

MCC-003

Signature of the Candidate

Enrolment Number

Signature of the Invigilator

Exam Centre Code

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Exam Centre Superintendent

POST GRADUATE DIPLOMA IN CLINICAL CARDIOLOGY (PGDCC)

Term-End Examination

June, 2009

MCC-003 : COMMON CARDIO-VASCULAR 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 Sheets.
- (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 Sheets.
- (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 60 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. In "White Coat" hypertension, blood pressure is found to be repeatedly elevated during :
 - (1) Morning hours
 - (2) Office hours
 - (3) Late evenings
 - (4) Midnight

2. For pregnancy induced hypertension all of the following drugs should be avoided except :
 - (1) Diltiazem
 - (2) Labetolol
 - (3) Nicardipine
 - (4) Verapamil

3. Treponoea refers to :
 - (1) Dyspnoea while sleeping
 - (2) Dyspnoea on sitting up
 - (3) Dyspnoea in one lateral decubitus position
 - (4) Orthopnoea due to bronchial asthma

4. In Heart failure due to Beri Beri therapy is :
 - (1) Digitalis alone
 - (2) Thiamine alone
 - (3) Digitalis + Diuretics
 - (4) Thiamine + Digitalis + Diuretics

5. All of the following are used to define unstable angina except :
 - (1) Occurs at rest (or with minimal exertion) usually lasting > 10 minutes
 - (2) Occurs at rest (or with minimal exertion) usually lasting > 30 minutes
 - (3) It is severe and recent onset
 - (4) Occurs in crescendo pattern

6. All of the following are true regarding CK-MB except :
 - (1) Maximal levels are reached between 14-36 hrs.
 - (2) Enzyme levels return to normal after 96-120 hrs.
 - (3) As cardiac muscle dies MB₂ is converted to MB₁ by cardoxypeptidase enzyme.
 - (4) CK-MB may also rise in myocarditis.

7. All of the following indicate successful reperfusion except :
- (1) Relief of symptoms.
 - (2) Maintenance of electrical and hemodynamic stability.
 - (3) A reduction of at least 50% of the initial *ST* segment elevation at 180 *minutes*.
 - (4) A reduction of at least 50% of the initial *ST* segment elevation at 60–90 *minutes*.
8. All of the following are measures used in the management of cyanotic spells except.
- (1) Knee chest position
 - (2) Beta blockers
 - (3) Morphine
 - (4) Calcium Channel blockers
9. All are measures used to treat Congestive Heart failures except :
- (1) Propped up position
 - (2) IV fluids
 - (3) Preload reducing agents
 - (4) Inotropic support
10. High output cardiac failure is seen in all of the following except :
- (1) Anemia
 - (2) Thyrotoxicosis
 - (3) Beri Beri
 - (4) Valvular Heart Disease
11. ECG features of Pulmonary thromboembolism are all of the following except :
- (1) RBBB
 - (2) $S_1Q_3T_3$ pattern
 - (3) Ventricular arrhythmias
 - (4) ST-T changes in anterior and inferior leads

12. Which of the following statements is *incorrect* ?
- (1) Sinus tachycardia Atrial rate 100-180 *bpm*
 - (2) Atrial fibrillation Atrial rate 400-600 *bpm*
 - (3) Atrial flutter Atrial rate 250-350 *bpm*
 - (4) Atrial tachycardia Atrial rate 75-100 *bpm*
with block
13. If a patient develops Mobitz type-II block after Acute Anterior wall MI :
- (1) Will resolve spontaneously
 - (2) Disappears after injection atropine
 - (3) Is an indication for temporary Pacemaker Insertion
 - (4) Almost never progresses to complete Heart Block
14. Which of the following statements regarding Body Mass Index (*BMI*) is *incorrect* ?
- (1) $BMI = \text{Weight (kg)} / \text{Height (m}^2\text{)}$
 - (2) Guidelines define obesity as $BMI \geq 27.8$ for men and ≥ 27.3 for women
 - (3) Guidelines define obesity as $BMI \geq 31.1$ for men and ≥ 32.3 for women
 - (4) There is a positive correlation between *BMI* Total cholesterol, Triglyceride and Low *HDL* levels.
15. All of the following are features of cardiogenic shock except :
- (1) There are clinical features of hypoperfusion like cold extremities, perspiration, tachy- cardia and low urine output
 - (2) Systolic blood pressure is $< 80 \text{ mmHg}$
 - (3) *LV* end diastolic pressure $< 18 \text{ mmHg}$
 - (4) Cardiac Index $< 1.8 \text{ L} / \text{min} / \text{m}^2$
16. The following are true regarding Ventricular Septal rupture during Acute Myocardial infarction except :
- (1) Majority occurs in 1st week
 - (2) Occurs with almost equal frequency in anterior and inferior wall myocardial infarction
 - (3) The diagnosis is confirmed by angiography
 - (4) Is characterised by sudden clinical deterioration and appearance of a new systolic murmur in the left parasternal region

