

POST GRADUATE DIPLOMA IN CLINICAL  
CARDIOLOGY (PGDCC)

00412

Term-End Examination

December, 2012

MCC-007 : CARDIO-VASCULAR RELATED DISORDERS

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 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 65 yr male, post operative for orthopaedic surgery develops sudden onset of breathlessness and chest pain, chest X Ray is normal. The next investigation should be :
  - (1) Lung ventilation perfusion scan
  - (2) Pulmonary Angiography
  - (3) Pulmonary venography
  - (4) CT Pulmonary angiography
  
2. Pulmonary hypertension may occur in all the following except :
  - (1) Progressive systemic sclerosis
  - (2) Sickle Cell Anaemia
  - (3) HIV
  - (4) Argemone Mexicana poisoning
  
3. All are true about pulmonary embolism except :
  - (1) Chest pain is most common symptom
  - (2) Chest x-ray is usually normal
  - (3) More is survival time, more is chance of recovery
  - (4) Arises from leg veins in most cases
  
4. Most common source of pulmonary embolism
  - (1) Amniotic fluid embolism
  - (2) Calf vein thrombi
  - (3) Large veins of legs
  - (4) Cardiothoracic Surgery
  
5. Most definitive method for diagnosing pulmonary embolism is :
  - (1) Pulmonary Angiography
  - (2) V/Q Scan
  - (3) ECG
  - (4) Lower limb Doppler study
  
6. Which of the following is a characteristic of pulmonary embolism ?
  - (1) Right axis deviation
  - (2) Normal A-a gradient
  - (3) LV strain
  - (4) Respiratory acidosis
  
7. PE causes all except :
  - (1) Acute RV strain
  - (2) Arterial Hypoxamia
  - (3) Decreased Cardiac Output
  - (4) Bradycardia
  
8. First sign of pulmonary venous hypertension in CXR is :
  - (1) Cephalisation of pulmonary veins
  - (2) Kerly B Lines
  - (3) Kerly A Lines
  - (4) Batwing appearance

9. Pulmonary hypertension is present if pulmonary MAP is atleast :
- (1) 10                      (2) 20                      (3) 25                      (4) 30
10. In CXR hilar to thoracic ratio of atleast \_\_\_\_\_ is suggestive of PAH :
- (1) 0.34                      (2) 0.44                      (3) 0.54                      (4) 0.64
11. In CXR the diameter of the first descending pulmonary artery should be atleast \_\_\_\_\_ for diagnosis of PAH :
- (1) 12                      (2) 13                      (3) 14                      (4) 15
12. In which condition is pulmonary hemosiderinosis seen :
- (1) Primary PAH                      (2) Secondary PAH  
(3) Pulmonary veno occlusive disease (4) Haemochromatosis
13. What type of cyanosis is common in PAH.
- (1) Central                      (2) Peripheral                      (3) Pigmentary                      (4) None of these
14. Swanganz catheter is used to measure :
- (1) Right Atrial Flow                      (2) PCWP  
(3) CVP                      (4) R V Pressure
15. Disorders predisposing to Cor-Pulmonale include all except :
- (1) Cystic Fibrosis                      (2) COPD  
(3) Left Sided Heart Failure                      (4) Kyphosclerosis
16. Which of the following is incorrect about hemodynamic changes during pregnancy ?
- (1) There is absolute increase in blood volume of an average of 50%  
(2) Cardiac output increases during pregnancy by about 50%  
(3) The pulse pressure increases during pregnancy  
(4) Systolic BP falls during 1<sup>st</sup> trimester, increases during the second trimester and returns to baseline levels in 3<sup>rd</sup> trimester
17. Which of the following parameters need to be monitored in a patient on Bosentan therapy ?
- (1) Renal function test                      (2) Liver function test  
(3) CPK                      (4) Thyroid function test

18. Which of the following is not preferred for treatment of pregnancy induced hypertension ?  
(1) Labetolol            (2) Diuretics            (3) Hydralazine        (4) Methyl-Dopa
19. In which of the following conditions pregnancy is not contraindicated :  
(1) Severe mitral stenosis                      (2) Severe aortic stenosis  
(3) ASD with right to left shunting    (4) Severe mitral regurgitation
20. A 28 year old lady, in 1st trimester of pregnancy is diagnosed to have moderate, non-calcific mitral stenosis with NYHA II-III symptoms. What should not be done :  
(1) Medical Management with diuretics, digoxin etc.  
(2) Balloon mitral valvotomy during 2<sup>nd</sup> trimester  
(3) Immediate balloon mitral valvotomy  
(4) Assist second stage of labor by forceps or vaccum
21. Management of Mechanical Prosthetic valve during pregnancy includes :  
(1) Heparin during 1<sup>st</sup> Trimester, warfarin during the 2<sup>nd</sup> and third trimester except near delivery.  
(2) Warfarin during whole of the pregnancy  
(3) No Anticoagulation  
(4) Warfarin during first and 3<sup>rd</sup> trimester and Heparin during the 2<sup>nd</sup> trimester
22. All of the following are correct about Post Partum cardiomyopathy except :  
(1) It is of unknown etiology  
(2) Occurs in the last month of pregnancy or within 5 months after delivery  
(3) All patients with post partum cardiomyopathy regains normal LV systolic functions after delivery  
(4) Risk of developing post partum cardiomyopathy again is higher in patients who have history of post partum cardiomyopathy in previous pregnancy.
23. Which of the following antibiotics is not safe for use in pregnancy ?  
(1) Ampicillin                                      (2) Metronidazole  
(3) Ciprofloxacin                                  (4) Azithromycin

24. Ideal Management of pregnancy in patients with Primary Pulmonary Hypertension, systolic Pulmonary Artery Pressure of 100 mm of Hg includes.
- (1) Termination of pregnancy at first contact with Medical facility preferably in 1<sup>st</sup> trimester
  - (2) Injectable Diuretics
  - (3) Sildenafil
  - (4) Nitrates
25. Pregnancy causes favourable hemodynamic changes in which of the following heart disease.
- (1) Mitral Stenosis
  - (2) Aortic Stenosis
  - (3) Pulmonary Stenosis
  - (4) Mitral Regurgitation
26. In COPD all are seen except :
- (1) Low FEV1
  - (2) Increased FEV1/VC ratio
  - (3) Partially reversible with bronchodialator therapy
  - (4) Show association with smoking
27. Obstructive sleep apnea may result in all of the following except.
- |                           |                            |
|---------------------------|----------------------------|
| (1) Systemic Hypertension | (2) Pulmonary Hypertension |
| (3) Cardiac Arrhythmias   | (4) Diabetes Mellitus      |
28. Most Common symptom of pulmonary embolism.
- |                |              |                |           |
|----------------|--------------|----------------|-----------|
| (1) Chest Pain | (2) Dyspnoea | (3) Hemoptysis | (4) Cough |
|----------------|--------------|----------------|-----------|
29. Which of the following is not used for treatment of pulmonary hypertension ?
- |                                  |                                  |
|----------------------------------|----------------------------------|
| (1) Endothelin receptor agonists | (2) Phosphodiesterase inhibitors |
| (3) Calcium channel blockers     | (4) Prostacyclin analogs         |
30. In a patient with PAH, with regular pulse show absent "a" wave in JVP it indicates :
- |                              |                               |
|------------------------------|-------------------------------|
| (1) Right atrial failure     | (2) Left atrial failure       |
| (3) Left ventricular failure | (4) Right ventricular failure |

