

Tanta University

Cardiology Master Degree (Policy 2013)

Faculty of Medicine

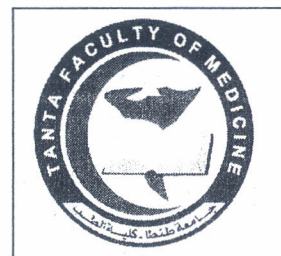
Number of Questions: 32 , 5 Ppages(Total Marks 270)

Department of Cardiology

Time Allowed : 3 Hours

April 27th , 2022

Final Exam, Second Paper



First: Short Questions (Each Question 20 marks):

1. Scheme of management of diabetic dyslipidemia.
2. Differential diagnosis and management of narrow QRS tachycardia.
3. Scheme of management of bleeding in patients taking NOACs.
4. Scheme of management of aortic coarctation and re-coarctation.
5. Definitions and diagnostic criteria for pericarditis.
6. Definition and scheme of approach of resistant hypertension.

Second: Ultrashort Questions (Each Question 10 marks):

1. Patterns of atrial fibrillation.
2. Recommendations for exercise in young individuals/athletes with anomalous origins of coronary arteries.
3. Enumerate cardiovascular manifestations of systemic lupus erythematosus.
4. Enumerate congenital heart disease with high risk and extremely high risk for pregnancy.
5. Enumerate predictors of cardiovascular events with pregnancy.
6. Management of syncope in the emergency department.
7. Enumerate cardiovascular manifestations of thyroid disorders.
8. Enumerate clinical manifestations of cardiac tumors.
9. Cardiorenal syndrome type 5.
10. Comparison of ambulatory blood pressure monitoring and home blood pressure monitoring.

Third: MCQ (Each Question 3 marks):

1. Which of the following features would not be expected in a patient with severe tetralogy of Fallot?
 - A. A soft or absent P2.
 - B. A right ventricular lift.
 - C. A loud systolic murmur .
 - D. Central cyanosis.

2. All are compelling contraindication to ACE inhibitors EXCEPT:
 - A. ESRD on dialysis.
 - B. Pregnancy.
 - C. Bilateral renal artery stenosis.
 - D. Serum K⁺ =6.5 Meq%.

3. In elderly patients; secondary hypertension frequently occurs due to:
 - A. Coarctation of aorta.
 - B. Secondary hyperaldosteronism.
 - C. Secondary renal artery stenosis.
 - D. Primary hyperaldosteronism.

4. Which one of the following is a primary malignant tumor of the heart?
 - A. Papillary fibroelastoma.
 - B. Primary Lymphoma.
 - C. Primary Fibroma.
 - D. Primary Lipoma.

5. The most common clinical manifestation of penetrating injury of the heart is:
 - A. A-V Fistula.
 - B. Heart Failure.
 - C. Cardiac Tamponade.
 - D. Intra-cardiac Shunts.

6. Which one of the following interventions is the most important for successful resuscitation of an adult patient presented with out of hospital cardiac arrest?
 - A. Early (DC) shock.
 - B. IV epinephrine
 - C. IV amiodarone.
 - D. Early intubation.

7-In current regulations, which of the following drug is absolutely contraindicated in pregnancy?

- A. Metoprolol.
- B. Simvastatin.
- C. Aspirin.
- D. Amlodipine.
- E. propranolol.

8.What is the best imaging modality for below knee lower extremities arterial disease [LEAD]?

- A-Computerized tomography angiography.
- B- Magnetic resonance imaging angiography.
- C- Digital subtraction angiography [DSA].
- D- Duplex ultrasonographic scanning .

9. In patients with atrial fibrillation ; ECG is needed for the following indications EXCEPT

- A-Change in symptoms or new symptoms
- B-Monitoring of drug effects on ventricular rate
- C- Monitoring of antiarrhythmic drug effects
- D- Monitoring catheter ablation for rhythm control
- E-None of the above

10. One of the following is the most common cause of orthostatic hypotension in the elderly.

- A-Diuretic therapy.
- B-Bleeding peptic ulcer
- C-Parkinsonism
- D-Amyloidosis

Fourth: Problem Solving MCQ (20 marks):

First Problem (10 marks):

A 60-year-old man known to be hypertensive and was on atenolol 50mg plus hydrochlorothiazide 12.5mg once daily and presents with SOB. On examination ;BP is 210/100 mmHg and HR=100 /min regular , ECG shows LVH with strain.

