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Preface

*MRCP Cardiology MCQs* is written as a study aid specifically for candidates studying for Membership examinations of the Royal Colleges. It contains 150 multiple choice questions (MCQs), each with various numbers of stem answers. Cardiology is a large and critical branch of internal medicine and covers such a vast amount of knowledge that I believe it warrants a book to itself, although an equal depth of knowledge is required in other areas in order to pass.

The questions are designed to cover a wide range of both cardiology and cardiovascular pharmacology and encompass both basic anatomy and physiology of the heart, through to advanced topics such as evidence-based medicine. The questions are supplemented at the back of the book with explanatory answers to aid further revision and study.

Good luck with the exams!

Stephen Brennan

*June 2009*
About the author

Stephen Brennan initially graduated in Pharmacology and then studied Medicine at the University of Aberdeen. After training in cardiothoracic surgery, he is currently a Specialist Registrar in General Surgery with a particular interest in colorectal surgery and the general surgery of childhood. In addition, he is involved with both undergraduate and postgraduate surgical training and is a tutor for the Royal College of Surgeons of Edinburgh and MRCS revision courses. He is an instructor in Advanced Trauma Life Support (ATLS) and has completed a postgraduate qualification in medical education.
Acknowledgement

The author would like to greatly acknowledge and thank consultant cardiologist Dr Kevin Jennings for his help in proofreading the original manuscript.
Dedicated to Derv and Joe
SECTION 1

Cardiovascular pharmacology
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**Cardiac glycosides**

**Q1** Digoxin:
- a. Shortens the PR interval
- b. Should be stopped prior to elective DC cardioversion
- c. May cause atrial fibrillation
- d. May cause false-positive results on exercise testing
- e. Can only be administered orally

**Q2** Digoxin toxicity:
- a. May cause ventricular fibrillation
- b. May cause ventricular tachycardia
- c. May cause atrial fibrillation
- d. May be precipitated by hypokalaemia
- e. May be precipitated by hypercalcaemia

**Q3** Digoxin:
- a. Acts by inhibiting the enzyme H/K-ATPase
- b. Has a positive chronotropic effect
- c. Has a negative inotropic effect
- d. In high doses, increases the sympathetic outflow from the central nervous system
- e. Peak serum concentrations occur in 20–30 minutes
Q4 Digoxin:
   a. Reduces mortality in cardiac failure
   b. May be used as a second-line agent in WPW syndrome
   c. Withdrawal of digoxin from patients with chronic heart failure may be associated with cardiac decompensation
   d. Toxicity treated with Digibind may result in hyperkalaemia
   e. Toxicity does not occur if the plasma concentration levels are in the correct therapeutic range

Q5 Digoxin toxicity may be precipitated by:
   a. A creatinine level of 180 mmol/L
   b. A potassium level of 6.2 mmol/L
   c. Co-administration of verapamil
   d. Co-administration of warfarin
   e. Acute lobar pneumonia

Q6 Which of the following occur following regular digoxin medication?
   a. Increased force and rate of contraction
   b. Decreased heart rate
   c. Increased automaticity
   d. a and b
   e. All of the above
Q7 Digoxin causes which of the following ECG changes?
   a  T-wave flattening
   b  Prolonged PR interval
   c  Shortened QT interval
   d  Tenting of the T-wave

Q8 Digoxin causes which of the following physiological effects?
   a  Decreasing aldosterone levels
   b  Direct renal vasodilation
   c  Inhibiting ADH levels
   d  Increasing cardiac output
Diuretics

Q9  Frusemide:
    a  Is a short-acting thiazide diuretic
    b  Typically causes hypercalcaemia
    c  May precipitate digoxin toxicity
    d  Acts on the descending limb of the Loop of Henle
    e  May cause glucose intolerance

Q10  Thiazide diuretics cause the following electrolyte disturbances:
    a  Hypoglycaemia
    b  Hyponatraemia
    c  Hypokalaemia
    d  Hypocalcaemia
    e  Hypouricaemia

Q11  The cardiotoxic effects of digoxin are enhanced in the presence of:
    a  Hyperkalaemia
    b  Hypercalcaemia
    c  Alkalosis
    d  Hypokalaemia
    e  Hyperchloraemia
Q12 Metolazone:
  a. Is only active by the IV route
  b. Is an orally active loop diuretic
  c. Acts synergistically with frusemide
  d. Is contraindicated in renal failure
  e. Is licenced for acute pulmonary oedema

Q13 Bendrofluazide:
  a. Is initially started at 5 mg daily in the management of hypertension
  b. Is a long-acting loop diuretic
  c. Tends to cause hyponatraemia, hypocalcaemia, and hyperuricaemia
  d. Male impotence is a rare side effect
  e. May be given as an IV bolus in acute pulmonary oedema

Q14 Spironolactone:
  a. Is a long-acting thiazide diuretic
  b. May cause hyperkalaemia
  c. Is a first-line agent for essential hypertension
  d. Is used in the treatment of Conn’s syndrome
  e. Has no role in the management of ascites secondary to alcoholic cirrhosis
Beta-adrenoceptor blocking drugs

Q15  Propranolol is contraindicated in the presence of:
    a  Complete heart block
    b  Peripheral vascular disease
    c  Diabetes mellitus
    d  Atrial fibrillation
    e  Asthma

Q16  Cardioselective beta-blockers are contraindicated in:
    a  Asthma
    b  Diabetes mellitus
    c  Male erectile impotence
    d  Peripheral vascular disease
    e  Migraines

Q17  The rationale for giving atenolol with nicardipine in treating hypertension is to:
    a  Cause peripheral vasoconstriction
    b  Decrease renin release
    c  Prevent reflex tachycardia
    d  Decrease mortality
    e  Decrease side-effect profile
Q18 The following beta-blockers are associated with a proven significant mortality reduction post-MI:

a  Atenolol
b  Propranolol
c  Timolol
d  Carvedilol
e  Metoprolol

Q19 Propranolol:

a  Crosses the blood–brain barrier more readily than atenolol
b  Is long acting and may be given once daily for the treatment of hypertension
c  May cause hypothyroidism
d  Is a first-line agent in the treatment of benign familial tremor
e  Is a recognised cause of psoriasis

Q20 Beta-blockers post-MI showed the following results:

a  The MIAMI trial showed significant mortality reduction with metoprolol post-MI
b  The Gotenburg metoprolol trial showed that metoprolol conferred a significantly lower rate of ventricular fibrillation arrest post-MI
c  The GREAT trial demonstrated a significant mortality reduction using oral timolol post non-q wave MI
d  ISIS-1 demonstrated benefits with early use of atenolol post-MI
e  Beta-blockers must be avoided in post-MI patients where the ejection fraction is less than 40%
Q21 Carvedilol:

a Is a non-selective beta- and alpha-adrenoceptor antagonist
b Has no intrinsic sympathomimetic activity
c Exerts calcium-channel blocking activity at high dosages
d Is highly protein bound
e Has no antioxidant properties
**Calcium-channel antagonists**

**Q22** Verapamil:
- a. Commonly causes diarrhoea as a side effect
- b. Has weak negative inotropic properties
- c. Increases the renal excretion of digoxin by up to 100%
- d. Is an effective treatment of WPW syndrome
- e. Is an effective treatment for SVT

**Q23** Common side effects of calcium-channel blockers include:
- a. Flushing
- b. Anaphylaxis
- c. Oedema
- d. Diarrhoea
- e. Headache

