

POST GRADUATE DIPLOMA IN CLINICAL  
CARDIOLOGY (PGDCC)

00675

Term-End Examination

June, 2013

MCC-003 : COMMON CARDIOVASCULAR DISEASES - I

Time : 2 hours

Maximum Marks : 60

Note :

- (i) There will be multiple choice type of questions in this examination which are to be answered in OMR Answer Sheet.
- (ii) All questions are **compulsory**.
- (iii) Each question will have four options and only one of them is correct. Answers have to be marked in figures in the appropriate rectangular boxes corresponding to what is the correct answer and then blacken the circle for the same number in that column by using HB or lead pencil and not by ball pen in OMR Answer Sheet.
- (iv) If any candidate marks more than one option it will be taken as the wrong answer and no marks will be awarded for this.
- (v) Erase completely any error or unintended marks.
- (vi) There will be **90** questions in this paper and each question carries **equal** marks.
- (vii) There will be no negative marking for wrong answers.
- (viii) No candidate shall leave the examination hall at least for one hour after the commencement of the examination.

1. A patient comes with angina at rest, ST depression on ECG and elevated Troponin T levels. The following drugs are appropriate for initial management except :
  - (1) Aspirin
  - (2) Clopidogrel
  - (3) Streptokinase
  - (4) Fondaparinux
  
2. Which of the following risk factors for coronary artery disease is non-modifiable ?
  - (1) Cigarette smoking
  - (2) Hyperlipidemia
  - (3) Sedentary lifestyle
  - (4) Age
  
3. The jugular venous pressure is elevated in the following conditions except :
  - (1) Tricuspid stenosis
  - (2) Dehydration
  - (3) Mitral stenosis
  - (4) Constrictive pericarditis
  
4. Which of the following coronary artery disease risk factors is considered equivalent to a past coronary event ?
  - (1) Diabetes Mellitus
  - (2) Dyslipidemia
  - (3) Cigarette smoking
  - (4) Peripheral vascular disease
  
5. Which of the following drugs should not be used for pain relief in ST elevation MI ?
  - (1) Isosorbidedinitrate
  - (2) Metoprolol
  - (3) Diclofenac
  - (4) Morphine
  
6. The following drugs are used for the treatment of chronic heart failure except :
  - (1) Ramipril
  - (2) Carvedilol
  - (3) Verapamil
  - (4) Spironolactone
  
7. A 64 year old female is admitted for coronary angioplasty. She is a diabetic. Which of the following drugs should be discontinued for 48 hours after administration of radio-opaque contrast ?
  - (1) Actrapid insulin
  - (2) Insulin lente
  - (3) Acarbose
  - (4) Metformin

8. Which of the following conditions is an absolute contra-indication to usage of prasugrel ?
- (1) History of Transient Ischaemic Episode
  - (2) History of bleeding piles
  - (3) History of minor gum bleed
  - (4) Documented clopidogrel resistance
9. A patient with mitral stenosis may show any or all of the following signs except :
- (1) Left sided fourth heart sound
  - (2) Right sided third heart sound
  - (3) Opening snap
  - (4) Irregular pulse
10. The differential diagnosis of absent lower limb arterial pulses includes all of the following except :
- (1) Coarctation of the aorta
  - (2) Aortic stenosis
  - (3) Takayasu's arteritis
  - (4) Leriche syndrome
11. Which of the following is a cyanotic congenital heart disease ?
- (1) Ventricular septal defect
  - (2) Pulmonary stenosis
  - (3) Tetralogy of Fallot
  - (4) Patent Ductus Arteriosus
12. The causes of elevated jugular venous pressure with clear lungs include the following except :
- (1) Constrictive pericarditis
  - (2) Mitral stenosis
  - (3) Pulmonary arterial hypertension
  - (4) Right ventricular infarction
13. Which of the following diuretics has no role in the treatment of heart failure ?
- (1) Acetazolamide
  - (2) Torsemide
  - (3) Metolazone
  - (4) Eplerenone
14. The commonest cause of resistant hypertension is :
- (1) Inadequate treatment
  - (2) Renal disease
  - (3) Pheochromocytoma
  - (4) Drug interactions