17. All of the following are absolute contraindications to fibrinolytic use in *STEMI* except :
- (1) Suspected Aortic dissection
 - (2) Pregnancy
 - (3) Any prior intracranial Hemorrhage
 - (4) Active bleeding or bleeding diathesis (excluding menses)
18. The following measures should be undertaken in Emergency department in a case of *ST Elevation MI* except :
- (1) Aspirin should be administered in a dose of 162 to 325 mg acutely
 - (2) If $SO_2 > 95\%$ Oxygen therapy may still be used routinely at a rate of 2-4 L/min for 6-12 hrs
 - (3) Clopidogrel should be administered in a dose of 300-600 mg acutely
 - (4) Aim a Door to Balloon time of 90 minutes and Door to needle time of 30 minutes
19. All of the following are true regarding hypolipidemic drugs except :
- (1) Ezetimibe works by reverse cholesterol transport
 - (2) Combination of Statins to fibrates increases risk of myopathy
 - (3) Statins are *HMGCoA* reductase inhibitors
 - (4) Statins should be discontinued when hepatic transaminase levels are elevated greater than 3 folds
20. All of the following are true regarding hypertension in pregnancy except :
- (1) Chronic hypertension presents before 20 weeks of gestation
 - (2) ACE inhibitors are the drugs of choice
 - (3) Preeclampsia is characterised by proteinuria $> 0.3 \text{ gm}/24 \text{ hrs}$, edema, headache, blurred vision, abdominal pain, low platelet count.
 - (4) Gestational hypertension normalises by 12 weeks postpartum
21. All of the following are true regarding peripartum Cardiomyopathy except :
- (1) Future pregnancies should be proscribed
 - (2) Normalisation of Ventricular function occurs in about 50% of cases
 - (3) It is cardiomyopathy (dilated) occurring in the last month of pregnancy or within 1 month of delivery
 - (4) Risk factors include multiparity black race, old maternal age and pre-eclampsia

22. Clinical characteristics of Hypertensive crisis include all except :
- (1) Fundus changes - hemophage, exudate, papilloedema
 - (2) Hematological findings - microangiopathic hemolysis
 - (3) Blood pressure usually > 110 mmHg systolic
 - (4) Renal findings - oliguria arotemia
23. All of the following are Landmark primary prevention trials except :
- (1) Heart Protection Study
 - (2) WOSCOPS
 - (3) AFCAPS/ Tex CAPS
 - (4) 4S Trial
24. All of the following are true regarding BP measuring equipment except :
- (1) Lower edge of the cuff should be 2.5 cms above the antecubital fossa
 - (2) Width of cuff must be 50 per cent of the arm circumference
 - (3) Length of the rubber bag, must be enough to cover more than 80% of circumference of the limb
 - (4) cuff should snugly fit around the arm
25. All of the following statements are true regarding Hypertension except :
- (1) Essential Hypertension accounts for 90% of all cases
 - (2) Isolated Systolic hypertension is defined as SBP 160 or more and diastolic BP less than 90 mmHg
 - (3) Renal parenchymal disease is the most common cause of secondary hypertension
 - (4) A difference of blood pressure upto 10 mmHg in both upper limbs is a normal finding
26. Radiological features of Heart failure include all the following except :
- (1) Increased Cardiothoracic ratio
 - (2) Intustial edema appears once pulmonary venous exceeds 25 mmHg
 - (3) Cephalisation once pulmonary venous pressure exceeds 12 mmHg
 - (4) Kerly- B lines appear once pulmonary venous pressure exceeds 14 mmHg