**Q24** Diltiazem:
- a. Has a greater negative inotropic effect than verapamil
- b. Is a class III antidysrhythmic agent
- c. Has a greater negative inotropic effect than nifedipine
- d. Reduces mortality post non-Q wave MI
- e. May be given by slow IV injection for the rapid cardioversion of SVT
Q25 Amlodipine:
   a  Is the longest-acting calcium-channel blocker in UK clinical practice
   b  Has a half-life of 24 hours
   c  Has a starting dose for hypertension of 100 mg daily (50 mg daily in renal impairment)
   d  Is contraindicated in dilated cardiomyopathy
   e  Is safe for patients with severe CCF

Q26 The following statements about verapamil are correct:
   a  It is not effective when administered IV
   b  It causes decreased AV-nodal conduction
   c  It is contraindicated in asthma
   d  It may cause bradycardia
   e  It is primarily metabolised by the kidneys

Q27 Nicorandil:
   a  Is a potassium-channel activator that contains a nitrate as part of its molecular structure
   b  Causes headache as its most common side effect
   c  Has a half-life of 24 hours
   d  Reduces all-cause mortality post-PTCA
   e  May cause hypothroidism
Q28 A 55-year-old man is on multiple drug therapy. Which of the following is most likely to induce microsomal enzymes?

a  Allopurinol
b  Cimetidine
c  Clarithromycin
d  Ketoconazole
e  Phenytoin
ACE inhibitors

Q29  ACE inhibitors have clinically significant interactions with:
   a  Diclofenac
   b  Digoxin
   c  Lithium
   d  Erythromycin
   e  Carbimazole

Q30  ACE inhibitors:
   a  Cause cough in about 10% of patients
   b  Cause hypokalaemia in about 1% of patients
   c  Are safe for patients with asthma
   d  Cause diarrhoea as the most common side effect
   e  Cause headache as the most common side effect

Q31  The TRACE study:
   a  Used lisinopril as its ACE inhibitor
   b  Had confirmed MI in all patients
   c  Had echo confirmed decreased ejection fraction in all patients
   d  Examined low-risk post-MI patients
   e  Included patients with a mean age of 55 years
Q32 The SMILE study:
   a Compared zofenopril with placebo in patients with acute anterior MI
   b Used MI patients who were not suitable for thrombolysis
   c Excluded patients presenting greater than 6 hours after onset of symptoms
   d Showed that zofenopril reduced 24-hour mortality by 83% post acute MI
   e Showed that the incidence of cough was 12% in the zofenopril group

Q33 What effects does quinapril have on serum renin and angiotensin II, respectively?
   a Decrease; decrease
   b Increase; increase
   c Increase; decrease
   d Decrease; increase
   e Decrease; no change

Q34 Regarding the HOPE trial:
   a All patients had MI or stroke within the previous 4 weeks
   b This study also tested the effect of vitamin E supplementation
   c Overall mortality was reduced by about 20%
   d Incidence of CHF was lower in the ramipril group
   e Complications of diabetes, including nephropathy, retinopathy requiring laser, and dialysis, were all lower in the ramipril group
Statins

Q35 Simvastatin:

a. Is derived synthetically from the fermentation product of *Aspergillus terreus*

b. Is a specific inhibitor of HMG-CoA reductase, the enzyme that catalyzes the conversion of HMG-CoA to melandronic acid

c. Has a cholesterol-lowering effect usually seen within 2 weeks, with maximum therapeutic response occurring within 6 months

d. Should be continued during pregnancy in a patient with primary hypercholesterolaemia

e. May cause fatal rhabdomyolysis in about 1 in 10000 patients

Q36 Atorvastatin:

a. Produced greater reductions in total cholesterol than fluvastatin, pravastatin, or simvastatin in large, comparative trials

b. Results in about 90% of the maximum observed reductions in LDL being attained within the first 2 weeks of therapy

c. Is >98% bound to plasma proteins and is extensively metabolised by cytochrome P450 3A4 to active metabolites

d. Is available as white, film-coated 10, 20 and 40mg tablets

Q37 The CARE study:

a. Was a randomised, double-blind, placebo-controlled primary prevention trial of lowering normal plasma cholesterol levels following MI

b. Used atorvastatin as its active agent
c Showed that the frequency of fatal coronary events was reduced by 50% in the active drug-treated group

d Showed that the frequency of CABG was reduced by 26%

e Showed that the frequency of PTCA was reduced by 23%

Q38 The 4S Trial:

a Is a primary prevention study involving 4444 patients

b Evaluated pravastatin versus placebo post-MI

c Examined patients with cholesterol levels of 5.5–8.0 mmol/L

d Showed a 37% reduction in the need to undergo re-vascularisation procedures

e Showed that 1% of patients developed rhabdomyolysis

Q39 The LIPID study:

a Compared pravastatin 40 mg vs placebo

b Demonstrated a 12% decrease in hospitalization for unstable angina

c Examined patients post-MI with high cholesterol levels (>7 mmol/L)

d Had no effect on overall all-cause mortality

e Showed that all patients had confirmed MI by WHO criteria
Thrombolytics

Q40 A 75-year-old man with COPD is admitted to A&E Resus with VT complicated by runs of SVT. The drug of choice would be:

a Adenosine
b Amiodarone
c Esmolol
d Quinidine
e Adrenaline

Q41 The following are contraindications to thrombolysis:

a Recent CVA (in the last 6 months)
b Recent upper GI bleed
c Prolonged CPR
d Diabetic retinopathy
e Ulcerative colitis

Q42 Accelerated rTPA should be used as a first-line agent if:

a The previous MI thrombolysed with streptokinase 6 months ago
b There was recent streptococcal infection
c There was a large inferior infarction presenting within 4 hours
d Hypotension (SBP <100 mgHg) is present
e There is a likely need for temporary pacing

Q43 Complications of streptokinase include:

a Henoch–Schönlein purpura
b Bronchospasm
c Systemic embolism
d VF arrest
e Pulseless electrical activity

Q44 The GREAT trial:
  a Was a randomised, double-blind trial using streptokinase for acute MI
  b Showed that the benefit of thrombolytic therapy was most marked when treatment was administered within 2 hours of the onset of symptoms
  c Showed that, 1 year after trial entry, 10.4% of patients given anistreplase at home died compared with 21.6% of those given anistreplase in hospital
  d Showed that all patients thrombolysed also received heparin 5000 iu IV stat
  e Showed that patients receiving a thrombolytic at home received a placebo in hospital

Q45 Heparin-induced thrombocytopenia (HIT):
  a May result in life-threatening thrombosis
  b Usually occurs after long-term (>3 months) subcutaneous heparin therapy
  c May be less likely to occur with low-molecular weight heparin than unfractionated heparin
  d May be preceded by thrombosis
  e Can be caused by an IgM antibody (immune-mediated HIT)
Anti-platelet agents

Q46 Aspirin:
   a. Is an irreversible cyclo-oxygenase inhibitor
   b. Should not be administered simultaneously with warfarin
   c. Is a reversible phosphodiesterase inhibitor
   d. Has little or no anti-platelet effect below 75 mg per day
   e. Is given as 300 mg stat for its rapid sublingual analgesic action post-MI

Q47 Tirofiban (Aggrastat):
   a. Should not be used in patients with a history of stroke or those who have had a major surgical procedure within the past 30 days
   b. Is superior to abciximab for patients undergoing PTCA
   c. Causes more bleeding complications than abciximab
   d. Is the drug of choice for primary PTCA when used for acute MI
   e. Reduced all-cause mortality compared to heparin alone for PTCA in the TARGET study

