

Cardiology (MSc)

Tanta University

Pharmacology Written Examination

Faculty of Medicine

Number of Questions: 5

Pharmacology Department

Time Allowed: 3 hour

Date: 18/4/2016

Total: 100



Answer the following questions:

1. Give an account on (25Marks):
 - a) Digoxin (uses, side effects , toxicity and treatment)
 - b) Prazocin (mode of action, uses and side effects)
 - c) Warfarin (mode of action, side effects and drug interactions)
 - d) Spironolactone (dynamics and drug interactions)
 - e) Cephalosporin (classification, mechanism of action and uses)
2. Give a short account on(24 Marks)
 - a) Anti-arrhythmic drugs (classification and mechanism of action)
 - b) Gemfibrozil (mode of action ,uses and side effects)
3. Give short account on treatment of (20Marks)
 - a) Exertional angina
 - b) Thyroid storm
 - c) Cardiogenic shock
 - d) Status asthmaticus
4. Compare between each of the following (25Marks):
 - a) Heparin and enoxaparin
 - b) Caffeine and aminophylline
 - c) Rifampicin and isoniazide
 - d) Paracetamol and aspirin
 - e) Edrophonium and neostigmine
5. Give reason on each of the following (6Marks):
 - a) Verapamil is a good choice in supraventricular tachycardia
 - b) Lovastatin is usually given with dinner
 - c) Frusemide is preferred in treatment of heart failure than thiazide
 - d) Co-administration of nitrates and beta blockers
 - e) Fibrinolytics are used frequently in acute myocardial infarction
 - f) Morphine is used in treatment of acute pulmonary edema

سيتم عقد الإمتحان الشفوي يوم الأربعاء الموافق ٢٠١٦/٤/٢٠ في تمام الساعة التاسعة والنصف صباحا

Cardiology (MSc)

Tanta University

Pharmacology Written Examination

Faculty of Medicine

Number of Questions: 4

Pharmacology Department

Time Allowed: 3 hour

Date: 6/4/2016

Total: 30



Answer the following questions:

1. Give an account on (10 Marks):
 - a) Dopamine (kinetics, dynamics and uses)
 - b) Clonidine (dynamics, uses and drug interactions)
 - c) Amiodarone (mode of action and uses)
 - d) Nitroglycerin (mode of action, side effects and precautions)
2. Compare between each of the following (9Marks):
 - a) Verapamil and nifedipine
 - b) First order and zero order kinetics
 - c) Frusemide and spironolactone
3. Give short account on treatment of (9Marks)
 - a) Acute Myocardial infarction
 - b) Cardiogenic shock
 - c) Rheumatic fever
4. Give reason on each of the following (2Marks):
 - a) Quinidine causes hypotension
 - b) Thrombolytics are contraindicated in active tuberculosis
 - c) Aspirin in small dose acts as antiplatelet drug
 - d) Sudden stop of sodium nitroprusside is contraindicated

سيتم عقد الإمتحان الشفوي يوم السبت الموافق ٢٠١٦/٤/٩ في تمام الساعة التاسعة والنصف صباحا

Tanta University

Faculty of Medicine

Department of Cardiology

April 9 , 2016

Basic Cardiology

Number of Questions: 4

Time Allowed : 3 Hours

Master Degree, First Part



Basic Cardiology

All Question should be Answered :

- 1- Genesis of arrhythmias.
- 2- Pathophysiological mechanisms of hypertension.
- 3- Arterial Pulse: causes and characters of different types.
- 4- Metabolism of normal and ischemic myocardium.

Good luck

Cardiology (diploma) & Master

Tanta University

Pharmacology Written Examination

Faculty of Medicine

Number of Questions: 4

Pharmacology Department

Time Allowed: 3 hour

Date: 6/4/2016

Total: 30



Answer the following questions:

1. Give an account on (10 Marks):
 - a) Alpha methyl dopa (dynamics, uses and side effects)
 - b) Lidocaine (dynamics, uses and side effects)
 - c) Nitroglycerine (mode of action, side effects and precautions)
 - d) Atorvastatin (mode of action and side effects)
2. Compare between each of the following (9Marks):
 - a) Dopamine and dobutamine
 - b) Edrophonium and neostigmine
 - c) Heparin and enoxaparin
3. Give short account on treatment of (9Marks)
 - a) Acute pulmonary edema
 - b) Cardiogenic shock
 - c) Digitalis toxicity
4. Give reason on each of the following (2Marks):
 - a) Digitalis is contraindicated in myocardial ischemia and diphtheritic myocarditis
 - b) Nifedipine is not preferred in treatment of angina
 - c) Beta blockers are contraindicated in variant angina
 - d) Captopril is contraindicated in 2nd and 3rd trimester

سيتم عقد الإمتحان الشفوي يوم السبت الموافق ٢٠١٦/٤/٩ في تمام الساعة التاسعة والنصف صباحا

Tanta University
Faculty of Medicine
Department of Medical Biochemistry
1st Part Medical Biochemistry M.S. Cardiology Exam.