15. The drug of choice for ventricular tachycardia is :
- (1) Lignocaine
  - (2) Verapamil
  - (3) Amiodarone
  - (4) Digoxin
16. A 65 year old male with a history of TIA and atrial fibrillation should receive which of the following drugs for prevention of thromboembolic events ? (Mark single drug of choice only).
- (1) Aspirin
  - (2) Clopidogrel
  - (3) Warfarin
  - (4) Ticagrelor
17. In a patient with severe aortic stenosis, all of the following are ACC/AHA class I indications for valve replacement except :
- (1) NYHA class 3 symptoms
  - (2) Left ventricular dysfunction
  - (3) Asymptomatic severe AS undergoing CABG
  - (4) Asymptomatic severe AS with no symptoms or fall of BP on exercise
18. Left atrial pressure can be non-invasively estimated on echocardiography using which of the following parameters :
- (1) Mitral valve E/A ratio
  - (2) Isovolumic relaxation time
  - (3) Colour M-mode mitral inflow Vp slope
  - (4) All of the above
19. The most accurate echocardiographic method for estimating left atrial pressure is :
- (1) Mitral valve E/A ratio
  - (2) Pulmonary vein inflow S/D ratio
  - (3) Pulmonary inflow A wave duration
  - (4) E/E' ratio
20. Which one of the following is a loop diuretic ?
- (1) spironolactone
  - (2) Thiazide
  - (3) Torasemide
  - (4) Acetazolamide

21. Mitral valve area on echocardiography can be calculated by :
- (1) Planimetry
  - (2) Pressure Half Time method
  - (3) Continuity equation
  - (4) All of the above
22. The following statements regarding timing of thrombolysis in acute myocardial infarction are correct except :
- (1) The ideal window period is 6 hours from symptom onset
  - (2) Thrombolysis can be used up to 12 hours from symptom onset
  - (3) Delayed thrombolysis (between 12 to 24 hours) improves eventual LV remodelling
  - (4) In the first 3 hours from symptom onset, thrombolysis with tenecteplase is as effective as primary angioplasty
23. Which of the following statements regarding door-to-procedure times is correct in reference to ACC/AHA guidelines for management of ST elevation MI ?
- (1) Door-to-ECG time including interpretation should be less than 10 minutes
  - (2) Door-to-needle time for thrombolysis should be 60 minutes or less
  - (3) Door-to-balloon time for primary angioplasty should be 90 minutes or less
  - (4) All of the above
24. You have thrombolysed a 65 year old diabetic male who presented with an acute anterior wall myocardial infarction using streptokinase. After 90 minutes, he still has on going angina and persistent ST elevation on the ECG. The next step is.
- (1) Shift to a centre with facilities for primary angioplasty as fast as possible
  - (2) Repeat thrombolysis using tenecteplase, or if not available, urokinase
  - (3) Start infusion of GP2b/3a antagonist and continue for 12 hours, then shift to angioplasty capable centre
  - (4) Start heparin infusion, nitrate infusion, morphine infusion and monitor for arrhythmias and pulmonary oedema
25. Aortic stenosis is defined as severe by the ACC/AHA if :
- (1) Valve area is less than  $1\text{cm}^2$
  - (2) Mean gradient is greater than 40mmHg
  - (3) Aortic jet velocity is greater than 4m/sec
  - (4) Any of the above

26. Only one of the following statements is true regarding chronic severe aortic regurgitation :
- (1) Left ventricular size may be normal
  - (2) Regurgitant fraction must be greater than 70%
  - (3) Effective Regurgitant Orifice area (ERO) should be greater than  $0.30\text{cm}^2$
  - (4) Doppler vena contracta width should be greater than 0.3cm
27. The clinical parameters for estimating the severity of mitral regurgitation include :
- (1) Evidence of left ventricular enlargement
  - (2) Presence of S3
  - (3) Presence of mid-diastolic rumble
  - (4) All of the above
28. The clinical parameters for estimating the severity of mitral stenosis include :
- (1) Loudness of S1
  - (2) Loudness of the opening snap
  - (3) All of the above
  - (4) None of the above
29. The chest X-ray findings of rheumatic mitral stenosis include the following except :
- (1) Straightening of left heart border
  - (2) Left ventricular enlargement
  - (3) Splaying of the carina
  - (4) Kerley B lines
30. Please read the following statements regarding mechanical complications following a myocardial infarction :
- I. Acute papillary muscle rupture resulting in severe MR is usually well tolerated and valve repair/replacement is not required.
  - II. Rupture of the ventricular septum requires surgical closure.
  - III. Rupture of the ventricular free wall has a very high mortality.
  - IV. If the patient is still haemodynamically stable, reperfusion in the form of thrombolysis or primary angioplasty should be done while awaiting preparation for surgery.
- Which of the statements given above are correct :
- (1) I+II+III+IV
  - (2) I+II
  - (3) II+III
  - (4) II+III+IV