Q48 Eptifibatide:
   a. Is a cyclic heptapeptide GP IIb/IIIa inhibitor
   b. Resulted in a 31% reduction in the combined end point of nonfatal MI or death at 30 days in patients undergoing PTCA
   c. Treatment, when discontinued, causes no further effects either beneficial or detrimental
d Causes more non-fatal blood dyscrasias than either heparin or tirofiban

e Is a chimeric Fab fragment of a monoclonal antibody to the GP IIb/IIIa receptor
Inotropes

Q49 Dopamine:
   a. At 10 mcg/kg/min, is maximum dose
   b. Has no effect on alpha receptors
   c. Must be given into a large peripheral line
   d. May be safely used in patients concurrently on MAOIs
   e. Has a more potent positive chronotropic effect than noradrenaline

Q50 Isoprenaline:
   a. Causes tachycardia
   b. Causes hyperglycaemia
   c. Is useful for the treatment of bradycardia that is not responsive to atropine
   d. Is a B-adrenergic receptor agonist that has a positive inotropic effect, decreases peripheral vascular resistance, and causes pulmonary vasodilation
   e. Is incompatible with aminophylline, and sodium bicarbonate

Q51 Atropine:
   a. Is a naturally occurring alkaloid of ‘atropa belladonna’
   b. Is a competitive antagonist of muscarinic cholinergic receptors
   c. Is generally effective in adults at a dose level of 250–500 mcg when used to treat bradycardias
   d. May result in paradoxical bradycardia at slow IV administration levels and is not recommended
   e. May cause flushed dry skin, tachycardia, respiratory depression, blurred vision, constricted pupils, and dry mouth
Q52 Methoxamine:
   a. Acts on α1 receptors
   b. May cause a reflex decrease in heart rate, and therefore it is good for hypotension with tachycardia
   c. Is metabolised by monoamine oxidase
   d. Is metabolised by cathol-O-methyl transferase
   e. Is useful in the management of paroxysmal atrial tachycardia

Q53 Regarding dopamine:
   a. Sodium bicarbonate inactivates dopamine
   b. MAOIs potentiate the dopamine effect
   c. Bretylium effects may be synergistic with dopamine
   d. Dopamine decreases pulmonary artery wedge pressure
   e. At high doses (10–20 mcg/kg/hr), dopamine causes vasoconstriction of renal and splanchnic beds

Q54 Adenosine:
   a. Has a half-life of 30 minutes
   b. Should be avoided in patients with asthma
   c. Is active orally
   d. Must be given by slow IV infusion through a large peripheral vein
   e. Is chemically similar to adrenaline
Q55  Noradrenaline:
   a  Is a pure alpha receptor stimulant
   b  Is a potent bronchodilator
   c  Increases myocardial oxygen consumption
   d  Increases skeletal muscle blood flow
   e  Increases pulmonary capillary wedge pressure

Q56  Lignocaine:
   a  Acts by inhibiting fast sodium channels
   b  Prolongs the cardiac action potential
   c  Acts more effectively if hypokalaemia is avoided
   d  Has a greater negative inotropic effect than disopyramide
   e  Acts preferentially on ischaemic myocardium
**Anti-dysrhythmic drugs**

**Q57** Signs of quinidine toxicity are:

- a. Ventricular fibrillation
- b. Ventricular tachycardia
- c. Hypotension
- d. Blurred vision
- e. Atrial fibrillation

**Q58** Bretylium:

- a. Is a second-line agent for VT arrest resistant to IV lignocaine
- b. Is available orally for the long-term management of AF
- c. Has a half-life of 10 minutes
- d. Has a suitable dose of 300 mg IV bolus for a standard 70 kg adult
- e. Has hypotension as its most common side effect

**Q59** Quinidine is usually contraindicated in:

- a. Ventricular fibrillation
- b. Thrombocytopenia
- c. Concurrent digoxin therapy
Q60 Quinidine:
   a Is a dextrostereoisomer of quinine
   b Is a vinca alkaloid
   c Has muscarinic antagonist properties
   d Is only effective IV
   e Causes a prolonged cardiac refractory period

Q61 Flecainide:
   a Is a fluorinated derivative of procainamide
   b Can reduce mortality if used post-MI to treat pre-mature ventricular ectopic beats
   c Is a class Ib antidysrhythmic agent
   d Terminates AF in up to 50% of patients with WPW syndrome and reduces the ventricular rate in the remainder
   e Is very effective in the treatment of atrial flutter

Q62 Tinnitus is a common side effect of:
   a Digoxin
   b Amiodarone
   c Atenolol
   d Aspirin
   e Quinidine

Q63 Lignocaine is effective in the treatment of:
   a Paroxysmal atrial tachycardia
   b Ventricular tachycardia
   c Premature ventricular beats
d  Torsades de pointes  
e  Atrial flutter

**Q64**  Disopramide:  
- a  Is a myocardial depressant  
- b  Has anticholinergic side effects  
- c  Toxicity may cause QT-segment prolongation  
- d  Toxicity may occur in the presence of hypokalaemia  
- e  May cause increased bronchial secretions

**Q65**  Amiodarone has which of the following properties?  
- a  It increases the INR of patients on warfarin  
- b  It enhances the effect of digoxin  
- c  It is composed of iodine  
- d  It causes prolongation of the plateau phase of the cardiac action potential  
- e  It may cause pulmonary fibrosis

**Q66**  GTN:  
- a  Causes less headache than amyl-nitrate  
- b  Typically causes tolerance after about 6 weeks  
- c  Is synonymous with nitroglycerine  
- d  May cause methaemoglobinemia  
- e  Is a direct-acting vasodilator
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SECTION 2

Cardiology
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Acute myocardial infarction

Q67  Acute myocardial infarction:
   a  Has a 50% pre-hospital admission mortality
   b  Has an in-hospital mortality of 1–5%
   c  May be completely asymptomatic
   d  May present as an occipital headache
   e  May present as a toothache

Q68  Conditions that may mimic symptoms of an MI are:
   a  Ruptured oesophagus
   b  Perforated duodenal ulcer
   c  Gastro-oesophageal reflux disorder
   d  Pulmonary embolism
   e  Panic attack

Q69  In the management of acute MI:
   a  Compared to placebo, aspirin decreases mortality by 50%
   b  Early resolution of ST-segment deviation is a greater predictor of mortality than maximum ST elevation at 90 minutes after thrombolysis
   c  ST elevation in II, III, AVF has poorer prognosis than anterior infarcts
   d  Heart block is more common with anterior wall infarction
   e  Presence of ventricular ectopics has no effect on overall prognosis
Q70 Primary PTCA angioplasty in acute MI is preferred if the delay to thrombolysis is less than:

a 30 minutes
b 60 minutes
c 90 minutes
d 120 minutes
e 180 minutes

Q71 In the ISIS-4 trial:

a Oral captopril was started 48 hours after thrombolysis
b Early use of intravenous nitrates showed benefit in patients who presented within 4 hours of the onset of chest pain
c Intravenous magnesium was ineffective
d Captopril started early in acute MI saved about 5 lives per 1000 treated for 1 month
e Was a large study involving 5800 patients demonstrating no benefit from using oral mononitrate