Date: 11-4-2016

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Explain the role of the following parameters in the diagnosis of AMI.

- a) Ischemia modified albumin.
- b) Muscle phosphorylase-B.
- c) Troponin T.
- d) CPK isoenzymes and isoforms.
- e) Myoglobin.
- f) LDH.

Good Luck

سيعد الامتحان الشفوي بمشيئة الله يوم الاربعاء الموافق 2016/4/20

Tanta University

Cardiology Master Degree

Faculty of Medicine

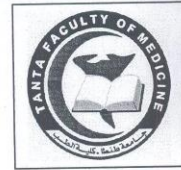
Number of Questions: 4

Department of Cardiology

Time Allowed : 3 Hours

April 11 , 2016

Second Part, First Paper



Cardiology

All Question should be Answered :

- 1- Evaluation and risk assessment of hypertensive patient.
- 2- Heart failure with preserved ejection fraction.
- 3- Classifications and management of pulmonary artery hypertension.
- 4- Management of aortic stenosis.

Good luck

TANTA UNIVERSITY----- Internal Medicine Exam
FACULTY OF MEDICINE ----- Master degree of cardiology
INTERNAL MEDICINE DEPARTMENT-----NO. OF QUESTIONS:3
13/4/, 2016 ----- Time: 3



All Questions must be answered :

- 1- Causes and clinical manifestations of fulminant hepatic cell failure.
- 2- Hematological manifestations of systemic lupus erythematosus.
- 3- Management of peptic ulcer.

Good Luck

Examination for Master Degree in: cardiology
Course Title: **CARD 8003**
Date:5-4-2016
Term: April 2016
Time Allowed:3 hours
Total Assessment Marks: 30



Tanta University
Faculty of Medicine
Department of:
Pathology

Questions Number	Marks
Q1: Discuss the pathology of cardiomyopathy	10 marks
Q2 :Discuss the pathogenesis and pathology of autoimmune heart diseases	10 marks
Q3 : Compare between carcinoma and sarcoma	10 marks

Chairman of department
Prof Dr. Afaf Alshafey

TANTA UNIVERSITY----- Internal Medicine Exam
FACULTY OF MEDICINE ----- Master degree of cardiology
INTERNAL MEDICINE DEPARTMENT-----NO. OF QUESTIONS: 2
4/4/, 2016 ----- Time: 3



All Questions must be answered :

- 1- Discuss acute complications of DM.
- 2- Diagnostic criteria of systemic lupus erythematosus.
- 3- Management of idiopathic thrombocytopenia.

Good Luck

Tanta University

Basic Cardiology

Faculty of Medicine

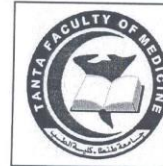
Number of Questions: 4

Department of Cardiology

Time Allowed : 3 Hours

April 3 , 2016

Master and Diploma Degrees, First Part



Basic Cardiology

All Question should be Answered :

- 1- Genesis of electrocardiogram.
- 2- Pathophysiological mechanisms of heart failure.
- 3- Neck veins: normal and abnormal waves.
- 4- Regulation of coronary blood flow.

Good luck

Tanta University

Faculty of Medicine

Department of Cardiology

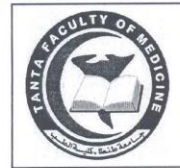
April 3 , 2016

Basic Cardiology

Number of Questions: 4

Time Allowed : 3 Hours

Master and Diploma Degrees, First Part



Basic Cardiology

All Question should be Answered :

- 1- Genesis of electrocardiogram.**
- 2- Pathophysiological mechanisms of heart failure.**
- 3- Neck veins: normal and abnormal waves.**
- 4- Regulation of coronary blood flow.**

Good luck



Tanta University
Faculty of Medicine
Department of Physiology

Examination for (MSC Cardiology)
Course Title: Physiology
Total Assessment Marks:30

Course Code:
CARD8001
Time Allowed:
Physio + Bio
Three Hours

Date:2/4/2016

Term : Final

All the questions are to be answered:-

Q1- Explain: Heart rate and its regulation.

(10 marks)

Q2- Describe:

- a) The intrinsic mechanism of blood coagulation.
- b) Hypoxia and cyanosis.

(5 marks)

(5 marks)

Case study: A patient presents to the Emergency Department with intermittent chest pain. The ECG and blood tests are negative for myocardial infarction, but the echocardiogram shows thickening of the left ventricular muscle and narrowing of the aortic valve. Medications to lower afterload are prescribed. Which of the following values would provide the best measure of the effectiveness of the medication in lowering left ventricular afterload in this patient?

- a. Left ventricular end-diastolic pressure.
- b. Left ventricular mean systolic pressure.
- c. Pulmonary capillary wedge pressure.
- d. Total peripheral resistance.
- e. Mean arterial blood pressure.

Explain your answer (2.5 marks)

Answer the following MCQ by the most probable one choice: In answer sheet (7.5 marks)

Q.1. Anaemia due to exposure of bone marrow to gamma radiation is called:

- a. Pernicious anaemia.
- b. Microcytic anaemia.
- c. Blood loss anaemia.
- d. Aplastic anaemia.

