β_2 selective antagonist
    b. has 90% oral bioavailability
    c. $t^{1/2}$= 12 h
    d. is mostly excreted unchanged in urine
    e. its cardiac effects cannot be reversed with atropine

56. dobutamine
    a. has its main action as a β_2 selective agonist
    b. decreases systemic and pulmonary resistance
    c. can be given orally
    d. increases left ventricular filling pressure
    e. decreases ventricular ectopics

57. verapamil
    a. is a dihydropyridine
    b. produces more vasodilation than other Ca channel blockers
    c. is not effective for use in SVT
    d. has diarrhea as an important side effect
    e. blocks voltage dependent L type Ca channels

58. verapamil
    a. is not hepatically metabolized
    b. can cause VF
    c. re-entrant SVT is not an indication
    d. is less antiarrhythmic than nifedipine
    e. is a class III antiarrhythmic

59. thrombolytic therapy is indicated in patients with chest pain who have
    a. ST depression
    b. ST elevation ot LBBB
    c. Non Q – MI
    d. Normal ECG
    e. None of the above

60. aspirin inhibits the following except
    a. COX
    b. Recurrent miscarriages
    c. PG synthesis
    d. Kallikrein synthesis
    e. Lipoxygenase

61. Ca channel blockers
    a. Cause smooth muscle contraction
    b. Have positive inotropic effect
    c. Reduce preload significantly
    d. Block transmitter gated Ca channels
    e. Include dihydropyridines

62. Adenosine is used for
    a. AF
    b. Atrial flutter
    c. VT
    d. Sinus bradycardia
    e. SVT

63. During warfarin therapy, INR tends to increase with
    a. Cholestyramine
    b. Vitamin K
    c. Metronidazole
    d. Rifampicin
    e. Phenobarbital

64. Regarding β blockers
    a. In clinical use, most are partial agonists
    b. Propranolol has minimal 1st pass metabolism
    c. β blockers antagonize the release of renin
    d. blockage of β_2 receptors decrease airway resistance
    e. metoprolol is a non selective β blocker

65. The half life of Amiodarone is
    a. 1-3 minutes
    b. 1-3 hours
    c. 4-11 days
    d. 10-103 days
    e. 4-6 months

66. regarding nitrates
    a. ISMN has a bioavailability of 100%
    b. GTN causes platelet aggregation
    c. GTN has its primary effect on arterial smooth muscle
    d. Methaemoglobinaemia occurs in adults with large doses of nitrates, causing significant clinical effects
    e. Nitrates cause bradycardia due to the direct cardiac effects on cGMP levels in myocytes

67. captopril
    a. is an inactive pro drug
    b. is useful in SVT
    c. has a half life of ~ 12 h
    d. may precipitate ARF in renovascular hypertension
    e. increases plasma aldosterone levels

68. ACE inhibitors
    a. Captopril requires activation in the liver
    b. Reduce afterload and increase CO with no change to the heart rate
    c. Most are excreted unchanged
    d. May lower K
    e. Increase gut motility

69. Clonidine
    a. Has maximal affinity for α1 receptors
    b. Is safely used in depression
    c. Has low lipid solubility
    d. Maintains cardiovascular reflexes
    e. Produces reflex tachycardia

70. Adverse effects of ACE inhibitors include all except
    a. Low K
    b. Angio-oedema
    c. ARF
    d. Drug fever
    e. Respiratory symptoms

71. SNIP
    a. Although usually given IV has powerful action in PO form
    b. Incorporates iron in its chemical structure
    c. Relaxes cardiac muscle
    d. Has few toxic effects and so is safe in OD
    e. Has no effect on the thyroid

72. Verapamil
    a. Does not affect delayed after-potentials seen in digoxin toxicity
    b. Preferentially blocks depolarized Ca channels
    c. Has marked affect on the SA node
    d. Toxicity causes AV node block refractory to atropine
    e. Is not associated with the development of peripheral oedema

73. Nitrates
    a. Increase collateral blood flow
    b. Demonstrate tolerance
    c. Demonstrate physical dependence

74. Frusemide
    a. Causes dose related ototoxicity that is irreversible
    b. Reduces Na and H_2O delivery to the distal nephron
    c. Increases renal H secretion in collecting tubule
    d. Causes low K metabolic acidosis in OD
    e. Has no effect on body Mg stores in chronic use

75. The following are toxic effects of methyldopa except
    a. + Coombs test
    b. hepatitis
    c. decreased glucose tolerance
    d. lactation
    e. sedation

76. regarding captopril, which is incorrect
    a. inhibits peptidyl dipeptase
    b. bioavailability is 70% if taken with food
    c. inhibits kininase II, hence stimulating kallikrein-kinen system
    d. less than 50% excreted in the urine
    e. metabolized to disulfide conjugates with sulfhydryl groups

77. Ca channel blockers affect all the following systems except
    a. Skeletal muscle
    b. Smooth muscle
    c. Brain
    d. Pancreas
    e. Cardiac muscle

78. Regarding hydralazine
    a. It dilates veins more than arterioles
    b. It is not orally active
    c. It does not undergo first-pass metabolism
    d. It may cause compensatory tachycardia and sodium/water retention
    e. It may cause hypertrichosis

79. which vasodilator is not administered orally
    a. amlodipine
    b. minoxidil
    c. hydralazine
    d. nimodipine
    e. diazoxide

80. Regarding SNIP which is false
    a. Cyanide is liberated in vascular smooth muscle cells
    b. Decreases afterload in cardiac failure
    c. Activates guanylyl cyclase
    d. It is light sensitive in aqueous solution
    e. Its effects disappear within 10 minutes of discontinutation