Q72 Hibernating myocardium:

a Is synonymous with myocardial stunning
b Is reversible
c Is rare, occurring in about 1–2% patients with symptomatic ischaemic heart disease
d Is rare after MI
e May be diagnosed using echocardiography
Q73  ST-segment elevation typically occurs in the following conditions:
   a  Acute pericarditis
   b  Left ventricular hypertrophy
   c  Digoxin toxicity
   d  Non-Q wave MI
   e  Right ventricular hypertrophy

Q74  An acute MI:
   a  Can cause chest pain not relieved by GTN
   b  May be without chest pain in diabetics
   c  Should prompt administration of IM morphine
   d  May be diagnosed from the history alone
   e  Typically shows on the ECG in the form of Q-waves
Hypertension

Q75 Hypertension:
   a. In 95% of cases, no cause can be found
   b. Caucasians have a lower BP than a black population living in the same environment
   c. Is always asymptomatic
   d. Affects 5% of the population
   e. May indicate possible Conn’s syndrome when associated with hyperkalaemia

Q76 Which of the following would be first-line agents for the management of moderate hypertension?
   a. Nifedipine
   b. Minoxidil
   c. Clonidine
   d. Methyldopa
   e. Bendrofluazide

Q77 Untreated hypertension may result in:
   a. Ruptured aortic aneurysms
   b. Renal artery stenosis
   c. Conn’s syndrome
   d. Aortic dissection

Q78 Recognised causes of hypertension include:
   a. Excess salt ingestion
   b. Oral contraceptive pill
c Alcohol
d Liquorice ingestion
e Smoking

Q79 Regarding hypertension:
a Systolic blood pressure increases throughout life
b Diastolic blood pressure increases to age 50 years, then stabilises
c Newly emergent hypertension after age 65 years is usually isolated systolic hypertension
d There is no mortality reduction to be gained from treating isolated systolic hypertension in the elderly
e There is no mortality benefit to be gained from treating hypertension in patients over 80 years old

Q80 A 60-year-old female with type II diabetes is being treated for hypertension and the prevention of proteinuria associated with diabetic nephropathy. The likely drug is:
a Bendrofluazide
b Ramipril
c Metyldopa
d Atenolol
e Valsartan
Q81 In acromegaly:
   a Diabetes mellitus occurs in about 50% of cases
   b Hypertension occurs in about 30% of cases
   c There is decreased sensitivity to angiotensin II
   d Hypertrophic cardiomyopathy independent of hypertension develops
   e LVH is present in more than half of cases

Q82 Which of the following antihypertensive agents is ideal for the management of a 60-year-old male type II diabetic who has a history of asthma, gout, and hypercholesterolaemia?
   a Atenolol
   b Bendrofluazide
   c Carvedilol
   d Ramipril
   e Verapamil

Q83 A 60-year-old Nigerian is being treated with a drug for essential hypertension. His GP checks routine biochemistry, which shows low serum potassium and high levels of calcium, uric acid, and glucose. The likely agent is:
   a Methyldopa
   b Bumetanide
   c Frusemide
   d Spironolactone
   e Enalapril
Q84 A 60-year-old female has recently been started on an antihypertensive. A few weeks later, she develops joint pains in her arms and legs. Which of the following is the likely cause?

a Ramipril
b Bendrofluazide
c Clonidine
d Nicardipine
e Methyldopa
**Atrial fibrillation**

**Q85** Regarding atrial fibrillation (AF):

a. AF usually complicates acute MI in about 1% of cases

b. Hypertension accounted for about half of the cases of AF in the Framingham study

c. Is typically asymptomatic

d. Resolution to sinus rhythm is less likely if due to thyrotoxicosis rather than to ischaemic heart disease

e. AF is present in 0.4% of adults

**Q86** Recognised causes of AF include:

a. Thyrotoxicosis

b. Rheumatic heart disease

c. Alcohol

d. WPW syndrome

e. Atrial myxoma

**Q87** Amiodarone:

a. May cause hypothyroidism

b. May cause hyperthyroidism

c. Contains iodine as part of its molecular structure

d. Is strongly negatively inotropic

e. Is a class III antidysrhythmic agent

**Q88** Recognised side effects of amiodarone are:

a. Pulmonary embolism

b. Pulmonary fibrosis
c Pulmonary atelectasis
d Corneal micro-deposits
e Red man syndrome

Q89 Concerning stroke prevention:

a Aspirin is a cyclo-oxygenase inhibitor, and dipyridamole is a cyclic nucleotide phosphodiesterase inhibitor; when combined, the two agents seem to offer a greater pharmacologic advantage than does either taken alone

b Aspirin with dipyridamole cut patients’ risk of stroke and death by one-third, compared with patients taking aspirin plus placebo

c For TIA patients with atrial fibrillation, a target INR of 3.5 is recommended

d Good surgical candidates for carotid endarterectomy have stenosis of 70–99%
e Carotid endarterectomy is suitable for acute management of TIA with 50% stenosis of the ipsilateral common carotid artery
**Dysrhythmias**

**Q90** WPW syndrome:
- a. The Kent accessory pathway was first discovered in 1893
- b. Occurs in about 1% of the population
- c. Type A has the accessory pathway on the left side of the heart
- d. Type B has a positive delta wave in lead I
- e. May mimic LBBB on the ECG

**Q91** First-degree AV block:
- a. The AV nodal artery is usually a branch of the right coronary artery
- b. Is more common after inferior than anterior MI
- c. Is always pathological
- d. Always requires temporary pacing post-MI
- e. Will usually progress to higher degrees of heart block

**Q92** The following drugs will prolong the QT interval:
- a. Lithium
- b. Terfenadine
- c. Quinine
- d. Quinidine
- e. Amiodarone

**Q93** Ventricular fibrillation:
- a. Should be treated with an unsynchronised electric shock with an initial energy of 200J; if unsuccessful, a second shock of 200J, and, if necessary, a third shock of 360J
b Should be treated with intra-cardiac calcium injection if DC cardioversion fails after two attempts

c IV amiodarone may be given as 300 mg bolus

d 1 mg IV epinephrine is the drug of choice

e IV atropine sulphate has no role

Q94 Carotid sinus syndrome:

a Is investigated by carotid sinus massage for 5 minutes on each side

b Is common in young adults

c Causes bradycardia as the responsible mechanism for syncope

d Permanent pacemaker insertion is the treatment of choice

Q95 Ventricular tachycardia:

a Non-sustained VT lasts less than 30 seconds, whereas sustained VT lasts more than 30 seconds

b The vast majority of post-MI VT and VF occur within the first 48 hours of MI

c May be treated with amiodarone 150 mg infused over 10 minutes

d Immediate cardioversion is generally not needed for rates under 150 bpm

e IV beta-blockers have no role
Q96 A 24-year-old student has an ECG with a PR interval of 0.7 s and a QT interval of 0.6 s. Which of the following could be responsible?

a. Clopidogrel  
b. Augmentin  
c. Erythromycin  
d. Sotalol  
e. Digoxin

Q97 A prominent R wave in V1 may occur with which of the following?

a. Wolf–Parkinson–White syndrome type A  
b. RBBB  
c. Posterior infarction  
d. Dextrocardia  
e. Wolf–Parkinson–White syndrome type B

Q98 The most common type of dysrhythmia associated with WPW syndrome is:

a. Atrial fibrillation  
b. Ventricular fibrillation  
c. Multifocal PVCs  
d. Atrial tachycardia  
e. AV-nodal re-entry tachycardia

Q99 Which of the following electrolyte abnormalities may cause long QT segment?