31. Which of the following is not true idiopathic pulmonary hypertension -
- (1) Pregnancy is usually contraindicated
  - (2) Calcium channel blockers should be the 1<sup>st</sup> line of treatment
  - (3) Right heart case is considered essential for diagnosis
  - (4) Most patients should be prescribed anticoagulants
32. Pulmonary oedema occurs when PVP is atleast :
- (1) 10 mm Hg
  - (2) 15 mm Hg
  - (3) 25 mm Hg
  - (4) 30 mm Hg
33. Which is not true in acarbose ?
- (1) Relatively weak antidiabetic
  - (2) Cannot be used in individual with Type I DM
  - (3) Chances of hypoglycemia are less
  - (4) Cannot be used in renal failure
34. The best choice of antihypertensive therapy in diabetes is :
- (1) ACEI and ARB
  - (2) Beta Blockers
  - (3) Ca-Blockers
  - (4) Diuretics
35. Which one is the result of microvascular complication in DM ?
- (1) Acute myocardial infarction
  - (2) Transient Ischemic attack
  - (3) Peripheral vascular Disease
  - (4) Microalbuminuria
36. Choice of drugs on obese diabetics is :
- (1) Pioglitazone
  - (2) Insulin
  - (3) Metformin
  - (4) Glibenclamide
37. The third generation sulphonylurea is \_\_\_\_\_
- (1) Glimepiride
  - (2) Chlorpropamide
  - (3) Glibenclamide
  - (4) Glipizide

38. Glycosulated haemoglobin (HbA1C) indicates average glycemic value of past :
- (1) 6 months            (2) 9 months            (3) 1 month            (4) 3 months
39. Ominous signs in pre-eclamsia except :
- (1) Proteinuria > 2gm/day            (2) Rising level of S. Creatinine  
(3) B.P. > 160/110 mmHg            (4) High platelet count
40. Pioglitazone is contraindicated in :
- (1) Hepatitis            (2) Myopathy  
(3) Gastritis            (4) Ischemic Heart disease
41. Which of the following is not very helpful in prevention of vascular complications of diabetes.
- (1) Aspirin            (2) Ramipril  
(3) Strict glycemic control            (4) Statin
42. Aspirin is indicated for primary prevention of coronary artery disease in all the following except :
- (1) Multiple cardiovascular risk factors with 10-yr risk of cardiovascular events > 6%  
(2) All patients with diabetes mellitus  
(3) Patients with peripheral vascular disease  
(4) Patients with familiar hypercholesterolaemia
43. Sildenafil is contraindicated in patients who are on :
- (1) ACE inhibitors    (2) Digoxin            (3) Nitrates            (4) Beta Blockers
44. All the following can be seen in diabetic ketoacidosis except :
- (1) acidotic breathing            (2) abdominal pain  
(3) ↓PCO<sub>2</sub> levels            (4) prominent U-waves as ECG
45. Urine microalbuminuria is defined as excretion of albumin in urine of \_\_\_\_\_ mg/24hrs.
- (1) 200            (2) 300            (3) 500            (4) 1000

46. 35 yr black woman is evaluated for progressive dyspnoea 3 weeks after delivery of her first child. She had pregnancy induced hypertension. Pregnancy and delivery were uncomplicated. she has no H/O CVS disease. O/E BS 110/70, in both upper limbs HR 105/min and regular & RR 28/min. Estimate CVP 10 cm H<sub>2</sub>O and no carotid bruits. Apical impulse is displaced & diffuse. There is grade 11/v1 holosystolic Murmur at apex. S<sub>3</sub> & S<sub>4</sub> at apex heard. There is dullness to percussion at posterior Lung bases bilaterally & crepts extending up half of lung fields. Lower limb pulses are normal & without delay but pedal oedema present. The ECG shows sinus tachycardia there are no S T T wave changes X ray chest shows bilateral pleural effusion & interstitial infiltrates. The aortic contour is unremarkable.

Which of the following is the most likely cause of the patients current symptoms.

- (1) Acute Myocardial infarction      (2) Aortic dissection  
(3) Coarctation of the Aorta      (4) Peripartum cardiomyopathy
47. 55 year man evaluated for DOE. He used to walk 2 to 3 miles several times per week. However he has noted progressive decline in exercise tolerance over past 2 years and has had to discontinue exercise over time. His symptoms have been most pronounced over past several months. The patient has H/O MVP. He smokes one pack of cigarettes daily. He drinks alcohol moderately & does not take illicit drugs. The patient has not noted any palpitations, syncope presyncope or oedema. He has no other Medical conditions & takes no medications. O/E BP 126/80 pulse 62/min, BMI is 28. Carotid upstrokes are brisk. CVP is 7cm H<sub>2</sub>O. CVS examination reveals regular rhythm, Heart sounds are normal with no S<sub>3</sub> or S<sub>4</sub>. Grade 3/6 late systolic apical Murmur is heard that radiates toward left axilla Moving from squatting position to standing position increases Murmur intensity. Following Valsalva manoeuvre the murmur intensity decreases. No diastolic Murmur is heard. Lungs are clear to auscultation but with increased expiratory phase. There is no pedal oedema. Distal pulses are 2 + u palpable. Transthoracic ECHO demonstrates myxomatous Mitral valve with posterior let leaf prolapse. There is Moderate MR. Additional ECHO findings :

LVIDd 40 MM

LVIDs 25 MM

LVEF 65%

Vena contracta width 6 MM.

Regurgitant orifice area 0.4 cm<sup>2</sup>

PA systolic pressure 30 MM of Hg

On stress ECHO patient exercised for 4 1/2 Minute on Bruce protocol and discontinued study due to dyspnoea. During stress MR Severity was comparable to images at rest and PA systolic pressure increased to 65 MM of Hg (Normal increase between 10 and 25 MM of Hg)

Which of the following is the most appropriate management ?

- (1) MV annuloplasty repair      (2) Pharmacologic after load therapy  
(3) Pulmonary function testing      (4) Right Heart Catheterization



A 42 yr man is hospitalized for progressive worsening dyspnoea on exertion for 6 months now in NYHA class III. He has had frequent episodes of dyspnoea at rest, progressive fatigue, leg oedema X 9.1 kg. weight gain over last 4 wks. He reports symptoms of 3 pillow orthopnoea and nocturnal dyspnoea but does not have chest pain, palpitations syncope or cough. There is no family H/O sudden cardiac death. He has no other medical problems. His medications are metoprolol, disopyramide and furosemide O/E temperature is normal, BP 100/50, pulse 48/min and RR 28/min JVP is raised with brisk carotid upstrokes. Estimated CVP is 10 cm H<sub>2</sub>O. Cardiac examination reveals S<sub>3</sub> at apex and grade 3/6 midsystolic murmur along lower left sternal border that accentuates with Valsalva manoeuvre and diminishes with hand grip manoeuvre. Pulmonary examination discloses dullness to percussion in posterior lung fields at bases, crackles in basilar posterior lung fields and no wheezing. The lower extremities show 3+oedema.