Q.2. In chronic stage of cardiac failure retention of fluid is caused by the following mechanism EXCEPT:

- a. Release of A.D.H.
- b. Release of aldosterone hormone.
- c. Sodium and water retention.
- d. Decrease of contractility of cardiac muscle.

Q.3. Stimulation of the high pressure

baroreceptors is associated with:

- a. An increase in the cardiac contractility
- b. An increase in the heart rate
- c. An increase in the discharge rate of vagal efferent cardiac neurons
- d. A decrease in systemic blood pressure

Q.4. Diastolic pressure in the aorta is

normally about:

- a. 8-10mm Hg.
- b. 30mm Hg.
- c. 60mm Hg .
- d. 80-90mm Hg.

Q.5. Visceral pain is characterized by all the following EXCEPT:

- a. It may radiate.
- b. It is poorly localized.
- c. Its receptors are insensitive to distension.

LOOK IN THE BACK OF THIS PAGE

- d. It may produce reflex contraction of nearby muscles.

Q.6. In anaemic hypoxia:

- a. PO₂ in the blood is decreased.
b. % saturation of haemoglobin is decreased.
c. Amount of oxygen dissolved in plasma is decreased.
d. O₂ content of the blood is decreased.

Q.7. In primary hyperthyroidism:

- a. The thyroid gland may or may not be enlarged.
b. There is a low pulse pressure.
c. There is hypotonia.
d. There is elevated serum TSH.

Q.8. The increase in coronary blood flow during stimulation of sympathetic nerve is due to:

- a. Cardiac acceleration.
b. More powerful contraction.
c. Increased myocardial metabolic activity.
d. All of the above.

Q.9. In Addison's disease:

- a. There is excessive secretion of GH.
b. A pituitary basophil adenoma may be present.
c. The patient is mentally subnormal.
d. There is excessive loss of Na⁺.

Q.10. In Cushing syndrome all the following feature are present EXCEPT:

- a. Excess facial hair.
b. Osteoporosis.
c. Hypovolaemia.
d. Hyperglycaemia.

Q.11. Lungs which easily expand have:

- a. Low compliance.
b. High compliance.
c. Low level of surfactant.
d. Large number of collagen fibres.

Q.12. In acute haemorrhage:

- a. The main danger is due to loss of R.B.Cs.
b. If the lost blood is more than 30% blood transfusion is not indicated.
c. Blood coagulability decreases.
d. Water moves from extravascular to intravascular compartment.

Q.13. Hypovolemic shock becomes progressive and irreversible due to the following causes EXCEPT:

- a. Failure of vasomotor centre.
b. Cardiac depression.
c. Decreased body temperature.
d. Toxic myocardial factor (TMF) from ischemic tissue.


Q.14. Venous return to the heart is facilitated by:

- a. The amount of blood filling the circulatory system.
b. The tone of sympathetic system on the veins.
c. The negativity of the thoracic pressure.
d. All of the above.

Q.15. Alveolar ventilation per minute is equal to:

- a. 500 x 4 (ml/min).
b. 500 x 6 (ml/min).
c. 350 x 14 (ml/min).
d. 350 x 6 (ml/min).

Oral exam will be on Sunday 10 April 2016 at 9 am in physiology department.

Tanta University	Cardiology Master Degree	
Faculty of Medicine	Number of Questions: 50	
Department of Cardiology	Time Allowed : 3 Hours	
April 16, 2016	Second Part, Second Paper MCQ	

MCQ Cardiology

All Question should be Answered :

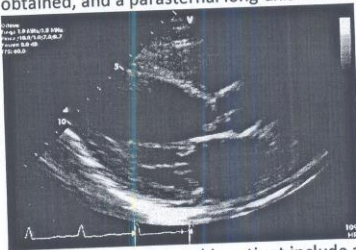
- Which one of the following is the most reliable finding on physical examination to indicate that a severe degree of aortic regurgitation (AR) is present?
 - Wide arterial pulse pressure.
 - Lateral displacement of the point of maximal impulse.
 - Austin Flint murmur.
 - Absent A2.
 - Grade III/IV long AR murmur.

- A 36-year-old man is referred for suspected atrial septal defect (ASD). He is employed, active, and asymptomatic. ECG shows a normal axis and incomplete RBBB. Chest X-ray shows an enlarged right heart silhouette and increased pulmonary vessels throughout the lungs. Echocardiography confirms a 3 cm diameter secundum ASD with a large shunt. There is a mild tricuspid regurgitation jet of 2 m/sec. Your recommendation is which one of the following?
 - Yearly follow-up.
 - Digoxin.
 - Warfarin.
 - ACE inhibitor.
 - Cardiac surgical repair.

