

POST GRADUATE DIPLOMA IN CLINICAL CARDIOLOGY (PGDCC)

Term-End Examination

June, 2010

MCC-006 : CARDIOVASCULAR EPIDEMIOLOGY

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. Coronary artery disease, although a global pandemic has a higher prevalence in South Asians. All of the following are true regarding coronary artery disease in South Asians except :
 - (1) CAD tends to be more aggressive and manifests at a younger age.
 - (2) The incidence of severe single vessel disease is very high.
 - (3) There is a definite urban-rural difference in disease prevalence with higher prevalence in urban population.
 - (4) In India, there is likelihood of a north-south divide with prevalence i. higher in the South than in the North of the country.
2. All of the following are true regarding family history of coronary artery disease except :
 - (1) It may be related to aggregation of major risk factors like hypertension and diabetes.
 - (2) Family history of CAD in men at an age < 55 yrs increases the risk of CAD.
 - (3) Parental premature cardiovascular disease is a more useful marker of familial vulnerability as compared to sibling cardiovascular disease.
 - (4) It is considered a non modifiable risk factor for CAD.
3. Diabetes Mellitus is a strong and independent risk factor for the development of coronary artery disease. True statements regarding CAD in patients with Diabetes Mellitus are all except :
 - (1) Both types of diabetes mellitus are associated with a markedly increased risk of CAD.
 - (2) In diabetic patients the overall mortality from heart disease is 4 to 5 times higher in men and is twice as great in women.
 - (3) Accelerated atherosclerosis and thrombosis play an important role.
 - (4) Non-CV mortality is greater in diabetic compared with non-diabetic subjects.
4. True statement regarding International Diabetes Federation (IDF) definition of metabolic syndrome is :
 - (1) It is better suited to developed countries rather than developing countries.
 - (2) Elevated LDL cholesterol is included in the criteria laid down for diagnosis.
 - (3) Central obesity is the core feature.
 - (4) Impaired glucose tolerance is included in the criteria laid down for diagnosis.
5. All are true regarding metabolic syndrome except :
 - (1) Endothelial inflammation is now regarded as a major component.
 - (2) This term refers to the clustering of multiple risk factors for cardiovascular disease.
 - (3) It represents a pro inflammatory state.
 - (4) Metabolic syndrome is the main cause of increasing number of CVD in West, as compared to developing countries.

6. All are true regarding obesity except :
- (1) Obese men have a waist - hip ratio equal to or less than 0.95, whereas in women it should not be more than 0.80.
 - (2) Obesity is independently associated with left ventricular hypertrophy.
 - (3) Waist-hip ratio is superior to BMI in predicting risk of myocardial infarction.
 - (4) Central obesity is more strongly associated with risk of vascular disease.
7. Conventional risk factors help to identify only 60-65% of those at risk of cardiovascular events, and this has led to identification of newer risk factors. These newer risk factors include all except :
- (1) Oxidative stress
 - (2) Hyperhomocysteinemia
 - (3) Increased fibrinogen
 - (4) Mental stress
8. True regarding left ventricular hypertrophy are all except :
- (1) It develops because of chronic pressure or volume overload.
 - (2) It can regress with effective blood pressure control and non pharmacological intervention.
 - (3) There is conclusive data that reduction of left ventricular mass can improve cardiovascular outcome independent of the decrease in B.P.
 - (4) LVH is not an independent risk factor for cardiovascular disease.
9. Which of the following is true regarding Lipoprotein(a) ?
- (1) It is the atherogenic sub fraction of VLDL.
 - (2) The inherited serum levels of lipoprotein(a) are influenced by smoking.
 - (3) It is believed to be a biological marker for familial CAD.
 - (4) Decrease in lipoprotein(a) levels is associated with decrease in incidence of CVD.
10. True regarding CAD in Indians are all except :
- (1) New borns with low birth weight have an enhanced susceptibility to CAD in adult life.
 - (2) There is confluence of both conventional and non conventional risk factors in Indians.
 - (3) Demographic transition is playing an important role.
 - (4) Elevated plasma homocysteine levels are independently associated with CAD.
11. True regarding smoking is all except :
- (1) Smoking causes endothelial injury
 - (2) Smoking decreases oxygen level in blood
 - (3) Smoking decreases heart rate
 - (4) Smoking increases platelet aggregation and promotes blood clotting.