Lab Studies :

Hb % : 13.5

WBC : 8300

Sr. Creat : 2.2 mg %

BUN : 50 mg %

Ser Albumia : 4 gm %

Ser Iron : Normal

Ser Ferritin : Normal

TSH : 2.5 mm/ml

BNP : 2045 pg/ml

48. Lead ECG shows sinus bradycardia, left atrial enlargement and LVH. ECHO shows hyperdynamic LV systolic function with LVEF 80%, asymmetric septal hypertrophy, LVOT obstruction with peak gradient of 144 mm Hg LV diastolic dysfunction and left atrial enlargement. Septal thickness is 26 MM. Chest x Ray : No infiltrates an enlarged cardiac silhouette and small pleural effusion.

Which of the following is the most appropriate treatment ?

- |                         |  |
|-------------------------|--|
| (1) Carvedilol          | (2) Implantable cardioverter defibrillator |
| (3) Permanent pacemaker | (4) Surgical Septal Myectomy               |

49. 37 yr. woman with H/O peripartum cardiomyopathy several years ago is evaluate 12 wks into her second pregnancy. She became pregnant despite the use of a combination oral contraceptives and plans to proceed with pregnancy. She is currently asymptomatic, but leads a sedentary lifestyle she is taking no medication.

O/E BP 110/70 pulse 80/min and regular. Estimated CVP 3 cm H<sub>2</sub>O and no carotid bruits cardiac and pulmonary examinations are normal. Lower limb pulses are normal and there is no oedema.

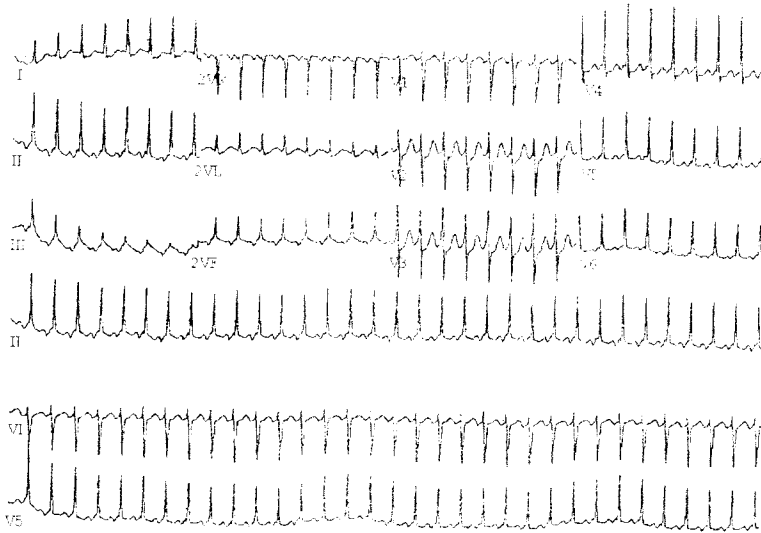
ECG : NSR and normal ECHO shows LV enlargement with LVEF 40% Valves and pulmonary pressures are normal.

Which of the following medications should be initiated at this time ?

- |             |                |                |                 |
|-------------|----------------|----------------|-----------------|
| (1) Digoxin | (2) Furosemide | (3) Lisinopril | (4) Metoprolol. |
|-------------|----------------|----------------|-----------------|

50. 26 yr old woman who is 25 wks pregnant is evaluated in the emergency department for palpitations and episodic light headedness. She has no H/O CVS disease or tachycardia O/E BP 100/70 pulse 175/min. Estimated CVP is normal and there are no carotid bruits. Apical impulse is not displaced. There are no murmurs or abnormal heart sounds. Examination is unremarkable. Valsalva Manoeuvre is performed by the patient and carotid sinus massage is performed by physician but tachycardia continues. The ECG is shown.

Which of the following is the most appropriate IV medication to administer at this time ?



- (1) Adenosine      (2) Amiodarone      (3) Digoxin      (4) Diltiazem

51. 67 yr businessman evaluated during routine health exam. He has 30 pack-yr history of smoking but quit 5 yrs ago. He consumes two or more alcoholic beverages on most days. He is asymptomatic but performs no regular physical exercise. He takes no medications.

O/E BP 148/92, Heart rate 78/min. and regular. His pulses are full, he has no bruits and results of his lung heart, abdominal and rectal examinations are unremarkable. Total cholest is 240 mg% HDL 40 mg % and TG 100 mg % results of other ser laboratory studies are normal. An abdominal ultra sound for screening purposes shows an infrarenal abdominal aortic aneurysm measuring 4 cm in diameter.

In addition to treatment of this patients hyperlipidaemia and hypertension and discussion about his at risk drinking which of the following is the best management option.

- (1) Abdominal CT with I.V contrast  
 (2) Antithrombotic Therapy  
 (3) Follow up ultrasound in 6 to 12 months  
 (4) Placement of an endovascular stent graft

52. 58 yr woman is hospitalized for Acute left sided flank pain. She has had fever and night sweats for 1 month and 9 kg weight loss over 6 months.

O/E Temperature 37.7°C, BP 135/88, pulse 88/min and RR 18/m Heart sounds are normal. There is an early diastolic low pitched sound after S<sub>2</sub> with diastolic murmur at apex. There is tenderness of left costophrenic angle. The abdomen is soft with normal bowel sounds and no tenderness. She does not have rash or petechiae, splinter haemorrhage or Janeway Lesions. Fundoscopic exam is normal.

Lab studies

WBC 14000

Creat 1.3 mg %

BUN 14 mg %

Urinalysis. Microscopic haematuria, no crystals, no proteins ECG : NSR  
ECHO : 5×4 CM left atrial echogenic mobile globular mass attached to the atrial septum with diastolic protrusion into LV. X-Ray abdomen : normal gas pattern and no renal calculi  
contrast CT abdomen and pelvis wedge shaped hypoperfusion defect in upper pole of left kidney. Mean transmitral valve inflow gradient 15 mm of Hg. Three Blood cultures are negative for growth after 5 days.

Which of the following is the most appropriate treatment ?

- (1) Cardiac surgery for resection of mass
- (2) Mitral valve replacement
- (3) Systemic anticoagulation with heparin
- (4) Vancomycin and tobramycin

53. 22 yr man is evaluated in casualty for fever and dyspnoea. He gives H/O flu like symptoms for past 3 weeks with anorexia and recurrent fevers as high as 103°F. He injects heroin and his last use was 3 days ago. He has no other medical conditions and takes no medications. Blood cultures are drawn and IV Vancomycin and gentamicin are started.