- A 22-year-old man is referred for evaluation of a heart murmur. He is asymptomatic and offers no pertinent family history. Exam: Normal habitus. Heart rate 76 bpm, BP 116/76 mmHg, respiratory rate 10/min. Jugular venous pressure 6 cm with normal wave forms. Both carotids upstroke normal. Lungs clear. LV impulse sustained. S1 normal, S2 normal split. No ejection sound. Grade 3/6 mid-peaking systolic murmur and 2nd RICS. Grade 1/6 diastolic decrescendo murmur at left sternal border. Abdomen soft, normal situs. Extremities normal. ECG: Normal sinus rhythm, increased LV voltage. What is the most likely diagnosis?
 - Bicuspid aortic valve.
 - Supravalvular aortic stenosis.
 - Discrete subvalvular stenosis.

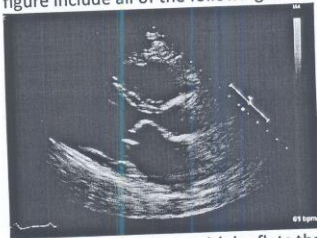
D. Hypertrophic obstructive cardiomyopathy.

4. A 45-year-old woman with a history of hypertension presented with dyspnea upon exertion. You obtained an echocardiogram showing normal left ventricular systolic and diastolic function, normal right ventricular (RV) size and function, normal valvular function, but an estimated right ventricular systolic pressure (RVSP) of 56 mmHg with 1 to 2+ tricuspid regurgitation. Your next step should be:
- A. To perform a pulmonary angiogram.
 - B. To perform to right heart catheterization (RHC).
 - C. To start oral bosentan therapy and follow-up in 6 weeks.
 - D. To repeat an echocardiogram in 6 months.
5. A 50-year-old man with long-standing hypertension and chronic aortic regurgitation presented to his physician with daily fevers for the past 3 weeks and new dyspnea. Physical examination revealed basilar crackles in both lung fields, the patient's prior murmur of aortic regurgitation, and bilateral pitting edema of the ankles. The ECG revealed sinus rhythm and unifocal ventricular premature beats. A transthoracic echocardiogram was obtained, and a parasternal long-axis view from that study is shown in the following figure.



True statements about this patient include all of the following EXCEPT:

- A. The left ventricle is dilated.
 - B. The posterior mitral valve leaflet is prolapsing into the left atrium.
 - C. No pericardial effusion is visualized.
 - D. The left atrium is enlarged.
 - E. A vegetation is present.
6. True statements concerning the auscultatory findings of the valvular abnormality depicted in the following figure include all of the following EXCEPT:



- A. In patients with leaflets that are still flexible, S1 is accentuated.
- B. In patients with heavily calcified leaflets, the intensity of S1 is diminished.

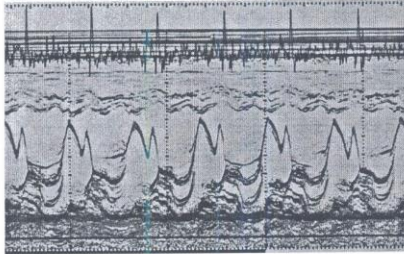
- C. As the severity of this condition increases, the A2-OS interval (the interval between A2 and the mitral opening sound) shortens.
- D. The intensity of the diastolic murmur is closely related to the severity of this condition.
- E. P2 (the pulmonic valve closure sound) is commonly accentuated.

7. A 65-year-old woman, who is originally from Puerto Rico, presents for evaluation of known mitral stenosis. Over the past few months she has developed worsening exertional dyspnea, atrial fibrillation, and moderate pulmonary hypertension.

Which of the following statements regarding percutaneous balloon mitral valvuloplasty for this condition is TRUE?

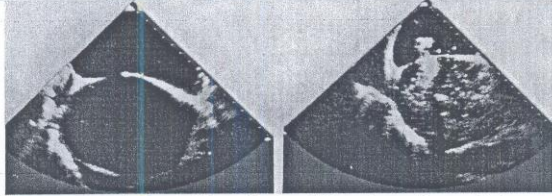
- A. The risk of stroke during the procedure is 10%.
- B. Transthoracic echocardiography is the appropriate imaging study before the procedure to exclude the presence of left atrial thrombus.
- C. Balloon mitral valvuloplasty is the treatment of choice for patients with hemodynamically significant mitral stenosis, without left atrial thrombus and an echo score of ≤ 8 .
- D. A small atrial septal defect can normally be detected in 25% of patients after the procedure.
- E. Approximately 10% of patients develop severe mitral regurgitation as a result of the procedure.

8. The M-mode echocardiogram in the following figure was recorded from an asymptomatic 24-year-old woman. Valvular regurgitation is absent by Doppler interrogation. Which of the following statements is TRUE?



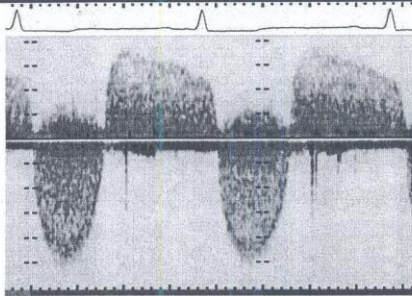
- A. The patient should undergo repeat echocardiography every 6 months to follow this disorder.
- B. She should receive antibiotic prophylaxis to prevent infective endocarditis prior to invasive dental procedures.
- C. She is at increased risk of sudden cardiac death.
- D. She is at increased risk of thromboembolism and requires chronic oral anticoagulation therapy.
- E. Advanced age and male gender are risk factors for progression of this disorder and the need for surgical intervention.