31. Which of the following drug is not used in diastolic heart failure ?  
(1) Metoprolol (2) Diltiazem (3) Furosemide (4) Digoxin
32. What is true regarding the treatment of pulmonary embolism ?  
(1) Thrombolysis is only effective in the first 24 hours.  
(2) Thrombolysis is effective even upto first 30 days.  
(3) Thrombolysis is recommended in the first 15 days.  
(4) Thrombolysis is contraindicated after the first 48 hours.
33. The drugs effective in the treatment of primary pulmonary hypertension include :  
(1) Prostaglandins (2) Sildenafil  
(3) Both of the above. (4) None of the above.
34. The JNC VII recommendations define prehypertension as blood pressure :  
(1) <120/<80mmHg (2) 120-139/80-89mmHg  
(3) 140-159/90-99mmHg (4)  $\geq 160/\geq 100$ mmHg
35. The direct renin inhibitor recently approved for treatment of hypertension is :  
(1) Candesartan (2) Conivaptan (3) Aliskiren (4) Quinapril
36. Which of the following combinations is absolutely contra-indicated ?  
(1) Nitrate with phosphodiesterase inhibitor  
(2) Nitrate with beta-blocker  
(3) Phosphodiesterase inhibitor with endothelin receptor blocker  
(4) Nitrate with hydralazine
37. The HOPE study came to the following conclusions in patients at high risk for developing heart failure :  
(1) Ramipril and Vit. E both reduce mortality and morbidity in patients at high risk for developing heart failure.  
(2) Ramipril increases mortality while Vit. E has no effect in patients at high risk for heart failure.  
(3) Ramipril and Vit. E both have no benefit in patients at high risk for heart failure.  
(4) Ramipril reduces mortality and morbidity in patients at high risk for developing heart failure while Vit. E has no effect.

38. An example of reversible platelet antagonist is :
- (1) Abxicimab      (2) Ticlopidine      (3) Ticagrelor      (4) Prasugrel
39. The SI unit for measurement of vascular resistance is :
- (1) Dynes-sec/cm<sup>5</sup>      (2) Dynes-sec/cm<sup>3</sup>  
(3) Dynes-sec/cm<sup>4</sup>      (4) Dynes-sec/cm<sup>2</sup>
40. Contra-indications for surgical closure of a large ventricular septal defect include :
- (1) Heart failure not responding to medication  
(2) Irreversible supra-systemic pulmonary vascular resistance  
(3) Associated AR or PS  
(4) All of the above
41. Diagnosis of acute aortic dissection can be made with high degree of accuracy using :
- (1) Trans-esophageal echocardiography  
(2) Multi-slice CT aortogram  
(3) MRI aortogram  
(4) Any of the above
42. The following are ECG criteria for the diagnosis of left ventricular hypertrophy except :
- (1) Sokolov-Lyon criteria      (2) Cornell voltage criterion  
(3) Morris index      (4) Romhilt-Estes scoring system
43. As per JNC VII guidelines, the target for blood pressure control in diabetics should be :
- (1) <140/90 mmHg      (2) <130/80 mmHg  
(3) <120/75 mmHg      (4) <160/100 mmHg
44. As per the Agency for Health Care Policy and Research, unstable angina is defined by any of the following except :
- (1) Rest angina or angina with minimal exertion lasting at least 20 minutes.  
(2) New-onset severe angina defined as occurring within the last month.  
(3) Angina with ST elevation in two contiguous leads on the ECG.  
(4) Crescendo angina.

45. Severity of aortic stenosis can be determined clinically by the following except :
- (1) Length and peaking of the mid-systolic murmur.
  - (2) Palpability of the fourth heart sound.
  - (3) Loudness of the mid-systolic murmur.
  - (4) Character of the pulse in absence of other factors which can affect pulse characteristics.
46. According to the results of the Hypertension in the Very Elderly Trial (HYVET), the following two drugs reduced mortality in very elderly patients :
- (1) Benzapril and carvedilol
  - (2) Olmesartan and s-amlodipine
  - (3) Perindopril and indapamide
  - (4) Chlorthalidone and amlodipine .
47. The following statement about the results from the ACCORD trial is true :
- (1) Blood pressure reduction to 120/75mmHg in diabetics has no advantage over maintaining blood pressure below 140/90mmHg.
  - (2) Addition of fibrates to statins in diabetic patients has no advantage over statins alone.
  - (3) Reduction of HbA<sub>1c</sub> to 6% increases mortality in comparison to 7%.
  - (4) All of the above.
48. Einthoven's triangle is a concept used in :
- (1) Electrocardiography
  - (2) Roentgenography
  - (3) Magnetic resonance imaging
  - (4) Nuclear perfusion scanning
49. Which of the following ECG features is strongly suggestive that ST elevation seen is due to acute pericarditis ?
- (1) T wave inversion
  - (2) Broad QRS complex
  - (3) PR segment depression
  - (4) U wave inversion
50. Of the following structures, one is *not* a component of the cardiac conduction system :
- (1) Sino-atrial node
  - (2) Crista terminalis
  - (3) Bundle of His
  - (4) Bachmann bundle