O/E he is uncomfortable temp. 103°F BP 80/50 mm of Hg, pulse 110/min O<sub>2</sub> saturation on room atmosphere is 91%. JVP raised to jaw line. Heart rhythm is regular with summation gallop. Grade 4/6 continuous murmur is heard over precordium that accentuates during diastole. There are bilateral basal crepts on chest auscultation. He has 2+ bilateral pedal oedema.

Lab findings : WBC 19000/cm.

TEE : normal LV size with hyperdynamic systolic function

Prominent aortic right coronary sinus with color Doppler e/o flow between aorta and R.V. An echolucency (fluid) is noted around aortic valve annulus. There are multiple, mobile echodensities on Aortic valve with moderate AR other valves are normal. Blood cultures are positive for Staph aureus.

Which of the following is the most appropriate management ?

- (1) Aortic valve replacement and aortic repair
- (2) Broaden antibiotic coverage
- (3) Coronary angiography
- (4) IABP

54. 60 yr man with Type 2 DM and hypertension goes for executive health check up He reports monitoring his BP and blood glucose measurements at home with good results. He had lipid profile checked 5 yrs ago and was instructed by prior physician to exercise lose weight and reduced his intake of dietary cholesterol. He has made some lifestyle changes. His hypertension has been treated for 15 years and his DM for 5 years. His daily medications include lisinopril, Amlodipine, Metformin and Aspirin.

O/E BP 128/65 MM of Hg and pulse 76/min, BMI 26.

Lab studies :

TC 215 mg %

TG 185 mg %

HDLC 39 mg %

LDLC 145 mg %

HbA<sub>1c</sub> 6.5 %

Which of the following medications is the best choice for reducing this patients risk of cardiovascular disease ?

- (1) Colestipol (2) Ezetimibe (3) Niacin (4) Simvastatin

55. 45 year man is evaluated in casualty for 2 days history of substernal sharp intermittent chest pain that is aggravated by deep breaths. He began experiencing severe chest pain 4 hrs prior to his casualty visit. He gives 3-day history of nonproductive cough. Sore throat, myalgias and malaise. He has had hypertension for 12 years. His medications are hydrochlorothiazide and amlodipine.

O/E temp. 100°F. BP 168/100 MM of Hg pulse 110/min and RR 26/min S<sub>p</sub>O<sub>2</sub> on room air 96% patients face and chest appear diaphoretic. The oropharynx is erythematous. JVP is not raised and hepatjugular reflux is negative. Cardiac examination discloses two component rub that is loudest at apex, distant heart sounds and no murmurs. Pulmonary examination discloses normal breath sounds and no crepts. There is no palpable chest wall tenderness. Lab studies show WBC 12300/cm. DLC : Polymorphs 50% lymphocytes 30% and no band forms. Initial Troponin level is 0.6 mg/ml. ECG : sinus tachycardia and concave upward ST segment elevation in V<sub>1</sub> to V<sub>6</sub>. Chest X-Ray : no infiltrates and normal cardiac silhouette.

Which of the following is the most likely diagnosis ?

- (1) Acute Myocardial Infarction (2) Acute Viral Pericarditis  
(3) Pleuritis (4) Pulmonary Embolism

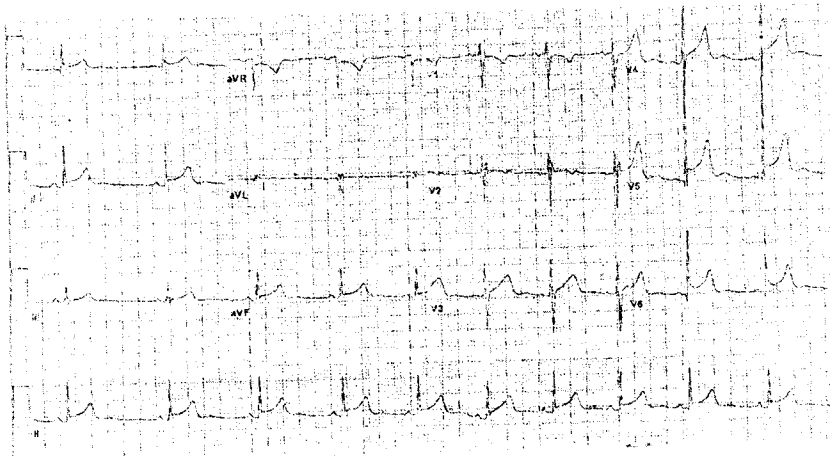
56. A 30 yr woman who recently migrated to US from Mexico is evaluated in casualty for shortness of breath ; PND palpitations and pedal oedema. She is gravida 1, para 0, is 30 weeks pregnant. She was not received prenatal care until this point. She reports no recent illnesses, fevers, chills, dental work, or sick exposures. She has no significant past medical history.

O/E Afebrile, BP 92/68 mm of Hg pulse 116/mm. The patient appears uncomfortable, and is sitting upright to breathe JVP is raised to jaw line while sitting upright cardiac auscultation demonstrates an irregularly irregular rhythm loud S<sub>1</sub> and normal S<sub>2</sub> and an opening snap. A grade 2/6 holosystolic murmur is heard at apex radiating to axilla and low pitched diastolic murmur following opening snap. Bibasilar crepts are present. There is 3 + bilateral pitting pedal oedema. S<sub>p</sub>O<sub>2</sub> in room air is 91% Trans thoracic ECHO shows normal biventricular size and function LA is enlarged. There is MS with mean transvalvular gradient of 15 mm of Hg and mild MR. PA systolic pressure is 45-50 mm of Hg.

In addition to I.V. diuretic therapy which of the following is the best immediate management option ?

- (1) D.C cardioversion (2) IV Beta blocker therapy  
(3) Percutaneous Mitral Balloon valvuloplasty (4) Pregnancy induction and delivery

57. A 34 yr woman is evaluated for sharp intermittent pleuritic chest pain that has persisted for 1 wk. The pain is worst when she lies down in supine position she has had no fever chills, cough or weight loss. She had acute viral pericarditis 6 months ago that was treated initially with ibuprofen but when she failed to respond after 3 days, 10 days tapering dosage of prednisone was instituted leading to resolution of symptoms. She has 10 year history of essential hypertension and she takes hydrochlorothiazide and potassium chloride. O/E Temperature : normal, BP 98/54 MM of Hg, pulse 99/min and RR 20/min cardiac examination discloses pericardial friction rub at lower left sternal Border but no gallops. Pulmonary auscultation reveals normal breath sounds and no crepts JVP is not raised and no chest wall tenderness. Lab studies ser creat 1 mg % ECG is shown chest X-Ray normal sized cardiac silhouette and clear lung fields.
- Which of the following is the most appropriate treatment ?