27. Framingham Criteria for diagnosis of heart failure include all of the following except :
- (1) Central venous pressure > 16 cms H₂O
 - (2) Circulation time < 25 sec.
 - (3) Acute pulmonary edema
 - (4) Paroxysmal nocturnal dyspnoea
28. All of the following are true regarding use of ACE inhibitors in Heart failure except :
- (1) Reduce mortality by 15-30%
 - (2) Ace inhibition leads to Low Bradykinin levels which stimulate synthesis of prostaglandins and nitric oxide, which may be beneficial
 - (3) Angioedema may occur following use of first dose
 - (4) Act by inhibiting conversion of angiotension I to angiotension II by ACE
29. All are true regarding digitalis except :
- (1) Positive inotropic action occurs due to inhibition of Ca²⁺ K⁺ ATPase channels
 - (2) Amiodarone, Verapamil should be used with caution in presence of digitalis therapy
 - (3) Hypokalemia precipitates Digitalis toxicity
 - (4) Xanthopsia is a feature of digitalis toxicity
30. According to JNC 7 report pre-hypertension is defined as :
- (1) SBP < 120 DBP < 80 mmHg
 - (2) SBP 140-159 DBP 90-99 mmHg
 - (3) SBP 120-139 DBP 80-89 mmHg
 - (4) SBP ≥ 160 DBP ≥ 100 mmHg
31. Drugs used in Hypertensive Crisis include all of the following except :
- (1) Fendolopam
 - (2) Furosemide
 - (3) Phentolamine
 - (4) Ketamine

32. All of the following statements are true regarding coronary artery bypass grafting except :
- (1) Mortality rates are usually $< 1\%$ in patients without serious comorbid disease and good LV function
 - (2) Long term patency of arterial grafts is better than venous grafts
 - (3) Venous graft occlusion rates are in excess of 40% in the first postop year
 - (4) Angina is abolished or greatly reduced in approximately 90% of patients following complete re-vascularisation
33. All of the following are true regarding coronary circulation except :
- (1) The Left main ranges in length from 1-25 mm before bifurcating into the left anterior descending and left circumflex branches
 - (2) The obtuse marginals arise from the right coronary artery
 - (3) When portions of epicardial artery dip into the myocardium and are covered to variable length by ventricular muscle it is called myocardial bridging
 - (4) Kogels artery arises from proximal RCA or LCX or rarely the left main coronary artery
34. All are features of Killips Classification except :
- (1) Is a prognostic classification
 - (2) Class II patients are free of rales and third heart sand
 - (3) Class III frequently have pulmonary edema
 - (4) Class IV are in cardiogenic shock
35. Which of the following drugs are best avoided in a setting of acute MI :
- (1) Ace-inhibitors
 - (2) Calcium channel blockers
 - (3) Beta blockers
 - (4) Analgesics as morphine
36. A 59 year old male is admitted to the Hospital with 2 hours of crushing substernal chest pain and ST - segment elevation in ECG leads V_2 to V_4 . He undergoes cardiac catheterization with angioplasty and stent placement for a thrombotic Lesion in the left anterior descending coronary artery. During the last 72 hours of admission he should receive all the following medications except :
- (1) Aspirin
 - (2) Clopidogrel
 - (3) Dexamethasone
 - (4) Enalapril