9. A 75-year-old woman presented to her physician with severe fatigue and intermittent cyanosis. Initial evaluation revealed that cyanosis had been present for approximately 1 year and occurred chiefly during mild to moderate exertion. Transthoracic echocardiography (TTE) yielded images that were suboptimal; therefore, transesophageal echocardiography (TEE) was performed. Part A in the following figure shows a basal image from the TEE, and part B shows an image obtained after injection of agitated saline into the right antecubital vein.



True statements about this patient and the echocardiographic images displayed include all of the following EXCEPT:

- A. The saline contrast image demonstrates right-to-left interatrial flow.
 - B. The images verify a secundum-type atrial septal defect.
 - C. An anomalous pulmonary vein is demonstrated.
 - D. In TTE, the subcostal position is most useful for studying the lesion displayed.
 - E. When left atrial pressure exceeds right atrial pressure in this condition, echocardiography with IV saline contrast injection may demonstrate a negative contrast effect within the right atrium.
10. Which of the following statements regarding idiopathic pulmonary arterial hypertension is TRUE?
- A. The prevalence is equal in males and females.
 - B. Chest pain related to right ventricular ischemia is the most common manifesting symptom.
 - C. Sudden cardiac death is a potential complication, but only in patients with Class IV symptoms.
 - D. Increased intensity of S1 is the most common physical finding.
 - E. Electrocardiographic evidence of right ventricular hypertrophy is present in a small minority of patients.
11. Unequal upper extremity arterial pulsations commonly are found in each of the following disorders EXCEPT:
- A. Aortic dissection.
 - B. Takayasu disease.
 - C. Supravalvular aortic stenosis.
 - D. Subclavian artery atherosclerosis.
 - E. Subvalvular aortic stenosis.
12. Which of the following statements regarding altered electrolytes and electrocardiographic abnormalities is TRUE?
- A. Hypocalcemia causes prolongation of the QT interval.
 - B. Hyperkalemia causes QRS narrowing and increased P wave amplitude.
 - C. Hypomagnesemia is associated with monomorphic ventricular tachycardia.
 - D. Hypokalemia causes peaked T waves.
 - E. Severe hypocalcemia has been associated with the presence of a J wave (Osborn wave).
13. Which of the following statements about the transaortic valve Doppler flow tracing shown in the following figure is TRUE?



- A. The probability of critical aortic stenosis in this patient is very low.
 B. The estimated peak transaortic valvular gradient is 90 to 100 mm Hg.
 C. Aortic insufficiency is severe.
 D. Based on the Doppler findings, premature closure of the mitral valve is likely.
 E. The echocardiogram likely reveals normal left ventricular wall thickness.
14. Each of the following conditions can result in significant electrocardiographic Q waves in the absence of infarction EXCEPT:
 A. Left bundle branch block.
 B. Left ventricular dilatation with posterior rotation of the heart.
 C. Electrocardiographic lead misplacement.
 D. Acidosis.
 E. Wolff-Parkinson-White syndrome.
15. All of the following statements about natriuretic peptides are true EXCEPT:
 A. Circulating levels of both atrial natriuretic peptide and brain natriuretic peptide (BNP) are elevated in patients with heart failure.
 B. Plasma BNP level is useful in distinguishing cardiac from noncardiac causes of dyspnea in the emergency department setting.
 C. Elevated plasma BNP levels predict adverse outcomes in patients with acute coronary syndromes.
 D. Prohormone BNP is cleaved into the biologically inactive N-terminal (NT) proBNP and biologically active BNP.
 E. Circulating levels of BNP and NT-proBNP levels decrease with age and worsening renal function.
16. Which of the following conditions is likely to precipitate symptomatic heart failure in patients with previously compensated left ventricular contractile dysfunction?
 A. Atrial fibrillation.
 B. Marked sinus bradycardia.
 C. Atrioventricular dissociation.
 D. Right ventricular apical pacing.
 E. All of the above.
17. Which of the following characterizes heart failure?
 A. Downregulation of β_1 - and β_2 -receptors.
 B. Downregulation primarily of β_1 -receptors with little change in β_2 -receptors.

- C. Downregulation of G proteins and β_1 - and β_2 -receptors.
- D. Increase in myocardial norepinephrine stores.
- E. Intact baroreceptor function.

18. The severity of symptomatic exercise limitation in heart failure:

- A. is caused by elevated PCWP.
- B. is caused by reduced blood flow to skeletal muscles.
- C. bears little relation to the severity of LV dysfunction.
- D. can be reversed by inotropic therapy.
- E. is related to markers of central hemodynamic disturbance.

19. Commonest clinical manifestation of penetrating injury to heart is:

- A. A-V fistula.
- B. Heart failure.
- C. Cardiac tamponade.
- D. Intracardiac shunts.