81. regarding clonidine, which is false
    a. rebound hypertension may occur with 1 or 2 missed doses
    b. useful in treatment of tobacco and opioid withdrawal
    c. naloxone can be used in the management of an OD
    d. is a selective α2 agonist in the medulla
    e. allows medullary vasomotor centres to respond to Baroreceptor input

82. Which of the following does not increase the likelihood of bleeding in a patient taking Warfarin
    a. Aspirin
    b. Indomethacin
    c. 3rd generation cephalosporins
    d. cimetidine
    e. metronidazole

83. The volume of distribution for aspirin at normal doses in a 50kg female averages
    a. 1L
    b. 2.5L
    c. 5.5L
    d. 8.5L
    e. 25L

84. An example of an ADH antagonist is
    a. ETOH
    b. Amiloride
    c. Lithium
    d. Aldosterone
    e. Triamterene

85. carbonic anhydrase inhibitors
    a. were developed from early antibiotics
    b. are closely related to thiazide diuretics
    c. cause metabolic acidosis
    d. decrease the pH of the CSF
    e. all of the above

86. the Ca channel blocker with the most rapid onset of action when given orally is
    a. diltiazem
    b. nifedipine
    c. verapamil
    d. felodipine
    e. nicardipine

87. SNIP
    a. Increases cGMP by release of NO
    b. Decreases vascular resistance but increases BP
    c. Is a complex of calcium and cyanide groups
    d. Is predominantly an arteriodilator
    e. Has its onset in 10-15 minutes

88. the most lipid soluble β blocker is
    a. propranolol
    b. metoprolol
    c. atenolol
    d. pindolol
    e. sotalol

89. All of the following may increase the effect of digoxin except
    a. Amiodarone
    b. Frusemide
    c. Carbamazepine
    d. Verapmil
    e. Quinidine

90. streptokinase
    a. is a complex LPS
    b. is synthesised in the human kidney
    c. binds to the proactivator plasminogen
    d. activates plasminogen that is bound to fibrin
    e. is more dangerous than t-PA in over 75yos

91. vitamin B12
    a. produces anaphylactoid reactions in bolus IV dosing
    b. is a treatment for cyanide poisoning
    c. is typically given in a dose of 500-1000mg
    d. deficiency is caused by renal dialysis
    e. is absorbed in the stomach by parietal cells

92. All of the following are known to potentiate oral anticoagulants except
    a. Cimetidine
    b. Ceftriaxone
    c. Reifampicin
    d. Metronidazole
    e. Trimethoprim/sulfamethoxazole

93. By limiting liver blood flow, cardiac disease may inhibit the metabolism of all of the following except
    a. Verapamil
    b. Labetalol
    c. Propoxyphene
    d. Lignocaine
    e. Trimethoprim

94. Losartan differs from enalapril in
    a. Its selective action on angiotensin type one receptors
    b. Its enhanced effect on bradykinin metabolism
    c. Its prolonged half life
    d. Its higher incidence of drug related angio-oedema
    e. Its increased risk of cough

95. all of the following antihypertensives act directly on vascular smooth muscle except
    a. felodipine
    b. prazosin
    c. nitroprusside
    d. indapamide
    e. hydralazine

96. The toxic effect of organic nitrates include
    a. Bradycardia
    b. Cyanide poisoning
    c. Methaemoglobinaemia
    d. Precipitating glaucoma
    e. Bronchospasm

97. Calculate the half life of digoxin in a patient with the renal clearance of 8.4L/h and Vd 5L/kg in a 70 kg man
    a. 8 h
    b. 14 h
    c. 29 h
    d. 36 h
    e. 44 h

98. Heparin (2 CORRECT)
    a. Dose reduction is necessary in the elderly
    b. LMW fractions have more effect on thrombin the HMWH
    c. It may cause alopecia
    d. It inhibits AT III
    e. Inhibits the action of protein C
    f. Decreases the rate of conversion of VII to VIIa
    g. Decreases the rate of fibrinogen to fibrin
    h. Slows the rate of Prothrombin to thrombin
    i. Protamine is a competitive antagonist

99. Regarding fibrinolytics
    a. TIMI trial showed increased incidence of GI bleed as the major side effect of administration
    b. Aminocaproic acid inhibits fibrinolysis

100. Warfarin
    a. Is completely broken down in the duodenum
    b. Decreases levels of thromboplastins

101. ticlopidine
    a. inhibits ADP induced platelet aggregation

102. diazoxide, which is false
    a. is used to treat severe hypertension
    b. acts by direct smooth muscle relaxation
    c. causes salt and water retention
    d. diuretic action
    e. is a thiazide derivative

103. hydralazine
    a. causes an abrupt but transient fall in BP
    b. displays a biphasic BP response

ANSWERS

1. C
2. D
3. E
4. A
5. B + H
6. C
7. C
8. E
9. B
10. D
11. A
12. E
13. D
14. A
15. B
16. ?
17. C
18. B
19. B
20. E
21. C
22. C
23. D
24. B
25. C
26. E
27. B
28. C
29. E
30. B
31. B
32. C
33. C
34. A
35. E
36. B
37. C
38. E
39. B
40. D
41. D
42. A
43. B
44. C
45. B
46. C?
47. B
48. A
49. E
50. B
51. C
52. D
53. A
54. A
55. D
56. B
57. E
58. B
59. B
60. E
61. E
62. E
63. C
64. C
65. D
66. A
67. D
68. B
69. D
70. A
71. B
72. B
73. C
74. C
75. C
76. B
77. A
78. D
79. B
80. A
81. C
82. B
83. D
84. C
85. E
86. B
87. A
88. A
89. C
90. C
91. B
92. C
93. E
94. A
95. B
96. C
97. C
98. C + ?
99. B
100.–
101.–
102.D
103.A