37. A 62 years old female with history of chronic left bundle branch block is admitted to the coronary care unit with 4 hours of substernal chest pain and shortness of breath. She has elevation of serum troponin-T. She received urgent catheterization with angioplasty and stent placement of a left anterior descending (LAD) artery lesion. Three days later admission she develops recurrent chest pain/Which of the following studies is most useful for detecting new myocardial damage since the initial infarction ?
- (1) Echo cardiogram
 - (2) Serum myoglobin
 - (3) Serum troponin-I
 - (4) Serum troponin-T
38. A 49 years old male is found to have persistently elevated cholesterol and Low-Density Lipoprotein (LDL) despite life style modification. You prescribe an HMG-Co A reductase inhibitor to reduce the risk of coronary events. This modification will exert all the following beneficial effects except :
- (1) Improvement in endothelial-dependent vasomotion
 - (2) Long term reduction of serum LDL
 - (3) Regression of existing coronary stenosis
 - (4) Stabilization of existing atherosclerotic Lesions
39. A 48 year-old male is admitted to the coronary care unit with an acute inferior myocardial infarction. Two hours after admission blood pressure is 86/ 52 mmHg heart rate is 40 beats per minutes with sinus rhythm. Which of the following would be the most appropriate initial therapy ?
- (1) Intravenous administration of atropine sulfate 0.6 mg
 - (2) Intravenous administration of normal saline 300 ml over 15 min.
 - (3) Intravenous administration of dobutamine 0.35 mg/min.
 - (4) Intravenous administration of isoproterenol 5.0 µg/min.
40. A 70 year old male is admitted to the hospital with chest pain for 8 hours. Serum studies demonstrate elevation of Troponin and CK-MB. ECG demonstrates anterior ST elevation, for which he is given tissue plasminogen activator, heparin and intravenous nitroglycerin. His symptoms resolve after treatment. He is started on oral medications and transferred out of the cardiac intensive care unit on day 3. The subsequent hospital course is uneventful until day 4, when he develops severe shortness of breath. Blood pressure is 110/ 70 and pulse is 120. Examination reveals a new systolic murmur. The most appropriate therapeutic intervention would be :
- (1) IV heparin
 - (2) IV heparin and streptokinase
 - (3) IV heparin and furosemide
 - (4) IV sodium nitroprusside

41. A 68 year old male with known aortic sclerosis was admitted with chest pain and ruled out for myocardial infarction but had recurrent symptoms during wearing from IV heparin and nitroglycerin over the ensuing 5 days. Cardiac catheterization revealed three vessel disease with a normal ejection fraction and he underwent coronary bypass grafting. On post operative day 3 he complained of pain in the right arm and was found to have an absent right brachial pulse and a cold distal right arm. Laboratory work revealed a hematocrit of 38% platelets 32,000, prothrombin time 15, INR 1.4, and partial thromboplastin time 65. What is the most likely explanation for this patient's absent brachial pulse ?
- (1) Embolization from aortic sclerosis
 - (2) Embolization from paradoxical emboli through patent foramen ovale from a deep venous thrombosis (DVT) arising post-operatively
 - (3) Thrombosis in situ caused by post-operative hyper-coagulability
 - (4) Heparin - induced thrombocytopenia
42. A 56 years old male is brought to the emergency department after collapsing at home. Initial Cardio Pulmonary Resuscitation (CPR) was performed in the field, and he was intubated. A peripheral intravenous line was placed. On arrival at your station the patient has no spontaneous pulse or respiration. A rhythm strip shows monomorphic ventricular tachycardia (VT). You order additional defibrillatory shocks : First 200 J, then 300 J, and finally 360 J. A dose of Vasopressin is administered. CPR is continued. What is the most appropriate drug ?
- (1) Sodium bicarbonate
 - (2) Amiodarone
 - (3) Procainamide
 - (4) Lidocaine
43. A 50 year old female is seen in the emergency department with complaints of shortness of breath for 2 weeks and bony pain, particularly in the hips for several months. She has progressive dyspnea on exertion, orthopnea and paroxysmal nocturnal dyspnea. She takes no medications and has no allergies. On physical examination she has elevated JVP and peripheral edema as well as tachycardia without a third heart sound. ECG, beside sinus tachycardia, is normal. A chest radiograph shows mild pulmonary vascular congestion, and plain films of the hips show severe and diffuse bony changes consistent with Paget's disease. Which of the following statements could be made to counsel this patient on her disease ?
- (1) She has high output heart failure as a result of Paget's disease, and with therapy for her bony disease, the heart failure symptoms will improve
 - (2) She needs to undergo cardiac catheterization to evaluate for ischemic heart failure.
 - (3) She is a high risk for ventricular Tachycardia
 - (4) She should not require diuretic therapy for the heart failure symptoms