a. Hypokalaemia  
b. Hypocalcaemia  
c. Hypomagnesaemia
d Hyponatraemia

e Hypernatraemia
Cardiac failure

Q100 Signs of cardiac failure are:
   a Sinus bradycardia
   b Increased JVP
   c Pansystolic murmur
   d Third heart sound
   e Fatigue

Q101 Heart failure:
   a Prevalence is about 1% of the total population
   b Diagnosis is made clinically and not dependant on the ejection fraction
   c Has a poor prognosis, with a 5-year mortality of 50%
   d Treatment with oral frusemide has been shown to decrease mortality by 20%
   e Beta-blockers are negatively inotropic and should never be used

Q102 Regarding heart failure trials:
   a CONSENSUS was conducted in 253 patients and demonstrated a reduction in mortality of 31% at 1 year
   b CONSENSUS used ramipril in patients with severe congestive heart failure (NYHA Class IV)
   c CONSENSUS II was a large multi-centre trial that also showed a large mortality benefit from early ACE inhibition
   d Both CONSENSUS & CONSENSUS II were stopped early because of overwhelming benefit in favour of the active drug
Both CONSENSUS & CONSENSUS II were primary prevention heart failure trials

Q103 The SAVE study:
   a. Was a primary prevention study
   b. Evaluated captopril starting 3–16 days after MI
   c. Demonstrated all-cause mortality reduction of 19% in the active drug group
   d. Showed that the benefit of ACE inhibition in patients with impaired LV dysfunction is confined to those with symptomatic heart failure
   e. Showed a 24% reduction in the need to undergo revascularisation by PTCA or CABG in the active arm of the trial

Q104 The AIRE study:
   a. Showed that presence of a single episode of acute pulmonary oedema was enough for entry criteria to the study
   b. Was a primary prevention study
   c. Used lisinopril as its active ACE inhibitor
   d. Showed that the mortality reduction was demonstrated at 6 months post-MI; all patients randomised had confirmed MI by WHO criteria
Endocarditis

Q105 Common signs of endocarditis include:
   a  Splenomegaly
   b  Haematuria
   c  Finger clubbing
   d  Osler’s nodes
   e  Janeway lesions

Q106 What are features of endocarditis indicating poor prognosis?:
   a  Negative blood cultures
   b  Increased PR-Interval on ECG
   c  Urine output 10 mL/hr
   d  Splenomegaly
   e  Finger clubbing

Q107 What are features of endocarditis that warrant surgical intervention?
   a  First-degree heart block
   b  Fungal growth on blood cultures
   c  Pansystolic murmurs
   d  Fever >38°C for 1 week
   e  No improvement after 2 weeks IV antibiotics

Q108 In patients with infective endocarditis:
   a  Cardiac failure is a major cause of death
   b  Atrial septal defect of secundum type is the most common predisposing congenital lesion
c  *Staphylococcus aureus* is the most common infecting organism

d  Cardiac surgery should not be undertaken until there has been at least two negative blood cultures

e  Retinal haemorrhages are a recognised feature

**Q109** Endocarditis:

a  Can be ruled out if the echocardiogram is normal

b  Usually responds to IV antibiotics within 72 hours

c  Most abscesses are para-aortic

d  Transthoracic echo is superior to transoesophageal echo in diagnosis of vegetations

e  Vegetations do not form on a healthy endocardial surface
Interventional cardiology

Q110 Regarding the anatomy of coronary arteries:
   a. The circumflex is a branch of the RCA
   b. Occlusion of the left main stem results in ST elevation in leads II, III, and AVF
   c. LAD runs in the atrio-ventricular groove
   d. LAD supplies the LV apex
   e. LCx never supplies the AV node

Q111 Coronary stenting:
   a. Is associated with lower re-stenosis rate compared with PTCA
   b. Patients must be heparinised for 10 days post-stenting
   c. In patients prescribed aspirin, they take this for life
   d. In patients prescribed clopidogrel, they take this for life
   e. In patients prescribed warfarin, they take this for life

Q112 Following PTCA:
   a. Patients return to work quicker compared with CABG
   b. There is a higher rate of re-stenosis compared with CABG
   c. <5% require emergency (females have a higher rate of re-stenosis due to smaller arteries)
   d. Patients may drive after 1 week

Q113 What factors are associated with increased risk of post-PTCA restenosis?
   a. Diabetes mellitus
   b. Continued smoking
c  Female sex
d  Distal LAD lesion
e  Multi-vessel lesion

Q114  Which of the following is the treatment of choice for a 65-year-old patient who has survived an out-of-hospital VF arrest with subsequent normal coronary angiography?

a  Amiodarone
b  Quinidine
c  Procainamide
d  Permanent pacemaker
e  Implantable cardiac defibrillator
**Cardiac surgery**

**Q115** Complications of CABG include:

a. Atrial fibrillation in 25% of cases  
b. Mediastinitis  
c. Renal failure  
d. Phrenic nerve injury  
e. Psychosis

**Q116** Coronary artery bypass surgery has been shown to improve prognosis in patients with:

a. 90% stenosis of left main stem  
b. Triple vessel disease without left main stem isolated RCA lesion  
c. Ejection fraction less than 30%  
d. Failed PTCA

**Q117** Vessels used as bypass conduits include:

a. Left internal mammary artery  
b. Right internal thoracic artery  
c. Radial artery  
d. Superficial femoral artery  
e. Gastroepiploic artery

**Q118** Regarding cardiac surgery:

a. Off-pump Coronary Artery Bypass (OPCAB) is associated with fewer complications compared with on-pump CABG  
b. OPCAB involves stopping the heart using St Thomas’ cardioplegia solution
c  Pulmonary artery banding for Fallot’s tetralogy may be performed through a lateral thoracotomy

d  Females have a higher mortality for CABG than males

Q119  Regarding the right dominance of the coronary arterial supply, the posterior interventricular artery is a branch of:

a  Left coronary artery

b  Right coronary artery

c  The circumflex

b  Anterior interventricular artery

e  Coronary sinus

Q120  Mitral stenosis may present as:

a  Tiredness

b  Exertional dyspnoea

c  Paroxysmal nocturnal dyspnoea

b  Haemoptysis

e  Right hemipariesis

Q121  Myocarditis:

a  May present with a systolic murmur

b  Usually causes secondary hypertension

c  Causes non-specific ST depression

d  Is often caused by Coxsackie virus

e  Is worsened by hypoxia
Q122  Clinical features of mitral stenosis include:
   a  Atrial fibrillation
   b  Displaced apex beat
   c  De Musset’s sign
   d  Corrigan’s sign
   e  Ejection systolic murmur with opening snap

Q123  Tetralogy of Fallot is characterised by:
   a  Atrial septal defects
   b  Left ventricular hypertrophy
   c  Pulmonary stenosis
   d  Patent ductus arteriosus
   e  Overriding of the pulmonary trunk
Valvular heart disease

Q124 Regarding aortic stenosis:
   a. It is typically supravalvular in origin
   b. It may be congenital
   c. Always requires surgery if gradient is >50 mmHg
   d. Is a recognised cause of secondary hypertension
   e. The ECG may be normal

Q125 The Eisenmenger syndrome is pulmonary hypertension with a right to left shunt in association with:
   a. Tetralogy of Fallot
   b. Patent ductus arteriosus
   c. Patent foramen ovale
   d. Ventricular septal defect