1. What is the next step? (4 Marks)
 - A. IV diuresis aiming for a reduction of mean arterial pressure ~25% at 30 minutes.
 - B. IV diuresis + nitroprusside, aiming for a reduction of mean arterial pressure ~25% at 30 minutes.
 - C. IV diuresis + nicardipine, aiming for a reduction of mean arterial pressure ~25% at 30 minutes.
 - D. IV diuresis + IV nitroglycerin for a controlled reduction of mean arterial pressure .

2. Regarding hydrochlorothiazide, which statement is incorrect? (3 Marks)
 - A. For better BP control and fewer metabolic effects, it is best to combine thiazide with amiloride or triamterene.
 - B. Potassium and creatinine need to be checked 1 week after therapy initiation.
 - C. A 12.5 mg dose of HCTZ is usually an effective starting dose.
 - D. Thiazide diuretic is initially effective through volume reduction but is later effective through the reduction of vascular resistance.

3. Regarding beta blockers therapy compared to the other antihypertensive groups of drugs, which statement is incorrect? (3 Marks)
 - A. Is associated with more LVH reverting effect than losartan.
 - B. Is associated with less central aortic pressure reduction.
 - C. Is associated with a higher risk of stroke and mortality.
 - D. Is associated with more reduction of the heart rate.

Second Problem (10 marks):

A 69-year-old man is diagnosed with frequent recurrent, symptomatic paroxysmal AF. He has HTN and diabetes. He has a history of CAD and underwent PCI 3 years previously. He has CKD (creatinine 1.4 mg/dl, GFR 48 ml/min/1.73 m²). Echo shows normal EF, LA enlargement (4.3 cm), and mild LVH (septum 12 mm). He has a history of bleeding peptic ulcer 2 months ago, requiring transfusion. His baseline heart rate is 72 bpm. He received diltiazem (240 mg QD) and aspirin 81 mg OD.

1. What is the next option? (4 marks)
 - A. Add flecainide .
 - B. Add dronedarone.
 - C. Add amiodarone.
 - D. Add sotalol.
 - E. AF ablation.

2. Should this patient receive anticoagulation? (3 marks)

- A. Anticoagulation should be avoided.
- B. Anticoagulation should be added despite bleeding risk.
- C. Use dual antiplatelet therapy instead of anticoagulation .
- D. Stop aspirin and add anticoagulation +proton pump inhibitors

3. If planned for anticoagulation; which anticoagulant should he receive? (3 marks)

- A. Dabigatran.
- B. Rivaroxaban.
- C. Apixaban.
- D. Warfarin.

Good luck

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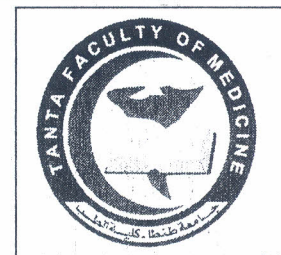
Number of Questions: 29 , 5 pages (Total 270 Marks)

Department of Cardiology

Time Allowed : 3 Hours

April 20th, 2022

Final Exam, First Paper



First: Short Questions (Each Question 20 marks):

1. Recommendations for intervention in valvular aortic stenosis.
2. Key steps in the diagnosis of chronic heart failure.
3. Anticoagulation therapy for acute pulmonary embolism.
4. Indications of interventions in aortic aneurysms.
5. Recommendations on anti-ischæmic drugs in patients with chronic coronary syndromes.
6. Management of native valvular heart disease during non-cardiac surgery.

Second: Ultrashort Questions (Each Question 10 marks):

1. Enumerate risk factors for sudden death in Hypertrophic Cardiomyopathy.
2. Enumerate ten conditions with cardiac troponin elevation.
3. Contraindications for percutaneous mitral commissurotomy in rheumatic mitral stenosis.
4. Recommendations for an implantable cardioverter defibrillator in patients with heart failure.
5. Modified Duke's criteria .
6. Enumerate Contraindications to fibrinolytic therapy.
7. The Ankle Brachial Index.
8. Enumerate risk factors and predisposing conditions for chronic thromboembolic pulmonary hypertension.
9. Recommendations on pre-operative coronary angiography in patients undergoing non-cardiac surgery.
10. Enumerate predictors of poor outcome in patients with infective endocarditis.

Third: MCQ (Each Question 2 marks):

- 1- One of the following can predict an increased risk of cardiac events after major non-cardiac surgery in patients >40 years of age.
 - A. Presence of an S4 gallop.
 - B. Active cigarette smoking.
 - C. Serum hemoglobin = 9 gm/dL.
 - D. Mitral stenosis; MVA=2.0 cm².
 - E. Controlled Hypertension .

2. A 31-year-old LADY who had a Bioprosthetic aortic valve replacement three years ago is coming for follow up on examination she looks well and in sinus rhythm . What antithrombotic therapy is she likely to be taking?
 - A. Nothing.
 - B. Dabigatran.
 - C. Warfarin
 - D. Aspirin.