12. Regarding smoking and CAD, which is incorrect :
- (1) Smoking is the single most important preventable risk factor for CAD.
 - (2) Smoking causes coronary spasm
 - (3) Nicotine is a potent agonist of the parasympathetic nervous system.
 - (4) The benefits of smoking cessation are seen regardless of how long and how much the patient previously smoked.
13. The first step of lipid management according to ATP III guidelines is :
- (1) Determine fasting lipoprotein levels.
 - (2) Identify the presence of clinical atherosclerosis
 - (3) Calculate the global risk score
 - (4) Determine the patient's CAD risk category
14. The World Health Organization dietary recommendations include all except :
- (1) Total carbohydrates should contribute 55-75% of the energy.
 - (2) Salt consumption should be less than 2 gm/day.
 - (3) Fruit consumption should be around 400 gm/day.
 - (4) Total dietary fiber intake should be 27-40 gm/day.
15. Which is true regarding polyunsaturated fats ?
- (1) Polyunsaturated fats lower both LDL and HDL
 - (2) Their main source is olive oil and canola oil
 - (3) They lower LDL but raise HDL
 - (4) They are in a liquid state at room temperature
16. According to the Framingham investigators, factors associated with survival to age 85 include all except :
- (1) Female gender
 - (2) Moderate or no consumption of alcohol
 - (3) No current smoking
 - (4) Higher level of education attained
17. True regarding fish oils is all except :
- (1) They lower plasma triglyceride levels
 - (2) They have antithrombotic properties
 - (3) They are used in cases of severe hypertriglyceridemia refractory to conventional therapy
 - (4) They are rich in monounsaturated fatty acids.

18. Framingham risk score is truly characterized by all of the following statements except :
- (1) It is a useful tool to assess the risk of cardiovascular event in patients both without pre-existing cardiac disease and in those with coronary artery disease.
 - (2) It includes six variables to predict the 10 and 20 year risk of CAD.
 - (3) It provides the absolute risk of coronary artery disease.
 - (4) It is widely used for risk assessment.
19. AHA guidelines for the secondary prevention of coronary heart disease include all except :
- (1) Complete and permanent cessation of smoking
 - (2) Blood pressure goal less than 140/90 mm of Hg in diabetics
 - (3) BMI of 18.5 - 24.9 kg/m²
 - (4) Indefinite use of ACE inhibitors in all post MI patients
20. Coronary artery disease equivalents are all except :
- (1) Transient ischemic attacks
 - (2) Peripheral arterial disease
 - (3) Diabetes Mellitus
 - (4) Hypertension
21. As per the European guidelines for LDL-C goals, all of the following would have a LDL-C goal < 115 mg/dl (3.0 mmol/l) except :
- (1) Asymptomatic patients with Type 2 diabetes
 - (2) Asymptomatic patients with Type 1 diabetes and microalbuminuria
 - (3) Asymptomatic individual who is a close relative of patient with early onset CVD
 - (4) Asymptomatic patient who has markedly raised level of single risk factor
22. Regarding stress and CAD, true is :
- (1) The effect of stress is mediated through parasympathetic nervous system.
 - (2) Stress hormones like adrenaline and non adrenaline play an important role.
 - (3) Persons with type B personality are at high risk of developing coronary artery disease.
 - (4) Stress induced CAD is independent of endothelial function.
23. The major cause of disability adjusted life years (DALY) in India is :
- (1) Ischemic heart disease
 - (2) Perinatal conditions
 - (3) Tuberculosis
 - (4) Diarrhoeal disease