20. All are causes of electromechanical dissociation except:

- A. Hypovolemia.
- B. Pulmonary embolism.
- C. Cardiac tamponade.
- D. Uncomplicated acute myocardial infarction.

21. Which is usually not the feature of left atrial myxoma?

- A. Syncope.
- B. Tumous plop.
- C. Atrial fibrillation.
- D. Murmur vary with position.

22. Most common clinical manifestation of left atrial myxoma is:

- A. Embolism.
- B. Arthralgia.
- C. Syncope.
- D. Haemoptysis.

23. ARB's cause all of the following except:

- A. No change in bradykinin.
- B. Cough occurs with equal frequency as with ACE inhibitors.
- C. Less angioedema than ACE inhibitors.
- D. Hyperkalemia less common than ACE Inhibitor.

24. All are compelling contraindication to ACE inhibitors except:

- A. Pregnancy.
- B. Bilateral renal artery stenosis.
- C. Hyperkalemia.
- D. ESRD.

25. Left ventricular hypertrophy in hypertension is related to:

- A. Diastolic blood pressure.
- B. Systolic blood pressure.
- C. Both of them.
- D. None of these.

26. Left ventricular hypertrophy more frequently occurs in hypertension in all following conditions except:

- A. Obesity.
- B. High dietary sodium.
- C. Diabetes mellitus.
- D. Coronary artery disease.

27. Commonest finding in reno-vascular hypertension is:

- A. Abdominal bruit.
- B. Urinary casts.
- C. Age of onset after 50 years.
- D. Grade 3 or 4 fundoscopic changes.

28. In elderly subjects secondary hypertension frequently occurs due to:

- A. Coarctation of aorta.
- B. Secondary hyperaldosteronism.
- C. Secondary renal artery stenosis.
- D. Primary hyperaldosteronism.

29. Commonest complication of untreated hypertension:

- A. LVH.
- B. Proteinuria.
- C. Going to accelerated phase.
- D. Heart failure.

30. All are atherosclerotic complication of hypertension except:

- A. Heart failure.
- B. Claudication.
- C. Coronary artery disease.
- D. Cerebral thrombosis.

31. All the following situations favour initial use of calcium antagonists in hypertension except:

- A. Blacks.
- B. High salt intake.
- C. Associated vasospastic angina.
- D. Perioperative hypertension.

32. A 72-year-old presents with sudden-onset chest pain at a local emergency department. He has a past medical history significant for hypertension, hyperlipidemia, and gastroesophageal reflux disease. On examination his BP is 95/60 mmHg and heart rate is 90 beats per minute and he is breathing at 90% on ambient air. He reports this is the first time he has had any episode of chest pain. His electrocardiogram (ECG) reveals ST elevation in V1 to V4. The nearest hospital with percutaneous coronary intervention (PCI) capability is 3 hours away.

What is the next step in management?

- A. Perform fibrinolysis; administer unfractionated heparin, aspirin, and clopidogrel; and admit to hospital.
- B. Administer unfractionated heparin, aspirin, and clopidogrel and admit to hospital.
- C. Administer unfractionated heparin, aspirin, and clopidogrel followed by transfer to PCI capable hospital.
- D. Computed tomography (CT) of the chest with intravenous contrast.
- E. Perform fibrinolysis; low-molecular-weight heparin (LMWH), aspirin, and clopidogrel; and transfer to the hospital for possible PCI.

33. In the acute termination of AF, which drug is most effective in conversion of AF to sinus rhythm within one hour?

- A. IV procainamide.
- B. IV amiodarone.
- C. IV ibutilide.
- D. IV digoxin.
- E. IV diltiazem.

34. Adenosine may terminate all of the following tachycardias except:

- A. Atrial tachycardia.
- B. AV nodal re-entrant tachycardia.
- C. Atrial flutter.
- D. AV re-entrant tachycardia.
- E. Antidromic tachycardia.

35. The principal features of heart failure include all of the following except:

- A. Activation of the renin-angiotensin-aldosterone system (RAAS) and sympathetic nervous system (SNS).
- B. Left ventricular (LV) remodeling.
- C. The ability to mount a reflex tachycardia.
- D. Downregulation of β -adrenergic receptors.

36. A 36-year-old male presents with an acute inferior wall myocardial infarction (MI). He is admitted to the CCU following primary angioplasty to a dominant right coronary artery. His chest x-ray shows mild pulmonary edema, and left ventricular ejection fraction (LVEF) is 46% by ventriculography. Following initial stabilization, his medications are metoprolol 25 mg twice daily, ASA 81 mg QD, clopidogrel 75 mg QD, fondaparinux 2.5 mg QD, and atorvastatin 80 mg QD. His heart rate is 64 beats per minute, blood pressure is 108/78 mm Hg, and oxygen saturation is normal on room air. Complete blood count, electrolytes, urea, and creatinine are normal. Which of the following changes to his therapy would be most appropriate prior to discharge?