Q126 Cardiac myxoma:
   a. May occur in any cardiac chamber
   b. 85% occur in the right atrium
   c. May recur after surgical resection
   d. Cardiac catheterization data is usually always required
   e. May cause an opening snap on auscultation
Q127  Artificial heart valves:
   a  Xenografts do not need warfarin anticoagulation
   b  Xenografts deteriorate faster in younger patients
   c  Xenografts deteriorate faster during pregnancy
   d  A re-do mitral valve replacement carries twice the risk of a re-do aortic valve replacement
   e  Warfarin crosses the placenta

Q128  Hypertension in pregnancy:
   a  Beta-blockers are contraindicated
   b  ACE inhibitors are contraindicated
   c  Methyldopa is safe and effective
   d  Diazepam is the first-line agent for eclampsia

Q129  Transposition of the Great Arteries (TGA):
   a  Is more common in females
   b  Occurs in 1 in 4500 live births
   c  Birth weight is usually normal
   d  Presents at birth
   e  If present without a shunt, may present in early adulthood

Q130  Ventricular septal defect:
   a  Is the most common cyanotic congenital heart lesion
   b  Occurs in 2 per 1000 live births
   c  Is the most common muscular type of defect
   d  Spontaneous closure occurs in 30–50% of cases
   e  50% of spontaneous closure occurs in the first year of life
Q131 The drug of choice for a 30-week pregnant woman with essential hypertension and no signs of eclampsia is:
   a Propranolol
   b Amlodipine
   c Methyldopa
   d Ramipril
   e Valsartan

Q132 The following changes occur during pregnancy:
   a Cardiac output decreases
   b Apex beat displaces laterally
   c Persistent sinus tachycardia develops
   d Cardiomegaly develops
   e Systolic BP decreases during the second trimester

Q133 Features of Tetralogy of Fallot are:
   a Ventricular septal defect
   b Atrial septal defect
   c Right ventricular hypertrophy
   d Aortic stenosis
   e Patent foramen ovale
Cardiorespiratory physiology

Q134 In a standard 70 kg male:
   a. Approximately 60% of body weight is water
   b. Sodium is the predominant extracellular ion
   c. Most of the calcium ions in the body are located intracellularly
   d. Normal intracranial pressure is 10 mmHg
   e. 75% of the total body water is extracellular

Q135 During the cardiac cycle, the maximal right ventricular systolic pressure is:
   a. 4 mmHg
   b. 10 mmHg
   c. 25 mmHg
   d. 60 mmHg
   e. 120 mmHg

Q136 The QRS complex:
   a. Has a normal duration of 0.3 s
   b. Represents ventricular depolarisation
   c. Represents ventricular systole
   d. Represents atrial relaxation
   e. Represents atrial repolarisation

Q137 The Cardiac index:
   a. Increases within age
   b. Is synonymous with cardiac output
c Is cardiac output divided by body mass index
d Is cardiac output per square metre of body surface area
e Is stroke volume times heart rate

Q138 Regarding the neuromuscular junction:
   a Dopamine is the principal neurotransmitter
   b Dopamine is an inhibitory neurotransmitter
   c Dopamine is converted into adrenaline
   d A suxamethonium molecule is two acetylcholine molecules joined together
   e Transmission is inhibited by calcium ions

Q139 Which of the following conditions does not induce cor pulmonale?
   a Bronchial asthma
   b Left atrial myxoma
   c Pickwickian syndrome
   d Fibrosing alveolitis
   e Syphilitic aortitis

Q140 The oxyhaemoglobin dissociation curve is shifted to the left by:
   a A fall in pH
   b Foetal haemoglobin
   c Increased body temperature
   d Increased PCO₂
   e Increased 2,3-diphosphoglycerate
Q141 Starling’s law of the heart:
   a. Is not applicable during exercise
   b. Explains the increase in heart rate during exercise
   c. Explains the increase in cardiac output when venous return increases
   d. Explains the increase in cardiac output due to sympathetic stimulation
   e. Is not obeyed by the failing heart

Q142 In the left lateral position, blood flow to the non-dominant lung is?
   a. 25%
   b. 35%
   c. 45%
   d. 55%
   e. 65%

Q143 Pulmonary surfactant:
   a. Is produced by type II pneumocytes
   b. Is produced so rapidly that a decreased blood flow can decrease production
   c. Synthesis is stimulated by thyroxine
   d. Is metabolised by endocytosis

Q144 Acidosis may result in:
   a. Hyperkalaemia
   b. Increased chloride ions
c  Decreased PCO$_2$

d  Tetany

**Q145**  The cardiovascular response to cooling a healthy patient to 32°C is?

- a  Bradycardia
- b  Prolongation of the PR-interval
- c  Prolongation of the QT-interval
- d  Ventricular fibrillation

**Q146**  Which of the following is a risk factor for increased susceptibility for drug-induced torsades de pointes?

- a  Being female
- b  Hypokalaemia
- c  Hypomagnesaemia
- d  Sinus tachycardia

**Q147**  In adults, the angle at which the right main bronchus leaves the carina is?

- a  15 degrees
- b  20 degrees
- c  25 degrees
- d  30 degrees
Q148  Myocardial contractility is increased by?
   
   a  Tachycardia
   b  Catecholamines
   c  Increased vagal activity
   d  Increased cardiac muscle fibre length
   e  Increased calcium ions

Q149  Sinus arrhythmia:
   
   a  Is more common in the elderly
   b  Increases the R-R interval
   c  Is maximal with breath holding
   d  Is more common during exercise
   e  Causes QT prolongation

Q150  Which of the following are precursors of adrenaline?
   
   a  Tyrosine
   b  Phenylalanine
   c  Noradrenaline
   d  Dopamine
   e  Isoprenaline
Explanatory answers
Cardiac glycosides

A1  a  False  Digoxin *increases* the PR interval.
    b  True
    c  True  Digoxin, especially at toxicity levels, may cause any cardiac arrhythmia, including atrial fibrillation.
    d  True
    e  False

A2  a  True
    b  True
    c  True
    d  True
    e  True

A3  a  False  Digoxin is a cardiac glycoside that acts by inhibiting Na/K-ATPase. H/K-ATPase is the proton pump, inhibited by proton pump inhibitors such as omperazole.
    b  False
    c  False
    d  True
    e  False  Digoxin serum concentrations peak within 1–3 hours.

A4  a  False  The results of the Digitalis Intervention Group (DIG) Trial showed that digoxin reduced the number of hospital admissions but did *not* reduce mortality.
    b  False  Both digoxin and verapamil are specifically contraindicated in WPW syndrome.
    c  True  RELIANCE study.
    d  False  May result in hypokalaemia.
    e  False
A5  
a  True  
b  False  
c  True  Verapamil can reduce the renal excretion of digoxin by up to 100%.  
d  False There is no specific interaction here.  
e  True Dehydration secondary to acute infection may precipitate digoxin toxicity.

A6  
a  True  
b  True  
c  True  
d  True  
e  True

A7  
a  True  
b  True  
c  True  
d  False

A8  
a  False  
b  False  
c  False  
d  True
Diuretics

A9  a  False  Frusemide is a loop diuretic.
    b  False
    c  True
    d  False  Loop diuretics act by inhibiting *active* sodium reabsorption in the *thick* segment of the *ascending* Loop of Henle.
    e  True

A10 a  False  Hyperglycaemia.
    b  True
    c  True
    d  False  Hypercalcaemia.
    e  False  May precipitate gout.