24. Atherosclerosis which gives rise to coronary artery disease marches in stages. The earliest recognizable pathologic lesions in atherosclerosis are :
- (1) Fatty streaks
 - (2) Fibrous plaque
 - (3) Atheroma
 - (4) Complicated plaque
25. True regarding alcohol consumption is all except :
- (1) Moderate alcohol intake has been thought to have protective effect on CAD
 - (2) Alcohol reduces the serum LDL cholesterol level
 - (3) Excess alcohol consumption is associated with an increased incidence of hemorrhagic stroke and hypertension.
 - (4) Excess alcohol consumption is an established cause of morbidity and mortality
26. The risk factors which are more in South Asians as compared to Caucasians are all except :
- (1) Truncal obesity
 - (2) Small 'a' lipoprotein
 - (3) Low HDL cholesterol
 - (4) Body Mass Index
27. Framingham risk score includes all except :
- (1) Total or LDL cholesterol
 - (2) History of diabetes
 - (3) Metabolic syndrome
 - (4) Gender
28. The risk factors for which interventions have been proved to lower the risk of cardiovascular disease include all except :
- (1) Cigarette smoking
 - (2) Hypertension
 - (3) Diabetes mellitus
 - (4) Left ventricular Hypertrophy
29. Primary prevention is best characterized by which of the following statements :
- (1) It aims at not allowing major risk factors to take root in an otherwise healthy community
 - (2) It controls, reverses and treats the risk factors that are already present in individual/ community
 - (3) It is very effective in preventing recurrence of cardiac events.
 - (4) It does not halt the process of atherosclerosis.

30. True regarding women receiving hormone replacement therapy is all except :
- (1) It may be prudent to prescribe statins to all women receiving HRT
 - (2) Fibrates are first line therapeutic option for lowering LDL cholesterol levels
 - (3) Statins are not safe options to co-administer with HRT
 - (4) The results of HPS study indicate that statins are not effective across all age groups.
31. Regarding weight loss, all is true except :
- (1) Even modest weight reductions decrease insulin resistance
 - (2) Medications for treatment of obesity are approved for use in adults who have a BMI of 27 kg/m² or higher
 - (3) Orlistat and sibutramine are approved for long term treatment of obesity
 - (4) The target weight loss is 3-4 lb/week
32. True statements regarding carbohydrates are all except :
- (1) They are a necessary part of a healthy diet
 - (2) Many foods rich in whole grain carbohydrates are also good sources of essential vitamins and minerals
 - (3) Intake of simple carbohydrates should be encouraged as compared to complex carbohydrates
 - (4) Carbohydrates are classified according to glycaemic index
33. High glycaemic index foods include all except :
- (1) White bread
 - (2) Refined breakfast cereals
 - (3) Oats
 - (4) White spaghetti
34. Physical inactivity is considered a modifiable lifestyle risk factor for Coronary artery disease. All of the following statements regarding physical inactivity are true except :
- (1) It causes an increase in cardiac reserve
 - (2) It causes a decrease in insulin sensitivity
 - (3) A rise in blood pressure may be seen with physical inactivity
 - (4) It is an independent and statistically significant risk factor for CAD as per the US Railroad study.
35. True statements regarding Sheffield tables are all except :
- (1) They were specifically designed to target lipid lowering therapy to patients at high absolute risk of coronary heart disease.
 - (2) They simplify treatment decisions by using a truncated risk factor set
 - (3) Recent version of the tables include high density lipoprotein cholesterol
 - (4) They estimate the twenty year risk of coronary heart disease

36. Lifestyle modifications for the prevention of Coronary Artery Disease include all except :
- (1) Change in diet
 - (2) Institution of appropriate antihypertensive medications
 - (3) Stoppage of smoking and tobacco
 - (4) Behavioural change for stress management
37. True regarding West of Scotland Coronary Prevention Study (WOSCOPS) are all except :
- (1) It was a primary prevention trial of lipid lowering therapy
 - (2) It enrolled both men and women with high risk of coronary disease
 - (3) Enrolled subjects had elevated cholesterol and other risk factors for coronary artery disease
 - (4) Lipid lowering therapy resulted in decline in total mortality
38. True statements regarding the benefits of smoking cessations are all except :
- (1) Only one year after quitting the risk of heart attack is reduced by 50 percent
 - (2) There is an immediate decrease in anginal episodes
 - (3) Even ten years after smoking, the mortality rate in male ex-smokers remains considerably high as compared to non-smokers
 - (4) Lung cancer mortality is reduced by 60% 5 years after quitting
39. Health education and motivational campaign for the prevention of smoking habits and other tobacco use is :
- (1) Primordial prevention
 - (2) Primary prevention
 - (3) Secondary prevention
 - (4) Both primordial and primary prevention
40. True regarding physical exercise prescription are all except :
- (1) The frequency of exercise should be about 4-6 days in a week
 - (2) 30-60 minutes of exercise excluding warm up and cool down
 - (3) The aim is to reach a target heart rate of 50-80% of maximum heart rate
 - (4) The rate of perceived exertion (RPE) should be 8 to 10 (in a scale of 6 to 20)
41. Secondary prevention trials evaluating the benefit of cholesterol lowering are all except :
- (1) 4S trial
 - (2) LIPID trial
 - (3) CARE trial
 - (4) AF CAPS/Tex CAPS trial