- A. Increase clopidogrel to 75 mg BID.
- B. Discontinue metoprolol.
- C. Start Ramipril 2.5 mg daily.
- D. Start spironolactone 1 2.5 mg daily.
- E. Start hydralazine 25 mg TID.

37. Which of the following statements is correct regarding the use of angiotensin receptor blockers (ARBs) in HF?
- A. Side effects of angiotensin receptor blockers relate to increased levels of bradykinin.
 - B. Angiotensin receptor blocker is a reasonable first-line alternative to an ACE inhibitor in patients with HF and reduced LVEF.
 - C. An angiotensin receptor blocker should be considered in ACE inhibitor-intolerant patients with HF only in combination with an aldosterone antagonist.
 - D. An angiotensin receptor blocker should be considered in ACE inhibitor-intolerant patients with HF only in combination with a continuous positive inotrope.
 - E. An angiotensin receptor blocker should never be given to ACE inhibitor-intolerant patients because angioedema occurs with this class of agents as well.
38. Important side effects of the aldosterone antagonist eplerenone include all of the following except:
- A. Renal dysfunction.
 - B. Lightheadedness.
 - C. Gynecomastia.
 - D. Hypotension.
 - E. Hyperkalemia.
39. A 56-year-old male with a history of ischemic cardiomyopathy and EF of 10%, blood type O is transferred to your center. He is on milrinone at 0.25 $\mu\text{g}/\text{kg}/\text{min}$, furosemide at 10 mg/h, and lisinopril 2.5 mg. On examination, he is tachypneic, BP 88/40 mmHg, HR 104, lungs with crackles, JVP of 12, audible S3. Labs noted for Na 133, creatinine of 2.3, AST 56, and albumin 3.9. Social history notable for 1 PPD. The most appropriate therapy at this time is:
- A. Initiate carvedilol 6.25 mg BID
 - B. Add digoxin 250 μg daily
 - C. Left ventricular assist device (LVAD) implantation as destination therapy (DT)
 - D. Urgent listing for heart transplant
40. All of the following increase the gradient in hypertrophic cardiomyopathy (HCM) except:
- A. Valsalva maneuver.
 - B. Squatting.
 - C. Amyl nitrite.
 - D. Lisoproterenol.
41. Diastolic septal flattening (D-shaped septum) indicates:
- A. Right-sided volume overload.
 - B. Right-sided pressure overload.
 - C. Left-sided volume overload.
 - D. Severe mitral regurgitation.
 - E. Acute pulmonary embolism.
42. In patients presenting with unstable angina, which of the following is least predictive for short-term death or nonfatal MI?
- A. New onset of exertional angina (i.e. two weeks-two months) CCS class II.
 - B. Prolonged chest pain (>20 minutes).
 - C. Rest angina with dynamic ST changes.

- D. Angina with new mitral regurgitation.
- E. Angina with S3.

43. After a long automobile trip, a 52-year-old man presents with dyspnea and left hemiparesis. A ventilation perfusion lung scan shows multiple small perfusion defects in both lungs. Doppler studies show deep venous thrombus in the left leg. TEE shows a PFO.

What would be the best treatment of this patient?

- A. Pulmonary thrombectomy.
- B. Inferior vena cava filter.
- C. Thrombolytic therapy.
- D. IV heparin, then warfarin.
- E. Surgery to close the septal defect.

44. Which of the following findings suggests Ebstein's anomaly?

- A. Apical displacement of the septal leaflet.
- B. A secundum ASD.
- C. Severe tricuspid regurgitation.
- D. RV enlargement.

45. All of the following have deleterious effect in the pathophysiology of heart failure except:

- A. Noradrenaline.
- B. Angiotensin II.
- C. Natriuretic Peptides.
- D. Endothelin.
- E. AVP.

46. Regarding beta blockers in heart failure which of the following statements are correct?

- A. Are contraindicated in heart failure.
- B. Can be carefully initiated in patients with cardiogenic shock.
- C. Are indicated in the treatment of heart failure with preserved systolic function.
- D. Are indicated in the treatment of heart failure with reduced systolic function.
- E. Contraindicated in patients with stable COPD.

47. Which of the following lesions does not usually result in right heart enlargement:

- A. Primum ASD.
- B. PAPVR.
- C. PFO.
- D. Secundum ASD.
- E. Sinus venosus ASD.

48. Which of the following physical findings may be seen in patients with cardiogenic shock?

- A. Pulsus bisferiens.
- B. Corrigan (water-hammer) pulse.
- C. Pulsus alternans.
- D. Pulsus tardus.

49. A 55-year-old man with previous coronary bypass surgery notes worsening dyspnea on exertion, fatigue, and pedal edema. On exam, he is noted to have elevated JVP that increases with respiration and a loud early diastolic sound. He is most likely to have which of the following?

- A. Mitral stenosis.
- B. Ischemic dilated cardiomyopathy.
- C. Constrictive pericarditis.
- D. ASD.