- (1) Colchicine  
 (2) High dose Aspirin  
 (3) High dose Ibuprofen  
 (4) Indomethacin
58. A 45 yr man is evaluated in emergency dept for 3 day history of progressively worsening dyspnoea on exertion to the point that he is unable to walk more than one block without resting. He has had sharp intermittent pleuritic chest pain and nonproductive cough with myalgias and malaise for 7 days and has had orthostatic dizziness for 2 days. He is taking no medications. O/E Temperature : 99.9°F, BP 88/44 MM of Hg. Pulse 125/min and RR 29/min BMI 27, SpO<sub>2</sub> on room air 95% pulsus paradoxus is 15 MM of Hg. Estimated CVP is 10 cm of H<sub>2</sub>O cardiac examination discloses muffled heart sounds with no rubs lung auscultation reveals normal breath sounds and no crackles. There is 2 + pedal oedema. Lab studies : Prothrombin time 12 sec. Activated partial thromboplastin time 28 sec ser creat : 1.3 mg % BUN 26 mg % ECG : Sinus tachycardia, diffuse low voltage and no ST segment shifts. ECHO : large circumferential pericardial effusion, RV and atrial free wall diastolic collapse normal LV systolic function and LVEF 70% chest X-Ray shows enlarged cardiac silhouette and no pulmonary infiltrates.
- Which of the following is the most appropriate treatment ?
- (1) Dobutamine  
 (2) Levofloxacin and tobramycin  
 (3) Pericardiocentesis  
 (4) Surgical pericardiectomy

59. A 50 yr man is evaluated after an episode of joint pain confusion headache, nausea vomiting and seizure that occurred shortly after Scuba diving. The incident was felt to be related to decompression illness and gas embolization. He has otherwise been in excellent health and gas no history of cardiovascular disease.

O/E Post vital without e/o neurologic deficit BP 110/70 mm of Hg Heart rate 125/min and irregular  $S_pO_2$  on room air is 97% cardiac and pulmonary room is unremarkable there is no clubbing or cyanosis ECG : AF that spontaneously converts to NSR with HR of 100/min chest X-Ray : Normal.

He is treated with hyperbaric oxygen therapy in recompression chamber and makes an uneventful recovery.

Which of the following is the most appropriate test to perform next in this patient ?

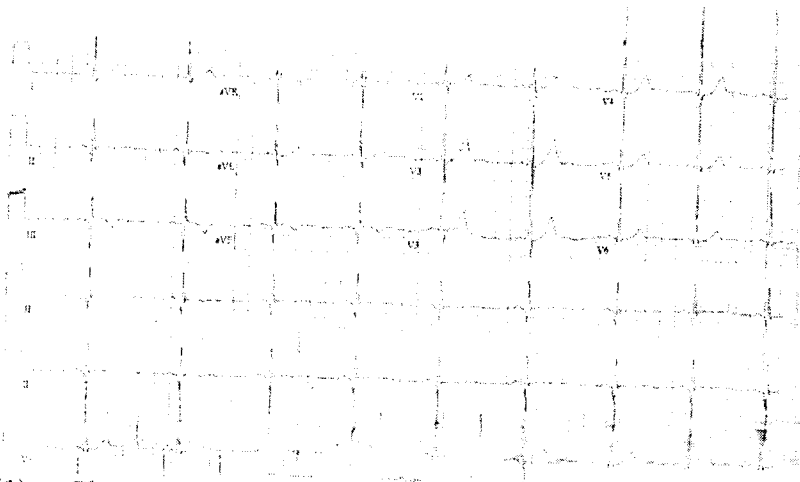
- (1) Cardiac catheterization
- (2) MRI
- (3) Intracardiac ECHO
- (4) Transoesophageal ECHO

60. A 72 yr man is evaluated in casualty for dyspnoea. One week ago, an episode of severe dyspnoea awake him from sleep. His wife described audible wheezing over the next several days he felt easily fatigue but his dyspnoea stabilizer. On the morning of admission, patient noted sudden increase in dyspnoea and called emergency medical services. His medical history is significant for hypertension hyperlipidaemia and chronic obstructive pulmonary disease. He currently takes simvastatin, aspirin lisinopril and ipratropium and salmeterol metered - dose inhalers.

O/E. Afebrile, BP 86/52 MM of Hg pulse regular at 110/min and respiratory rate 24/min.  $S_pO_2$  92% on 6 L of  $O_2$ . The patient appears uncomfortable, sitting up with laboured breathing. Estimated CVP 14 cm of  $H_2O$ . Cardiac examination reveals grade 2/6 holosystolic murmur at cardiac apex radiating toward left axilla Bibasilar crepts are present. There is trace pitting pedal oedema.

ECG : Shown Transthoracic ECHO reveals hypokinesis of inferior wall and LVEF 50%. There is severe mitral regurgitation due to posteromedial papillary muscle rupture. PA systolic pressure is 55 mm of Hg. Chest X-Ray shows pulmonary vascular congestion.

Which of the following is the best management option ?



- (1) Chest CT
- (2) Percutaneous coronary intervention
- (3) Transoesophageal ECHO
- (4) Urgent Mitral Value Surgery

61. A 67 yr man is evaluated for 2 days of intermittent fever 101.7°F. He was treated with 7 day course of ciprofloxacin that ended 5 days ago for ordinary tract infection and urinary symptoms have resolved. He was anorexia and fatigue but no nausea vomiting or diarrhea. He denies symptoms of upper respiratory tract infection, cough or dyspnoea. He has sick sinus syndrome with pacemaker placed 3yrs ago. He also has type 2 Diabetes Mellitus and obesity medications are aspirin and metformin. O/E temperature 101°F, BP 137/80 mm of Hg Pulse 85/min and respiratory rate 14/min. BMI 34. Heart sounds are normal with no extra sounds or murmurs. There are no stigmata of endocarditis and pacemaker pocket is beginning. The lungs are clear. Lab findings : WBC 14000/CMM. Pacemaker interrogation shows normal lead and battery parameters.

Which of the following is the most appropriate next step in the management of this patient ?

- (1) Blood and urine cultures
- (2) Pacemaker packet aspiration
- (3) Repeat a course of ciprofloxacin
- (4) Vancomycin plus Gentamicin

62. A 31 yr black woman is evaluated for painless bilateral lower limb oedema of 4 wk duration. She denies chest pain, dyspnoea orthopnoea and PND. She has hypertension which has been treated for two years with hydrochlorothiazide. At age 5 yr she had acute lymphoblastic leukaemia which was treated with vincristine doxorubicin and dexamethasone. She is currently on no medications other than HCTz. O/E BP 138/92 MM of Hg. Pulse 90/mt and RR 18/mt BMI 27. Estimated CVP 10 cm of H<sub>2</sub>O cardiac exam reveals nondisplaced apical impulse, normal heart sounds and no murmurs or extracardiac sounds. Pulmonary exam nation is normal. There is bilateral lower extremity oedema to the knees. Lab results include normal levels of sodium, potassium BUN, and creatinine. Urinalysis is normal and there is no e/o proteinuria ECG : NSR and LBBB.