A11 a  False
    b  False
    c  False
    d  True
    e  False

A12 a  False
    b  False
    c  False
    d  False
    e  False
A13  a  False  
b  False  
c  False  
d  False  
e  False  

A14  a  False  
b  True  
c  False  
d  True  
e  False
Beta-adrenoceptor blocking drugs

A15  a  True
     b  False
c  False
d  False
e  True  The absolute contraindication.

A16  a  True
     b  False  Beta-blockers may mask the warning signs of hypoglycaemia but are not specifically contraindicated in diabetic patients.
c  False  Despite popular belief, there is no specific evidence to support this.
d  False  No specific evidence here.
e  False

A17  a  False
     b  True
c  True
d  False
e  False

A18  a  False  There is no clinical trial demonstrating statistically significant mortality reductions with atenolol.
b  True  BHA T study showed positive outcome.
c  True
d  True  The recently published CAPRICORN study demonstrated all-cause mortality reduction with statistical significance with carvedilol.
e  False  MIAMI trial demonstrated benefit but was not statistically significant.
**A19**

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<td>Propranolol is a lipid-soluble drug.</td>
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<td>Propranolol is a short-acting drug.</td>
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<td>c</td>
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<td>Propranolol may cause lethargy and bradycardia but is <em>not</em> a recognised cause of hypothyroidism.</td>
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**A20**

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**A21**

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**Calcium-channel antagonists**

**A22**

a False  Constipation is most common.

b False

c False  May precipitate digoxin toxicity.

d False

e True

**A23**

a True

b False

c True

d False

e False  Common with nitrates.

**A24**

a False

b False

c True

d True

e False

**A25**

a True

b False  35–50 hours.

c False  Starting dose 5 mg daily.

d False

e True  See PRAISE trial.
A26  a  False
    b  True
    c  False
    d  True
    e  False  Mainly liver metabolism.

A27  a  True
    b  True
    c  False  Half-life 1 hour.
    d  False
    e  False

A28  a  False
    b  True  Cimetidine. By cP450 induction.
    c  False
    d  False
    e  False
ACE inhibitors

A29  a  True
     b  True
     c  True
     d  False
     e  False

A30  a  True  Cough occurs in approximately 10% of cases.
     b  False  Cause hyperkalaemia.
     c  True
     d  False
     e  False

A31  a  False  Trandolapril.
     b  True
     c  True
     d  False
     e  False

A32  a  True
     b  True
     c  True
     d  True
     e  False  1.2% developed cough.
A33  a  False
    b  False
    c  False
    d  True
    e  False

A34  a  False  All such patients were excluded.
    b  True
    c  True
    d  True
    e  True
Statins

A35  a  True

b  False  Simvastatin is a specific inhibitor of HMG-CoA reductase, the enzyme that catalyzes the conversion of HMG-CoA to mevalonate. This process occurs in the liver.

c  False  The maximum therapeutic response occurs in about 4–6 weeks.

d  False  Atherosclerosis is a chronic process and the discontinuation of lipid-lowering drugs during pregnancy will have little impact on the outcome of long-term therapy of primary hypercholesterolaemia. Moreover, cholesterol and other products of the cholesterol biosynthesis pathway are essential components for foetal development, including synthesis of steroids and cell membranes. Due to the ability of statins to inhibit this process, it is possible that this may cause harm when administered to a pregnant woman. Therefore, statins are contraindicated during pregnancy and in nursing mothers.

e  False  May occur in about 1 in 100,000 patient-years.

A36  a  True  10 mg atorvastatin produces the most dramatic reduction.

b  True

c  True  Similarly neither does cerivastatin.

d  True

A37  a  False  Patients were not post-MI.

b  False  Pravastatin.

c  False

d  True

e  True
A38  a  False  Secondary prevention trial.
    b  False  Simvastatin versus placebo.
    c  True
    d  True
    e  False  Extremely rare (1 in 100,000).

A39  a  True
    b  True
    c  False  Cholesterol levels 4.0–7.0 mmol/L.
    d  False  Decreased overall mortality by 22%.
    e  False  MI or unstable angina.
Thrombolytics

A40  a  False
    b  True
    c  False
    d  False
    e  False

A41  a  True
    b  True
    c  True
    d  False
    e  False

A42  a  True
    b  True
    c  False
    d  True
    e  True  As TPA has the shortest half-life.

A43  a  True
    b  True
    c  True
    d  True  Re-perfusion arrhythmia.
    e  True
A44  

a  False  Anistreplase was used.
b  True
c  True
d  False  Heparin not part of protocol.
e  True

A45  

a  True  
b  False 
c  True 
d  True 
e  False
Anti-platelet agents

**A46**

a True
b False
c False  Cyclo-oxygenase inhibitor.
d False  May have benefit at 3 mg daily.
e False

**A47**

a True
b False  TARGET study showed Reopro better.
c False
d False
e False

**A48**

a True
b True
c True
d False  No significant differences.
e False  This is abciximab.
**Inotropes**

**A49**  
a False  Renal dose is ‘low’ dose (1–5 mcg/kg/min).  
b False  
c False  Must be given via central line.  
d False  
e True

**A50**  
a True  
b True  
c True  Good second-line agent for bradycardia.  
d True  
e True

**A51**  
a True  Also called ‘deadly nightshade’.  
b True  
c True  
d True  
e False  Causes pupil dilation.

**A52**  
a True  
b True  
c False  
d False  
e True

**A53**  
a True  
b True  
c True
d  False
  e  True

A54  a  False
    b  True
    c  False
    d  False
    e  False

A55  a  True
    b  False
    c  True
    d  False
    e  True

A56  a  True
    b  False
    c  True
    d  False
    e  True
Anti-dysrhythmic drugs

A57  a  True
     b  True
     c  True
     d  True
     e  True

A58  a  False
     b  False
     c  False
     d  True
     e  True

A59  a  True
     b  True
     c  True

A60  a  True
     b  True
     c  True
     d  False
     e  True

A61  a  True
     b  False
     c  False
     d  True
     e  False
A62  a  False
     b  False
     c  False
     d  False  It occurs but is not common!
     e  True

A63  a  True
     b  True
     c  True
     d  False
     e  False

A64  a  True
     b  True
     c  True
     d  False  Occurs with hyperkalaemia.
     e  False

A65  a  True
     b  True
     c  True
     d  True
     e  True

A66  a  False
     b  False
     c  True
     d  True
     e  True
Acute myocardial infarction

A67  a  True
     b  False  A number of studies have demonstrated in-hospital mortality of about 20%.
     c  True  Especially with diabetic patients.
     d  True  Rare presentation but well documented.
     e  True

A68  a  True
     b  True
     c  True
     d  True
     e  True

A69  a  False
     b  False  The prognosis for an individual patient can be accurately estimated simply by the ST segment deviation present in one ECG lead recorded 90 minutes after thrombolysis.
     c  False
     d  False
     e  False

A70  a  False
     b  True
     c  False
     d  False
     e  False
A71  a  False  The first dose of captopril was rapidly titrated to 50 mg bd with the first dose given within 2 hours of thrombolysis.

b  False  There was no evidence of benefit from mortality reduction using IV nitrates.

c  True  
d  True  
e  False  

A72  a  False  
b  True  
c  False  
d  False  
e  False  

A73  a  True  
b  False  
c  False  
d  False  
e  False  

A74  a  True  
b  True  
c  False  
d  False  
e  False  

Hypertension

A75  a  True  Essential hypertension.
     b  True
     c  False
     d  False  20% of population.
     e  False  Tends to cause hypokalaemia.