42. True statements regarding primary prevention are all except :
- (1) It is concerned with controlling, reversing and treating the risk factors that are already present in the individual
 - (2) The subjects undergoing primary prevention are those who are either asymptomatic or those in whom no damage has resulted from atherosclerosis
 - (3) Although primary prevention halts the process of atherosclerosis, it is not effective in reversing atherosclerosis
 - (4) It results in a decline in the prevalence of the disease in the community.
43. Coronary Artery disease risk in women : which of the following is correct :
- (1) Risk is greater in women than men
 - (2) Increased incidence of CAD in premenopausal years
 - (3) Mortality is higher in men after myocardial infarction
 - (4) Women in 6th or 7th decades have same incidence of CAD as men.
44. Which of the following is correct :
- (1) Polyunsaturated fats reduce HDL levels
 - (2) Saturated fatty acids decrease LDL cholesterol
 - (3) Monounsaturated fatty acids lower LDL without affecting HDL
 - (4) Transfats are beneficial as they are less atherogenic
45. Choose the correct statement :
- (1) There is a positive graded association between LDL and vascular events.
 - (2) Increase in HDL, increases CAD events
 - (3) Triglycerides are non-atherogenic
 - (4) A Total cholesterol/HDL ratio < 4.5 is associated with increased CAD risk
46. Choose the most appropriate statement in relation to obesity :
- (1) Overall obesity has greater CAD risk
 - (2) Abdominal obesity protects against CAD
 - (3) Abdominal fat mass is inert
 - (4) The normal WHR in men is ≤ 0.95 and women ≤ 0.80
47. Lipoprotein a is :
- (1) Is 10 times more atherogenic than LDL
 - (2) It is influenced by environmental factors like diet, smoking, etc.
 - (3) Decrease in LP(a), decreases CV events
 - (4) Lp(a) levels should be targetted for therapy

48. Which of the following is true regarding atheroma ?
- (1) It is confined to coronary arteries only
 - (2) Fibrous plaques is the first stage
 - (3) Stable plaques are responsible for ischemia and anginal symptoms
 - (4) New fatty streaks form only during childhood.
49. Coronary artery disease : all are true except :
- (1) Any CAD before the age of 35 is termed as CAD in young.
 - (2) Premature CAD occurs in males younger than 55 years.
 - (3) Incidence of young CAD in Asian Indian - 12-16%.
 - (4) Up to 25% of M/s occur in people with < 40 yrs. of age.
50. Regarding CAD in Indians all are true except :
- (1) 5-10 years earlier onset of first MI
 - (2) SVD (single vessel disease) is common
 - (3) 4 times higher than Chinese
 - (4) Higher proportion of unstable or vulnerable plaque.
51. What percentage of gross domestic product (GDP) is spent on health in India ?
- (1) 10%
 - (2) 2%
 - (3) 5%
 - (4) 12%
52. Unsaturated fats : all are true except :
- (1) Plant sources
 - (2) Animal sources
 - (3) Monounsaturated fats lower the risk of CAD by 30-40%
 - (4) Fish is an important source of PVFA.
53. Which one of the following is a "Coronary heart disease equivalent" ?
- (1) Diabetes Mellitus
 - (2) Hypertension
 - (3) Dilated Cardiomyopathy
 - (4) Stress Cardiomyopathy