Which of the following is the most appropriate investigation for this patient ?

- (1) Adenosine nuclear perfusion imaging study
- (2) Bilateral lower extremity venous duplex ultrasound
- (3) Complete hemogram
- (4) Transthoracic ECHO

63. A 45 yr man is evaluated for a 6 month H/O progressive dyspnoea on exertion and lower limb oedema. He can now walk only one block before needing to rest. He reports orthostatic dizziness in the last 2 weeks. He denies chest pain palpitations or syncope. He was diagnosed 15 yrs ago with non Hodgkin's lymphoma, which was treated with chest irradiation and chemotherapy and is now in remission. He also has type 2 DM He takes Furosemide 80 mg 3 times daily, glyburide and low dose aspirin. O/E, Afebrile BP 125/60 mm of Hg supine and 100/50 mm of Hg standing Pulse 90/min supine and 110/min standing RR 23/min BMI 28. JVP is raised and jugular venous engorgement with inspiration. Estimated CVP 15 cm H<sub>2</sub>O. Cardiac examination discloses diminished heart sounds and prominent early diastolic sound but no gallops or murmurs. Pulmonary auscultations discloses normal breath sounds and no crepts. Abdominal examination shows shifting disillness and lower limbs show 3 + sitting oedema to the level of the knees. The remainder of the physical exam is normal.

Lab studies : creat 2 mg %, BUN 40 mg % TC 300 mg % Ser Albumin 3 gm/4, Alanine aminotransferase 130 U/L, Aspartate aminotransferase 112 U/L, Urinalysis Negative for proteins.

Which of the following is the most likely diagnosis ?

- (1) Cirrhosis
- (2) Constrictive Pericarditis
- (3) Neptrotic syndrome
- (4) Systolic Heart failure

64. A 56 yr man is evaluated in casualty for chest discomfort that began 3 hours ago. He describes the pain which is well localised to the left chest as pressure. He denies prior episodes. Medical history is notable for T2DM and hyperlipidaemia. Medication include aspirin metformin and atorvastatin. O/E he is diaphoretic and in moderate distress owing to chest pain BP 95/60 MM of Hg and Heart rate 110/min. There is distention of JVP with an estimated CVP 14 cm H<sub>2</sub>O An S<sub>3</sub> is heard on cardiac auscultation but no murmurs are present. The being fields are clear and there is no peripheral oedema. The ECG : Sinus tachycardia, 2 MM ST segment elevation in leads II/III/avF and 0.5 MM ST segment elevation in lead V<sub>1</sub>. He is given aspirin, metoprolol, unfractionated heparin and thromlolytic therapy. Twenty minutes later he has continued chest pain and sublingual mitroghycerine is given. BP falls to 70 mm of Hg systolic and he remains tachycardiac with heart rate of 100/min.

Which of the following is the most likely cause of hypotension in this patient ?

- (1) Pericardial tamponade
- (2) Right ventricular Infarction
- (3) Increased vagal tone
- (4) Ventricular Septal Defect



65. A 22 year woman is evaluated for symptoms of a "racing heart" which she has experienced since her teenage years. Previously episodes were short and resolved spontaneously or would terminate with deep breathing. In the last few months, however the episodes have been more frequent - upto 2 to 3 times a week - and sustained. Longer episodes (over 5 minutes) have been associated with dizziness but no syncope has occurred. She denies chest discomfort but does experience mild dyspnoea and neck pounding. Episodes are triggered by caffeine dehydration and bending over she is active and runs competitively. She is on no medications.

O/E BP 92/50 mm of Hg without orthostatic changes pulse 50/min. ECG : normal intervals and no pre-excitation.

Which of the following is the most appropriate Management option for this patient ?

- (1) Atenolol
  - (2) 24 - Hour ambulatory monitoring
  - (3) Loop recorder monitoring
  - (4) Sertraline
66. A 78 yr man is admitted to the hospital for treatment of myocardial infarction. Medical history includes hypertension and T<sub>2</sub>DM.

O/E BP 140/60 mm of Hg pulse 65/min. Estimated CVP 6 cm H<sub>2</sub>O. There are no murmurs or extra heart sounds lung fields are clear and there is no peripheral oedema. Initial ECG : 3 MM ST Segment elevation in leads V<sub>1</sub> through V<sub>6</sub> and ST segment depression in leads II/III/ and avF. Chest X-Ray shows increased Pulmonary Vascular Markings.

The hospital does not have cath.lab and the patient receives thrombolytic therapy and unfractionated heparin. His pain subsides 40 mins after initiation of reteplase. Metoprolol, Nitroglycerine, and captopril are started. Three hours later he develops respiratory distress in the absence of chest pain. Repeat physical examination shows BP 125/70 mm of Hg Pulse 110/min, and RR 20/min Estimated CVP 15 cm H<sub>2</sub>O. There is S<sub>3</sub> but no murmurs. Crepts are heard throughout both lung fields. A repeat ECG shows 0.5 mm ST segment elevation in leads V<sub>1</sub> through V<sub>6</sub>.

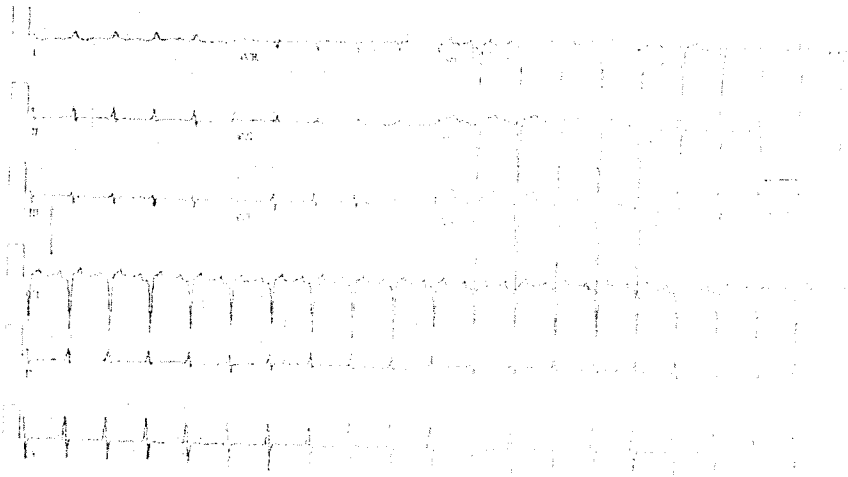
Which of the following is the best immediate treatment ?