51. What is not indicated in treatment of heart failure ?
- (1) Diltiazem      (2) Lisinopril      (3) Bisoprolol      (4) Eprelenon
52. You have started a 50 year old diabetic male who presented to you with NSTEMI on ticagrelor. What should be his maintenance dose of aspirin as recommended by the ACC/AHA focused update 2012 ?
- (1) 81 mg/day      (2) 162 mg/day      (3) 350 mg/day      (4) 600 mg/day
53. The most important advantage of dabigatran over warfarin is :
- (1) Much higher efficacy in all situations requiring anticoagulation.  
(2) Far greater safety profile.  
(3) Has antiplatelet activity in addition to anticoagulant activity.  
(4) Does not need monitoring of PT/INR.
54. Only one of the following statements regarding dronaderone is true :
- (1) It is significantly more effective than amiodraone in converting atrial fibrillation to sinus rhythm.  
(2) It is significantly more effective than amiodarone in maintaining sinus rhythm after conversion from AF.  
(3) It has no thyroid toxicity due to absence of iodine.  
(4) It is much safer than amiodarone in patients with severe LV dysfunction.
55. The most specific ECG sign for left atrial enlargement is :
- (1) Morris index  
(2) McCrew ratio  
(3) Bifid p wave  
(4) Interval between 2 peaks of bifid P wave  $\geq$  4 msec
56. The most sensitive ECG sign for left atrial enlargement is :
- (1) Morris index  
(2) McCrew ratio  
(3) Bifid p wave  
(4) Interval between 2 peaks of bifid p wave  $\geq$  4 msec

57. The 3 additional leads in a 15 lead ECG are :
- (1)  $V_3R, V_4R, V_7$       (2)  $V_3R, V_4R, V_5R$       (3)  $V_4R, V_7, V_8$       (4)  $V_7, V_8, V_9$
58. The dose of Fondaparinux in ACS is :
- (1) 0.1cc/10kg body weight  
(2) 2.5 mg twice daily irrespective of body weight  
(3) 2.5 mg once daily irrespective of body weight  
(4) 5 mg once daily if body weight is greater than 70 kg
59. The following are low molecular weight heparins except :
- (1) Enoxaparin      (2) Bivaluridin      (3) Fraxiparine      (4) Daltaparine
60. The drug of choice for secondary prophylaxis in patients with rheumatic fever in the absence of history of allergy is :
- (1) Erythromycin      (2) Sulphonamides  
(3) Oral penicillin      (4) Benzathine penicillin
61. Treatment of an acute attack of rheumatic fever includes the following except :
- (1) Benzathine penicillin      (2) Atorvastatin  
(3) Aspirin      (4) Steroid
62. Acute rheumatic fever needs presence of essential criteria for diagnosis. However, if one of the following major criteria is present, essential criteria need not be fulfilled. That criterion is :
- (1) Carditis      (2) Chorea  
(3) Erythema marginatum      (4) Migratory polyarthritits
63. Jone's minor criteria for the diagnosis of rheumatic fever include the following except :
- (1) Fever      (2) Prolonged PR interval  
(3) Neutropenia      (4) Polyarthralgia



70. Non-invasive methods of determining risk of atherosclerotic vascular disease include :
- (1) Ankle-Brachial Index
  - (2) CT coronary calcium score
  - (3) Carotid intima thickness
  - (4) All of the above.
71. A 40 year old male smoker, normotensive and non-diabetic has come to you for advice regarding preventions of heart attack. His lipid profile is as follows : Total cholesterol - 170 mg/dl, LDL-90 mg/dl, HDL-40 mg/dl, Triglycerides - 150 mg/dl. His treadmill test is negative. What will you do next ?
- (1) Advise him to stop smoking
  - (2) Advise him to stop smoking and start statins
  - (3) Advise him to stop smoking, and refer him for invasive coronary angiography.
  - (4) Advise him to stop smoking, obtain serum hsCRP levels and start rosuvastatin if hsCRP is elevated.
72. ST depression in which leads is most accurate for diagnosing coronary artery disease during a treadmill test :
- (1) II, III, aVF
  - (2) V<sub>5</sub>, V<sub>6</sub>
  - (3) V<sub>1</sub>, V<sub>2</sub>, V<sub>3</sub>
  - (4) All of the above.
73. Amiodarone is indicated in the treatment of all the following arrhythmias except :
- (1) Torsades des pointes ventricular tachycardia
  - (2) Monomorphic ventricular tachycardia
  - (3) Atrial fibrillation
  - (4) WPW syndrome with atrial fibrillation
74. Ivabradine has following action on the heart :
- (1) AV nodal conduction blockage.
  - (2) Reducing cardiac contractility.
  - (3) Reducing sinus node rate.
  - (4) Reducing Purkinje fibre excitability.