A76  a  True
     b  False
     c  False
     d  False
     e  False

A77  a  False
     b  False
     c  False
     d  True

A78  a  True
     b  True  10% of cases.
     c  True
     d  False  May cause hyperkalaemia.
     e  True

A79  a  True
     b  True
     c  True
     d  False  SHEP trial.
     e  False
A80  a  False
   a  True
   b  False
   c  False
   d  False

A81  a  True
   b  True
   c  False
   d  True
   e  True

A82  a  False  Beta-blockers are contraindicated in asthma.
   b  False  May precipitate gout.
   c  False
   d  True
   e  False

A83  a  False
   b  True
   c  False
   d  False
   e  False

A84  a  False
   b  False
   c  False
   d  False
   e  True  Drug-induced SLE is likely here.
Atrial fibrillation

A85  a False  AF may complicate acute MI infarction in 10–15% of cases and is often a marker of extensive myocardial damage and of poor prognosis with associated increased mortality.

   b True
   c True
   d False
   e True

A86  a True
   b True
   c True Especially paroxysmal AF.
   d True
   e True

A87  a True
   b True
   c True  Approximately 30–40% of its structure.
   d False
   e True

A88  a False
   b True
   c False
   d True
   e False  Caused by vancomycin.
a True
b True
c False  Target 2.0–2.5 INR.
d True
e False
Dysrhythmias

A90  a  True
    b  False
    c  True
    d  True
    e  True

A91  a  False  Right coronary artery (RCA).
    b  True  Due to occluded RCA.
    c  False
    d  False
    e  False

A92  a  True
    b  True  Now discontinued.
    c  True  Used for nocturnal cramps.
    d  True
    e  True

A93  a  True
    b  False
    c  False  Not beneficial.
    d  True  No longer called adrenaline.
    e  True

A94  a  True
    b  True
    c  False
d  True
e  False

A95  a  False
     b  False
     c  False
d  False
e  True

A96  a  False
     b  False
c  True
d  False
e  False

A97  a  False
     b  True
c  True
d  True
e  True

A98  a  False
     b  False
c  False
d  False
e  True
A99  a  True
    b  True
    c  True
    d  False
    e  False
**Cardiac failure**

**A100**  
a  False  Sinus tachycardia.  
b  True  
c  False  Indicates other cardiac pathology.  
d  True  
e  True

**A101**  
a  True  
b  True  
c  True  
d  False  No mortality benefit.  
e  False  Only to be specifically avoided in overt heart failure.

**A102**  
a  True  
b  False  Enalapril (consENsus).  
c  False  
d  False  Only CONSENSUS was terminated early.  
e  False

**A103**  
a  False  
b  True  
c  True  
d  False  Benefit also conferred to asymptomatic patients.  
e  True
A104  a  True
    b  False
c  False  Ramipril.
d  False
**Endocarditis**

**A105**  
- a True  
- b True  
- c False Only 10% have finger clubbing.  
- d False Very rare sign.  
- e False Very rare sign.

**A106**  
- a True  
- b True  
- c True  
- d False  
- e False  

**A107**  
- a True  
- b True  
- c False  
- d False  
- e False  

**A108**  
- a True  
- b False  
- c False *Streptococcus viridans.*  
- d False  
- e True
A109  a  False
     b  True
     c  True
     d  False
     e  False  Less commonly.
Interventional cardiology

A110  a  False
b  False  ST elevation in II, III, AVF implies RCA territory infarct.
c  False  Interventricular groove.
d  True
e  False  AV nodal branch of RCA.

A111  a  False  0.1%.
b  False  0.1–0.2%.
c  False  0.1%.
d  True
e  False

A112  a  True
b  False
c  True
d  False

A113  a  True
b  True
c  True
d  False
e  False
A114  

a  False
b  False
c  False
d  False
e  True
Cardiac surgery

A115  a  True
     b  True
     c  True
     d  True
     e  True

A116  a  True
     b  True
     c  False
     d  False

A117  a  True
     b  True
     c  True
     d  False
     e  True

A118  a  True
     b  False
     c  True
     d  True

A119  a  False
     b  True
     c  False
     d  False
     e  False
A120  a  True
   b  False
   c  False
   d  True
   e  True

A121  a  True
   b  False
   c  True
   d  True
   e  True

A122  a  True  Due to enlarged L atrium.
   b  False  Mitral stenosis causes a non-displaced tapping apex beat.
   c  False  May indicate aortic regurgitation.
   d  False  Corrigan’s sign of visible neck pulsation is a sign of aortic regurgitation.
   e  False  The murmur of mitral stenosis is typically mid-diastolic.

A123  a  False
   b  False
   c  True
   d  False
   e  False
Valvular heart disease

A124  a  False
       b  True
       c  False
       d  False
       e  True

A125  a  False
       b  False
       c  False
       d  True  VSD is part of Eisenmenger’s complex.

A126  a  True
       b  False  85% in left atrium.
       c  True
       d  False
       e  False  Suggests mitral stenosis.

A127  a  True
       b  True
       c  True
       d  True
       e  True

A128  a  False
       b  True  Known teratogen.
       c  True
       d  False
A129  a  False  More common in males.
   b  True
   c  True
   d  True
   e  False  Not compatible with life.

A130  a  False  Most common congenital lesion.
   b  True
   c  False
   d  True
   e  True

A131  a  False
   b  False
   c  True
   d  False
   e  False

A132  a  False  Increases.
   b  True  Laterally and upwards.
   c  False
   d  True
   e  True

A133  a  True
   b  False
   c  True
   d  False
   e  False
Cardiorespiratory physiology

A134  a  True  
b  True  
c  False  
d  True  
e  False  

A135  a  False  
b  False  
c  True  
d  False  
e  False  

A136  a  False  
b  True  
c  False  
d  False  
e  False  

A137  a  False  
b  False  
c  False  
d  True  
e  False  

A138  a  False
     b  True
     c  True
     d  True
     e  False

A139  a  False
     b  False
     c  False
     d  False
     e  True

A140  a  False
     b  True
     c  False
     d  False
     e  False

A141  a  False
     b  False
     c  True
     d  False
     e  False

A142  a  True
     b  False
     c  False
     d  False
     e  False
A143  a  True
     b  True
     c  True
     d  True

A144  a  True
     b  True
     c  True
     d  False

A145  a  True
     b  True
     c  True
     d  False

A146  a  True
     b  True
     c  True
     d  True

A147  a  False
     b  False
     c  True
     d  False
A148
a True
b True
c True
d False
e True

A149
a False
b True
c False
d False
e False

A150
a True
b True
c True
d True
e False
References

Q1

Q4

Q18


**Q20**


**Q21**


**Q22**


**Q23**

Q24

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MRCP Cardiology MCQs

Cardiology is a large and critical branch of internal medicine, and as such covers a vast amount of the knowledge tested in Membership of the Royal College of Physicians (MRCP) exams.

This study guide contains 150 multiple choice questions (MCQs), each with various numbers of stem answers. The questions cover a wide range of both cardiology and cardiovascular pharmacology and encompass both basic anatomy and physiology of the heart, through to advanced topics such as evidence-based medicine. The questions are supplemented at the back of the book with explanatory answers to aid further revision and study.

This book will be vital reading for candidates preparing for MRCP Part 1 MCQs, and useful as a revision aid testing knowledge for the Part 2 written examination.

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