- (1) Increase Metoprolol
- (2) IV Dobutamine
- (3) IV Furosemide
- (4) Repeat administration of thrombolytic therapy

67. A 32 yr woman is hospitalized for 2 days of malaise fatigue frequent chest pain without particular exacerbating or relieving factors, subjective fever and shortness of breath with exertion that is improved by rest. Her medical history is unremarkable she does not smoke or use illicit drug and she is on no medications. She has no history of arthralgias, arthritis, photosensitivity, pleuritis or pericarditis. Both of her parents are alive a well of E temp. 100.6°F. BP 110/75 mm of Hg pulse 120/min. She is oriented a alert. JVP is mildly raised cardiae exam discloses regular tachycardic rate and rhythm a soft S<sub>1</sub> and S<sub>2</sub> and S<sub>3</sub>. The lungs are clear. There is no hepatosplenomegaly, no rash and no oedema chest X-Ray shows pulmonary congestion and cardiomegaly.

Lab studies Hb% : 14 gm % WBC 8500/cm Platelet count 158,000/cm. Sr creatinine 0.9 mg % troponin 5 ng/ml. LFT normal. ANA : Negative. TSH 3 ml/ml. FCG is shown ECHO : LVEF 30% global hypokinesia and minimum pericardial effusion. There is non e/o valvular Heart disease.

Which of the following is the most appropriate treatment ?



- |                        |                                |
|------------------------|--------------------------------|
| (1) Amiodarone         | (2) Captotril and carvedilol   |
| (3) Methylprednisolone | (4) Vancomycin and ceftriaxone |

68. A 40 yr woman is evaluated for 2 months of progressive dyspnoea on exertion, orthopnoea and lower limb oedema. She has no other medical problems and takes no medications, including over the counter drugs and she does not use illicit drugs. She does not smoke cigarettes and rarely drinks alcohol. There is no family H/O heart disease O/E Afebrile BP 120/80 mm of Hg, pulse 80/mt. Estimated CVP 8 cm H<sub>2</sub>O. The lungs are clear cardiac examination reveals regular rhythm, an S<sub>3</sub> and no murmurs. There is mild ankle oedema chest X-Ray shows mild vascular congestion ECG shows NSR initial lab evaluation reveals normal Hb level and metabolic profile including thyroid studies.

Which of the following is the most appropriate initial diagnostic test ?

- (1) B type natriuretic peptide level
- (2) ECHO cardiography
- (3) Radionuclide ventriculography
- (4) HRCT chest

69. A 32 yr woman is evaluated for exertional dyspnoea that has developed within the last few months. She reports a life long history of heart murmur but has had no other cardiovascular symptoms and has not had prior cardiac testing. She recently moved to us from North Africa and she did not receive regular health care prior to moving to us. She is not on any medications O/E BP 130/40 MM of Hg, Heart rate 70/min and regular. JVP demonstrates prominent 'a' waves and the carotid pulses are bounding. Cardiac apex is displaced to anterior axillary line of 6<sup>th</sup> intercostal space and parasternal impulse is present. There is systolic and diastolic murmur palpable over left chest. A continuous grade 4/6 systolic and diastolic murmur is noted over left side of chest and primarily over second left intercostal space. There is no S<sub>3</sub> or S<sub>4</sub> No additional sounds are noted. There is no e/o digital clubbing or cyanosis.

ECG : Bialtrial enlargement and features of left ventricular hypertrophy chest X-Ray cardiomegaly.

Which of the following is the most likely diagnosis ?

- (1) ASD with Pulmonary stenosis
- (2) Eisenmenger syndrome
- (3) Mitral stenosis and regurgitation
- (4) Patent Ductus Arteriosus

70. A 23 yr woman is evaluated for management of pulmonary arterial hypertension. She is minimally symptomatic (NYHA class I-II) She was diagnosed with idiopathic pulmonary arterial hypertension several months ago and is on no pulmonary vasodilator therapy at this time. She inquires about pregnancy.

Which of the following options regarding management of pregnancy is most appropriate for this patient ?

- (1) Addition of bosentan prior to proceeding with pregnancy
- (2) Admission to high risk pregnancy unit at 30 wks
- (3) Cesarean delivery at 34 wks
- (4) Recommend avoiding pregnancy

71. A 62 yr man is evaluated for hypertension. In home BP measurements over past two weeks - average 128/90 mm of Hg. He has type II DM and had an inferior myocardial infarction 5 yrs ago which was treated with placement of base metal stent in right coronary artery. His current medications include lisinopril 10 mg/day metoprolol 50 mg twice day, aspirin, pravastatin and glipizide. He tolerates his medications without side effects. O/E BP 130/95 mm of Hg pulse 56/min and RR 14/min BMI 28 cardiac auscultation reveals on S<sub>4</sub>. Laboratory testing reveals normal serum electrolytes, creatinine and BUN levels. Hb A<sub>1c</sub> is 6.8% and urine albumin/creatinine ratio is 10 mg/g

ECG reveals NSR with rate of 60 bpm with first degree A.V block Q waves in leads II/III/ and avF and nonspecific T wave abnormalities.

Which of the following is the most appropriate treatment for this patients hypertension ?

- |                                |  |
|--------------------------------|--|
| (1) Increase metoprolol dosage | (2) Increase lisinopril dosage         |
| (3) Add Losartan               | (4) Substitute Losartan for lisinopril |

72. A 29 yr woman with a mechanical valve prosthesis presents for pregnancy counselling. She has a history of mitral regurgitation and had mitral valve replacement for progressive left ventricular enlargement several years ago. She recently married and would like to start a family. She is asymptomatic and has been on a stable dose of warfarin 4 mg/day for the past 2 yrs. O/E BP 120/70 mm kg. The estimated CVP is 3 cm H<sub>2</sub>O. There is a crisp, mechanical S<sub>1</sub>. No murmurs are detected. The remainder of examination is unremarkable.

Which of the following is the most appropriate anticoagulation regimen for this patient if she becomes pregnant ?

- (1) Continue warfarin, adjusted to INR
- (2) Stop warfarin, start aspirin and clopidogrel
- (3) Stop warfarin start Fondaparinux
- (4) Stop warfarin, start weight based low molecular weight heparin

73. A 49 yr woman is evaluated for routine physical examination. She has no prior cardiac history. She is frustrated by her inability to lose weight and has tried a number of diets without significant or sustained weight loss. She has a sedentary lifestyle and does not exercise with her usual activities, she has not experienced chest pain or dyspnoea she is a current smoker with a 32 pack-year history. She has perimenopausal symptoms and has taken estrogen (0.625 mg/d) for the past 4 years. Her father had myocardial infarction and by pass surgery at age 58 years O/E BP 132/85 mm of Hg Pulse 86/min. BMI 31.

Lab studies : TC 180 mg % HDLC 50 mg % LDLC 92 mg % TG 190 mg %.

Which of the following lifestyle modifications is most important in reducing this patients risk of future cardiovascular disease ?

- (1) Aerobic exercise 30 minutes 3 or 4 days weekly
- (2) Cessation of cigarette smoking
- (3) Discontinuation of hormone replacement therapy
- (4) Weight loss to BMI below 25

74. A 62 yr woman is brought to casualty by paramedics for chest pain that has been present for 5 hours medical history is notable for T<sub>2</sub> DM, Hypertension and stroke 1 year ago medications include glyburide lisinopril, atorvastatin and Aspirin. O/E comfortable afebrile, BP 190/90 mm of kg, pulse 88/min and RR 16/min cardiac examination shows no murmurs, extra sounds or rubs. The lungs are clear and pulses are equal bilaterally. Neurological exam is normal ECG : 2 mm ST segment elevation in leads II/III and avF. A coronary cath lab is not available and the nearest hospital with percutaneous intervention capability is 1 hour away.