54. Medical treatment of obesity is currently approved for use in adults with :
- (1) BMI of 27 kg/m^2 or higher without associated hypertension or diabetes
 - (2) BMI of 27 kg/m^2 with associated conditions like hypertension or diabetes
 - (3) Not approved at any level of BMI
 - (4) Approved when BMI $> 40 \text{ kg/m}^2$
55. Regarding prescription of physical exercise all are true except :
- (1) About 3-4 days in a week
 - (2) To reach target heart rate of 50-80% of maximum HR
 - (3) Should be able to talk while walking without feeling breathless
 - (4) Should continue for 30-60 min-excluding warm up and cool-down period
56. Which of the following is **not** implicated in CAD ?
- (1) Cytomegalovirus
 - (2) H.pylon infection
 - (3) Her simplex virus
 - (4) Streptococcal infection
57. Morbid obesity is said to be present when BMI is :
- (1) $> 25 \text{ kg/m}^2$
 - (2) $\geq 40 \text{ kg/m}^2$
 - (3) $> 35 \text{ kg/m}^2$
 - (4) $> 30 \text{ kg/m}^2$
58. According to ATP III risk stratification the *high risk* is defined as 10 yr. risk greater than :
- (1) 10%
 - (2) 15%
 - (3) 20%
 - (4) 5%
59. Hypertension is present at the time of diagnosis in Type 2 diabetes patients in :
- (1) 40% of patients
 - (2) 20% of patients
 - (3) 30% of patients
 - (4) 50% of patients

60. Which of the following contains highest percentage of PUFA (Poly Unsaturated Fatty Acids) ?
- (1) Red meat
 - (2) Soybean oil
 - (3) Peanut
 - (4) Coconut oil
61. Dyslipidemia : Choose the correct statement :
- (1) LDL is inversely proportional to events
 - (2) HDL is directly proportional to CV events
 - (3) Triglycerides are atherogenic
 - (4) The ratio of TC/HDL is not useful to evaluate CV risk.
62. Which of the following statements about stress/psychological tension is true ?
- (1) Does not predispose to CAD
 - (2) Causes coronary spasm
 - (3) Type A personality has decreased incidence of CAD
 - (4) Type B personality has increased incidence of CAD
63. *Inflammation in CAD :*
- (1) Increased 'C' reactive protein levels help predict future CV events.
 - (2) Elevated acute phase reactants levels are dependent on lipid levels.
 - (3) Statins increase 'C' reactive protein levels.
 - (4) Anti inflammatory drugs are beneficial in decreasing CRP levels.
64. *Primordial Prevention* means :
- (1) Controlling, reversing and treating the risk factors.
 - (2) Protecting healthy population.
 - (3) Preventing Consequences of heart attack.
 - (4) Preventing Consequences of stroke.
65. Within 6 years of MI :
- (1) 18% of men and 34% of women will have another MI.
 - (2) 20% of men will experience sudden cardiac death.
 - (3) 30% of men will have stroke.
 - (4) Generally no second attack occurs.
66. Good carbohydrates are all of the following except :
- (1) Brown rice
 - (2) Whole bread
 - (3) Pasta
 - (4) Table sugar

67. Which one of the following is a Primary Prevention trial ?

- (1) 4S
- (2) CARE
- (3) LIPID
- (4) WOSCOPS

68. Optional goal of LDL-C in a *known* CAD is :

- (1) ≤ 70 mg/dL
- (2) ≤ 100 mg/dL
- (3) ≤ 130 mg/dL
- (4) ≤ 160 mg/dL

69. Ideal body weight should be BMI of :

- (1) 25 - 29.9 kg/m²
- (2) 18.5 - 24.9 kg/m²
- (3) 30 - 34.9 kg/m²
- (4) ≥ 35 kg/m²

70. In a high risk CAD equivalent *patient* the BP goal is :

- (1) $\leq 140/90$ mm Hg
- (2) $\leq 130/80$ mm Hg
- (3) $\leq 120/80$ mm Hg
- (4) $\leq 160/90$ mm Hg