44. A patient has stage-III essential hypertension. After evaluating the responses to several other anti hypertensive drugs, alone and in combination, the physician places the patient on oral hydralazine. Which of the following adjunct(s) is/are likely to be needed to manage the expected and unwanted cardiovascular side effects of the hydralazine ?
- (1) Captopril and nifedipine
 - (2) Digoxin plus spironolactone
 - (3) Hydro-chlorthiazide and a β blocker
 - (4) Triamterene plus amiloride
45. We have just diagnosed stage-I essential hypertension in a 30 year old man who has a history of asthma. He regularly uses an inhaled corticosteroid, which seems to work well, but does need to use an albuterol inhaler about once every 3 weeks for suppression of asthma attacks. Which anti hypertensive drug or drug class poses the greatest risk of exacerbating the patient's asthma and counteracting the desired pulmonary effects of the albuterol, even though it might control his blood pressure well ?
- (1) Hydrochlorthiazide
 - (2) Labetalol
 - (3) Ramipril
 - (4) Dil tiazem
46. An 18 year old man is referred for evaluation of hypertension. On examination, he appears in no apparent discomfort and states that he has never had any health problems. His Height is 175 cms and his weight is 70 kg. There is no pitting edema in the lower legs or jugular vein distention. The Lungs are clear to auscultation. Blood pressure is 162/80 mmHg in the upper extremities and 115/ 77 mmHg in the lower extremities. Femoral pulses are weaker than radial pulses. A systolic murmur is appreciated at the base of the heart and is particularly intense in the back. The ECG shows changes consistent with left ventricular hypertrophy. A chest X-ray film reveals notching of the inferior margin of the ribs. Which of the following is the most likely diagnosis ?
- (1) Congenital Aortic Stenosis
 - (2) Coarctation of the Aorta
 - (3) Congenital pulmonary Stenosis
 - (4) Ventricular septal Defect

47. We prescribe a β -adrenergic blocker for a patient with chronic stable (effort - induced) angina, and the incidence and severity of angina attacks are reduced. Which of the following best explains the pharmacologic action by which the β blocker does this ?
- (1) Decreases myocardial oxygen demand
 - (2) Dilates the coronary vasculature
 - (3) Reduces total peripheral resistance
 - (4) Shows AV nodal conduction velocity
48. A 64 year old man with coronary atherosclerosis and mild heart failure has been treated with digoxin and several other drugs. He complains of nausea, vomiting and diarrhoea. His EKG reveals a bigeminal rhythm and second degree heart block. A drug-drug interaction is suspected. Which of the following co-administered drugs most likely provoked the problem ?
- (1) Captopril
 - (2) Cholestyramine
 - (3) Furosemide
 - (4) Lovastatin
49. Each of the following statements regarding HTN is true except :
- (1) Pure 'white coat' HTN is found in 20-30% of patients
 - (2) Pseudo HTN may occur in patients with sclerotic brachial arteries
 - (3) When measuring BP an inappropriately small cuff size may result in spuriously low SBP
 - (4) CoA, cushing disease, primary aldosteronism and pheochromocytoma together account for approx. 1% of all HTN patients
50. Following statements are associated with HTN except :
- (1) Increased LV muscle mass in HTN is strong and independent risk factor cardiac mortality
 - (2) The risk of vent arrhythmias in HTN is increased at least two folds in the presence of LV hypertrophy
 - (3) Low birth weight is associated with increased incidence of HTN later in life
 - (4) Women have greater cardiovascular mortality than men for all degrees of HTN