3. All of the following conditions are associated with aortic dissection EXCEPT
 - A. Marfan syndrome.
 - B. Systemic hypertension.
 - C. Arterial atherosclerosis.
 - D. Bicuspid aortic valve.
 - E. polycystic kidney disease.

4. All of the following drugs are useful in the treatment of HCM EXCEPT:
 - A. Metoprolol.
 - B. Disopyramide.
 - C. Torsemide.
 - D. Diltiazem.
 - E. Enalapril.

5. All of the following neurohormones are associated with vasoconstriction, cell growth, hypertrophy, and sodium retention except:
 - A. Angiotensin-II (Ang-II).
 - B. Norepinephrine.
 - C. Brain natriuretic peptide.
 - D. Endothelin.
 - E. Arginine vasopressin.

6. The inability to exercise properly in heart failure is due to all of the following EXCEPT:

- A. Reduced ejection fraction .
- B. Skeletal muscle atrophy.
- C. Endothelial dysfunction .
- D. Reduced stroke volume.

7. All of the following are not indications for IE prophylaxis in a patient undergoing dental extraction EXCEPT

- A- Previous CABG operation.
- B- Isolated secundum ASD.
- C- VSD closure with residual shunt
- D- Mitral valve prolapse.
- E- Cardiac pacemaker insertion.

8. A CT Pulmonary Angiography has the following strength to diagnose Acute Pulmonary Embolism EXCEPT:

- A. Readily available around the clock in most centres.
- B. It shows excellent accuracy.
- C. Strong validation in prospective studies.
- D. Low rate of inconclusive results (1-2%).
- E. May provide alternative diagnosis if PE excluded.

9. All are mechanical complications of myocardial infraction EXCEPT:

- A. Acute pericarditis.
- B. Mitral regurgitation.
- C. Ventricular septal defect.
- D. Rupture of free wall.

10. Which of the following statements concerning the echocardiographic evaluation of aortic stenosis is TRUE?

- A. The peak-to-peak gradient measured at cardiac catheterization routinely exceeds the peak instantaneous aortic valve pressure gradient assessed by Doppler echocardiography
- B. Patients with impaired left ventricular function may have severe aortic stenosis, as determined by the continuity equation, despite a peak outflow velocity of only 2 to 3 m/s
- C. Among Doppler techniques, the most accurate transaortic valve flow velocity in aortic stenosis is measured by pulsed-wave Doppler imaging
- D. The greatest degree of error in the calculation of aortic valve area using the continuity equation resides in inaccurate measurement of the transaortic valve flow velocity
- E. The mean aortic valve gradient measured by Doppler echocardiography is typically higher than the mean gradient measured by cardiac catheterization

Fourth: Problem Solving MCQ (Each Problem 10 marks):

First Problem (10 marks):

A 32-year-old woman with a history of IV drug abuse presents to the emergency department with fatigue and night sweats. Physical examination reveals a temperature of 38.4°C, scattered rhonchi and wheezes in the lung fields, tachycardia without heart murmurs, and needle tracks on her arms. Chest radiograph reveals several small infiltrates in the left lung field. A transthoracic echocardiogram is obtained and an apical four-chamber view showing the right-sided chambers is displayed in the following figure.



All of the following are true about this case EXCEPT:

- A. The vegetation displayed occupies the most common endocardial site of infection in IV drug abusers.
- B. The most likely associated organism is *Staphylococcus aureus*.
- C. Gram-negative bacilli are a prominent cause of such lesions.
- D. The majority of patients with this presentation are found to have pneumonia or multiple septic emboli on a chest radiograph.

Second Problem (10 marks):

A 45-year-old woman with no known risk factors, presents with ongoing chest pain. Clinical examination reveals BP 140/80 mmHg, heart rate 95 bpm, and saturations 94% on room air.

What should you do next?

- A. Administer oxygen.
- B. Administer analgesia.
- C. Give aspirin 300 mg.
- D. Perform a 12-lead ECG.
- E. Gain IV access.

Third Problem (10 marks):

A 60-year-old hypertensive man presents with severe tearing back pain, ABP=200/120 and HR=120/min. MRI confirms the presence of a descending thoracic dissection originating beyond the left subclavian artery.

Appropriate initial treatment includes:

- A. Immediate referral to surgery to replace the descending aorta.
- B. Immediate aortography followed by descending aorta staple clipping.
- C. Intravenous nitroprusside and morphine.
- D. Intravenous nitroprusside and metoprolol .

Good luck