Which of the following is the best management option for this patient ?

- (1) Aggressive medical therapy without reperfusion attempt
- (2) Immediate thrombolytic therapy
- (3) Transfer for CABG surgery
- (4) Transfer for percutaneous intervention

75. A 20 year female, college student evaluated at health centre. She had no major medical problems prior to college there is no family H/O cardiovascular disease.

O/E BP 110/60 mm of Hg pulse 70/min  $S_1$  and  $S_2$  are normal and  $S_4$  is present. There is harsh grade 2/6 midsystolic murmur heard best at the lower left sternal border. The murmur does not radiate to carotids. A Valsalva manoeuvre increases the intensity of the murmur moving from standing position to squatting position, performing a passive leg lift while supine and performing isometric hand grip exercises decreases the intensity. Rapid upstroke of carotid pulses are present. BP in upper and lower limbs is equal.

Which of the following is the most likely diagnosis ?

- (1) Aortic coarctation                      (2) Hypertrophic cardiomyopathy  
(3) Mitral valve prolapse                      (4) Ventricular septal defect

76. A 32 yr woman with repaired tetralogy of Fallot's seeks counselling regarding potential pregnancy and the risk of having a child with congerital heart disease. She has no cardiovascular symptoms and takes no medications. She has no significant cardiac chamber enlargement and has had no arrhythmias she has moderate pulmonary valve regurgitation.

O/E Dysmorphic features, with low set ears, Rest physical examination is unremarkable cardiovascular exam reveals 1+ parasternal impulse and early diastolic murmur noted along left sternal border that increases with inspiration. There is no clubbing or cyanosis.

ECG : RBBB with QRS width 120 m sec. Patient has normal sinus rhythm. Chest X-Ray : mild cardiomegaly ECHO borderline right-sided cardiac chamber enlargement. On Bruce protocol patient exercises at 98% of predicted capacity.

Which of the following is the greatest concern regarding pregnancy outcome in this patient ?

- (1) Fetal congenital heart disease  
(2) Intrauterine growth retardation causing a low birth weight infant  
(3) Maternal arrhythmia  
(4) Maternal cardiovascular morbidity

77. A 54 yr man with T2 DM reports 3 months of exertional chest pain. He is obese with BMI of  $32 \text{ kg/M}^2$  BP 150/90 and an  $S_4$  No cardiac murmurs and no peripheral oedema. Fasting glucose is 130 mg % and ser TG 200 mg %.

Which of the following is most likely in this patient ?

- (1) Elevated HDL-C  
(2) Smaller than normal LDL particles  
(3) Reduced serum endothelin level  
(4) Reduced serum homocysteine level

78. A 30 yr woman is seen in clinic before undergoing an oesophageal dilation for a stricture. Her past medical history is notable for mitral valve prolapse with mild regurgitation. She takes no medications and is allergic to penicillin. Her physician should recommend which of the following ?
- (1) Clarithromycin 500 mg PO 1 hour before the procedure
  - (2) Vancomycin 1g m I.V. before the procedure
  - (3) The procedure is low risk and therefore no prophylaxis is indicated
  - (4) Her valvular lesion is low risk and therefore no prophylaxis is indicated
79. A 32 yr woman is seen in casualty for acute shortness of breath. A helical CT shows no evidence of pulmonary embolus, but incidental note is made of dilatation of ascending aorta to 4.3 cm.
- All the following are associated with this finding except :
- (1) Syphilis
  - (2) Takayasis arteritis
  - (3) Giant cell arteritis
  - (4) Systemic lupus erythematosus
80. A 43 yr woman who complains of dyspnoea on exertion. She was well until 2 months ago when she noticed decreasing exercise tolerance and fatigue. She denies chest pain but does have NYHA class II symptoms. She has no orthopnoea or PND. She has noticed bilateral ankle swelling that improves with recumbency. She has one child and has no other past medical history. On cardiac examination JVP is slightly elevated. There is prominent 'a' wave. There is RV tap felt along the left sternal border.  $S_1$  is prominent and  $P_2$  is accentuated. There is a sharp opening sound heard best during expiration just medial to cardiac apex which occurs shortly after  $S_2$ . A diastolic rumble is heard at apex with patient in left lateral decubitus position Hepatomegaly and ankle oedema are present. The pulse is regular and BP 108/60 mm of Hg. This patient is at high risk for developing which of the following ?
- (1) Atrial Fibrillation
  - (2) LV Dysfunction
  - (3) Multifocal atrial tachycardia
  - (4) RVOT tachycardia
81. Which of the following conditions is not associated with sinus bradycardia :
- (1) Brucellosis
  - (2) Leptospirosis
  - (3) Hypothyroidism
  - (4) Typhoid fever
82. Most significant risk factors for complications of patients with heart disease in pregnancy are all of below except.
- (1) NYHA class III/or IV sympts
  - (2) Cyanosis
  - (3) H/O Arrhythmia
  - (4) Mild mitral stenosis

83. The percentage of risk of foetal structural cardiac anomalies in pregnant patients with congenital cardiac anomalies :
- (1) 2–3%                      (2) 8.8–14.2%              (3) 4.6–5.6%              (4) 28–30%
84. Most common Rheumatic valvular lesion in pregnancy :
- (1) Pulmonary Stenosis                      (2) Aortic Stenosis  
(3) Mitral Stenosis                      (4) Tricuspid Atresia
85. ECG changes in pregnancy are all of below except :
- (1) Right axis deviation  
(2) Right Bundle Branch Block  
(3) T wave inversion in leads III/V<sub>2</sub> and V<sub>3</sub>  
(4) T wave inversion in all leads
86. Complications in pregnant woman with Aortic stenosis arise primarily due to :
- (1) Inability to maintain cardiac output  
(2) Increased blood volume  
(3) High clotting tendency  
(4) Increased fluid in third space
87. Highest maternal mortality associated with pregnancy in :
- (1) Pulmonary Hypertension and Coarctation  
(2) ASD  
(3) VSD  
(4) PDA
88. Most common corrective procedure for complete transposition of great arteries performed on patients of child bearing age is :
- (1) Renaut's procedure                      (2) Koffmans By pass  
(3) Atrial switch (Mustard)                      (4) Coleman shunt

89. The three strongest predictors of Acute myocardial infarction in pregnancy are all of below except :

- (1) Chronic Hypertension
- (2) Advance Maternal Age
- (3) Diabetes Mellitus
- (4) Familial tendency

90. Mitral valve prolapse incidence in pregnant young woman is approximately.

- (1) 3%
  - (2) 17%
  - (3) 21%
  - (4) 24%
-