51. Each of following statements regarding effects of 'statins' is true except :
- (1) The rate of cholesterol formation is decreased
 - (2) Production of hepatic *LDL* is decreased
 - (3) Reversible hepatotoxicity develops in 10% of patients
 - (4) Concurrent administration of erythromycin increases the risk of myositis
52. Each of the following statements about pharmacological therapy for secondary prevention of *CAD* is correct except :
- (1) Long term aspirin use following myocardial infarction reduces *CV* mortality, reinfarction and stroke rates.
 - (2) Following an *MI*, beta-blocker use decreases mortality by 30-40% over next 2-3 years
 - (3) ACE inhibitors administered after *MI* confer a mortality reduction only in patients with *LV* dysfunction
 - (4) Administration of statins reduce cardiovascular deaths after *MI* in patients with average cholesterol levels.
53. True statements regarding clinical history of patients with acute *MI* include all except :
- (1) A clear precipitating factor or prodromal symptoms can be identified in 90% of patients with acute *MI*
 - (2) Between 20-60% of non-fatal *MI*s are unrecognised by the patients and are identified only by a subsequent routine *ECG*.
 - (3) The peak frequency of *MI* onset is between 6 AM and Noon
 - (4) Patients who report a high level of stress after an *ACS* have an increased risk of subsequent *MI*
54. True statements about pericarditis and pericardial effusion in settling of acute *MI* are all except :
- (1) Some degree of pericardial effusion develops in > 50% of patients following acute *MI*
 - (2) Pericarditis usually occurs between the second and fourth days after acute *MI*
 - (3) When present, Dressler syndrome typically presents 2-10 weeks after infarction
 - (4) Modern-therapy of *MI* has been associated with a decreased incidence of Dressler syndrome

55. True statements about ACS include all except :
- (1) Occlusion coronary thrombosis result in *STEMI*
 - (2) Q-wave develops in > 95% of patients with *STEMI*
 - (3) Non - occlusive coronary thrombosis typically results in ST decrease or T-wave inversions
 - (4) Patients with first time Q-wave and non Q-wave MIs have similar prognoses
56. True statements regarding *PCI* are all except :
- (1) Primary angioplasty results in higher coronary artery patency rates than thrombolysis
 - (2) Primary angioplasty result in lower stroke rates than thrombolysis
 - (3) Primary angioplasty results in lower mortality than thrombolysis
 - (4) Primary stenting compared to angioplasty reduces mortality and recurrent infarction
57. True statements regarding coronary collateral circulation include all of following except :
- (1) Pre-existing collaterals open immediately following coronary occlusion
 - (2) Exercise does not increase collateral circulation formation
 - (3) Collaterals can provide nearly as much blood flow as the native coronary circulation
 - (4) In the setting of acute *MI*, the pressure of preexisting collaterals decreases infarct size and improve survival
58. Which of following is likely to ppt. symptomatic heart failure in patients with previously compensated *LV* contractile dysfunction ?
- (1) *AF*
 - (2) Marked sinus bradycardia
 - (3) A-V dissociation
 - (4) All of the above

59. Each of the following statements about physical finding of *HF* is true except :

- (1) Pallor and coldness of the extremities are primarily due to increased adrenergic nervous system activity
- (2) A positive hepato-jugular reflex reflects the combination of hepatic congestion and the inability of right side of the heart to accept an increased venous return
- (3) Hepatic tenderness may result from long standing right sided heart failure with chronic stretching of liver capsule
- (4) Protein losing enteropathy may occur in patients with visceral congestion and may result in a decreased plasma oncotic pressure

60. Each of the following statements concerning therapy of patient with *LV* dysfunction is true except :

- (1) Use of amiodarone is associated with increased mortality
- (2) *ICD* is therapy of choice in patients with *LV* dysfunction and unexplained syncope and resuscitated cardiac arrest
- (3) Patient with *LV* dysfunction and a transient or correctable cause of *VT* remain at high risk for sudden death
- (4) *CRT* (bi-ventricular pacing) increase *LVEF*, reduces wall stress and decreases filling pressures.

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