75. Cannon waves are seen on the JVP in :
- (1) Tricuspid stenosis
  - (2) AV dissociation
  - (3) Tricuspid regurgitation
  - (4) Atrial fibrillation
76. A continuous murmur is defined as :
- (1) A murmur which persists throughout the cardiac cycle.
  - (2) A murmur that lasts for the whole of systole and some part of diastole.
  - (3) A murmur that lasts for the whole of diastole and some part of systole.
  - (4) A murmur that originates anywhere in systole, passes uninterrupted across the second heart sound, and continues into at least part of diastole.
77. The clinical hallmark of an atrial septal defect is :
- (1) I11 - sustained RV impulse.
  - (2) Wide and fixed split of second heart sound.
  - (3) Mid-diastolic rumble across tricuspid valve.
  - (4) Mid-systolic murmur across pulmonary valve.
78. Which one of the following congenital heart disease is not a shunt lesion ?
- (1) Tetralogy of Fallot
  - (2) Patent ductus arteriosus
  - (3) Coarctation of aorta
  - (4) Single ventricle
79. In congenital heart disease, left axis deviation on the ECG is seen in :
- (1) Secundum atrial septal defect.
  - (2) Endocardial cushion defects.
  - (3) Perimembranous ventricular septal defect.
  - (4) Bicuspid aortic valve.
80. The commonest cause of valvular pulmonary stenosis is :
- (1) Congenital
  - (2) Rheumatic
  - (3) Carcinoid syndrome
  - (4) Infective endocarditis

81. The commonest primary heart tumour is :
- (1) Rhabdomyoma (2) Angioma  
(3) Lymphoma (4) Myxoma
82. Read the following conditions mentioned below.
- I. Patent ductus arteriosus  
II. Rupture of sinus of Valsalva aneurysm into right atrium  
III. Systemic AV fistula  
IV. Lutembacher syndrome  
V. Aortic stenosis with aortic regurgitation
- Which of the above are differential diagnoses for a continuous murmur ?
- (1) I+II+IV+V (2) I+II+III (3) I+II+IV (4) I+IV+V
83. The echocardiographic signs of cardiac tamponade include :
- (1) RV diastolic collapse (2) RA collapse  
(3) Dilated inferior vena cava (4) All of the above
84. Under normal circumstances, the sinus node is pacemaker of the heart due to :
- (1) It has the fastest rate of impulse formation.  
(2) It is constantly stimulated by nerve impulses from the vagus nerve.  
(3) All the other potential pacemakers are suppressed by hormonal stimuli.  
(4) Some unknown mechanism.
85. The differential diagnosis of acute chest pain includes :
- (1) Acute coronary syndrome (2) Dissection of the aorta  
(3) Herpes zoster (4) All of the above
86. A 'triple rule-out' by Multidetector CT angiogram in a patient with acute chest pain rules out of the following life-threatening conditions except :
- (1) Acute coronary syndrome. (2) Dissection of aorta.  
(3) Acute pulmonary embolism (4) Pulseless ventricular tachycardia.

87. DDD pacemaker does the following :
- (1) Senses atrium and paces ventricle only.
  - (2) Senses and paces both atrium and ventricle.
  - (3) Senses atrium and paces both right and left ventricles.
  - (4) Senses and paces ventricle only.
88. A patient with a history of pacemaker implantation 10 years ago has come to you with complaints to recurrent syncopal attacks. The most likely diagnosis is :
- (1) Lead displacement.
  - (2) Lead fracture.
  - (3) Battery depletion.
  - (4) Pacemaker syndrome.
89. The differential diagnosis of non-rheumatic aortic regurgitation include :
- (1) Syphilitcaortitis
  - (2) Marfan's syndrome
  - (3) Ehler-Danlos syndrome
  - (4) All of the above
90. One of the following is a characteristic echocardiographic sign of hypertrophic obstructive cardiomyopathy :
- (1) Systolic anterior motion of the mitral valve.
  - (2) Diastolic prolapse of the aortic valve.
  - (3) Systolic prolapse of the mitral valve.
  - (4) Septal displacement of the tricuspid valve.
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