71. Which of the following is a monounsaturated *fat* ?

- (1) Corn oil
- (2) Soybean oil
- (3) Olive oil
- (4) Safflower oil

72. Following exercises are good to reduce CV events except :

- (1) Weight lifting
- (2) Cycling
- (3) Swimming
- (4) Brisk walking

73. The following are therapeutic effects of HMG - COA reductase inhibitors except :

- (1) Do not alter Triglyceride levels
- (2) Decrease LDL-C
- (3) Increase HDL-C
- (4) Decrease total cholesterol

74. The following are the medications for control of obesity except :

- (1) Metformin
- (2) Orlistat
- (3) Sibatramine
- (4) RIMONOBANT

75. Diabetes management goal in secondary prevention of CAD is to achieve :

- (1) Hb A1C < 8%
- (2) Hb A1C < 6%
- (3) Hb A1C < 7%
- (4) Hb A1C < 5%

76. The following is a high glycemic index food :

- (1) French fries
- (2) Whole fruits
- (3) Most legumes
- (4) Brown Rice

77. In India CAD prevalence :

- (1) High in South than North
- (2) High in North than South
- (3) Equal in South and North
- (4) Equal in South and U.S.A

78. South Asian countries include :

- (1) India, Pakistan, Bangladesh, Nepal, Bhutan, Srilanka
- (2) India, China, Russia
- (3) India, Burma Thailand, Australia
- (4) South America, Zambia

79. Standardised Mortality Rate (SMR) for CAD among Asian Indian women :

- (1) Four times higher than US
- (2) Four times higher than French
- (3) Four times higher than Chinese
- (4) Four times higher than Japanese

80. Prevalence of CAD among Indians :

- (1) 7.6 - 12.6% for urban ; 3.1 to 7.4% for rural
- (2) 12.6 - 15.6% for urban ; 7.4 to 12.6% for rural
- (3) 15.6 - 20.6% for urban ; 12.6 to 15.6% for rural
- (4) 20.6 - 25.6% for urban ; 15.6 to 18.6% for rural

81. Most Important Risk factor for CAD :

- (1) Hypertension followed by smoking and diabetes
- (2) Smoking followed by hypertension and diabetes
- (3) Diabetes followed by hypertension and smoking
- (4) Obesity followed by hypertension and diabetes

82. Hypertension as a risk factor for CAD present in :

- (1) Over 50% of subjects
- (2) Over 10% of subjects.
- (3) Over 20% of subjects
- (4) Over 30% of subjects

83. The prevalence of RHD among primary school children 6 - 10 yr. of age :

- (1) 3.9/1000
- (2) 4.9/1000
- (3) 5.9/1000
- (4) 6.9/1000

84. In stage of atherosclerosis :

- (1) fatty streak occurs at age of 10 years.
- (2) at age of 20 years.
- (3) at age of 40 years.
- (4) at age of 60 years.

85. Regarding Glycemic Index all are true except :
- (1) Sugars in fiber rich food tend to be absorbed into blood stream more strongly.
 - (2) Ripe fruits have higher glycemic index.
 - (3) Finely ground flour has lower glycemic index.
 - (4) Whole wheat is a low glycemic index food.
86. The following are the useful methods for relieving stress except :
- (1) Meditation
 - (2) Yoga
 - (3) Biofeedback
 - (4) Psychiatric treatment
87. All of the following are true regarding genetic factors except :
- (1) Thrifty gene inactivation.
 - (2) Lipoprotein a (LPa) is higher in Indian.
 - (3) Ethnicity is a strong surrogate marker.
 - (4) Thrifty gene is also called 'Pigout' gene.
88. Prudent diet contains all of the following except :
- (1) Saturated fat < 30% of total calories.
 - (2) Complex carbohydrates to provide 50 - 70% of calories.
 - (3) Cholesterol > 300 mg.
 - (4) Low salt and sugar.
89. Following drugs to be given to all post MI patients except :
- (1) Antiplatelets
 - (2) Beta blockers
 - (3) Calcium channel blockers
 - (4) ACE inhibitors
90. CAD in women treated by the following except :
- (1) Statins
 - (2) Betablockers
 - (3) Hormone replacement therapy
 - (4) Antiplatelets
-