50. A 32-year-old man presents to the cardiology clinic for evaluation of a new murmur heard during a physical exam with his primary care physician. The patient is asymptomatic. On auscultation, S1 is normal and S2 is increased. A decrescendo holodiastolic murmur is appreciated at the left sternal border. Echocardiography reveals a bicuspid aortic valve and AR with holodiastolic flow reversal in the descending aorta, regurgitant volume of 60 ml/beat, and vena contracta width of 7 mm.

Which of the following additional findings would prompt surgical intervention?

- A. Aortic root diameter of 4.5 cm.
- B. LV end-diastolic dimension of 65 mm.
- C. LV end-systolic dimension of 35 mm.
- D. LVEF of 46%.
- E. Supraventricular tachycardia on exercise testing.

Good luck



Tanta University
Faculty of Medicine
Department of Physiology.

Examination for (MSC Cardiology)
Course Title: Physiology
Total Assessment Marks:75

Course Code:
TMED.03:A03
Time Allowed:
Physio + Bio
Three Hours

Date:11/4/2016

Term : Final

All the questions are to be swered

Q1- Discuss: Indication of blood transfusion & mention the effects of incompatible blood transfusion. (20 Marks)

Q2-Describe the following:

- a) The factors influencing coronary blood flow. (20 marks)
b) Edema mechanism of formation. (15 marks)

Case study :The cardiac output of a 50 years old man at rest is 6L/min; HR is 75 bpm; left ventricular end diastolic volume (LVEDV) 120 L. What is the mean ejection fraction?

- a. 35%
b. 50%
c. 66%
d. 75%

Explain your answer (5 marks)

Answer the following MCQs by the most probable one choice & write the statement in your answer paper: (15 marks)

Q.1. The hematocrit of venous blood is slightly greater than that of arterial blood BECAUSE:

- a. The pH of venous blood is lower.
b. The addition of CO₂ increases osmoles in RBCs in venous blood.
c. The exit of bicarbonate from RBCs increases water content of RBCs.
d. The chloride-bicarbonate exchanger is electroneutral

Q.2. In an Rh-negative mother not previously sensitized by the Rh antigen, Rh incompatibility does not usually have a serious consequence during the first pregnancy BECAUSE:

- a. Antibodies are not able to cross the placenta.
b. The titer of IgG is low during the primary immune response.
c. IgG is ineffective against fetal red cells.

- d. Massive hemolysis in the fetus is compensated by increased erythropoiesis

Q.3. The aortic notch is ABSENT from:

- a. Radial arterial pulse tracing.
b. Pulmonary arterial pulse tracing.
c. Aortic pulse tracing
d. None of the above

Q.4. Systolic blood pressure:

- a. Accurately measured by palpation.
b. Is indicated at the point of disappearance of sound during auscultatory measurement.
c. Is primarily dependent on left ventricular output.
d. Is higher in the pulmonary vein than in pulmonary artery.

Q.5. Enkephalin-releasing neurons are present in all the following sites EXCEPT:

- a. The dorsal horns of the spinal cord.
b. The spinal trigeminal nucleus.

LOOK IN THE BACK OF THIS PAGE

- c. The cerebellum.
- d. The Periaquiductal gray region of the midbrain.

Q.6. What is the chemical identity of endothelium-derived relaxing factor (EDRF)?

- a. Nitrous oxide.
- b. Nitric oxide.
- c. Potassium.
- d. Carbon monoxide

Q.7. Which of the following is NOT a part of the specialized conduction system of the heart?

- a. Cells of the SA node.
- b. Cells of the AV node.
- c. Working myocardial cells.
- d. His bundle.

Q.8. Which of the following is INCORRECT concerning cardiac muscle?

- a. Cardiac cells are smaller than skeletal muscle cells.
- b. Electrical communication between cardiac cells is maintained via gap junctions which are specialized portions of the intercalated discs
- c. Mechanical attachment of cardiac cells is at the intercalated disc.
- a. Transverse tubules are larger in skeletal muscle than in heart muscle allowing more diffusion of Ca²⁺ into the interior of the cell.

Q.9. Which of the following is usually the dominant pacemaker and fires the fastest?

- a. SA node.
- b. AV node
- c. His bundle.
- d. Purkinje fibers.

Q.10. Which of the following is NOT true of the parasympathetic control of the heart?

- a. It affects muscarinic receptors.
- b. It decreases heart rate via the SA node.
- c. It decreases conduction velocity via the AV node.
- d. It can be blocked by beta blockers, e.g. propranolol.

Q.11. The electrocardiogram is most effective in detecting a decrease in:

- a. Ventricular contractility.
- b. Mean blood pressure.
- c. Total peripheral resistance.
- d. Coronary blood flow.

Q.12. Blood pressure increases and heart rate decreases in response to:

- a. Exercise.
- b. Increased body temperature.
- c. Exposure to high altitude.
- d. Increased intracranial pressure.

Q.13. All of the following substances are normally circulating in the plasma EXCEPT:

- a. Prothrombin.
- b. Plasmin.
- c. Plasminogen.
- d. Fibrinogen.

Q.14. All the following may cause anaemia EXCEPT:

- a. Living in high altitude.
- b. Erythroblastosis foetalis.
- c. C. Bone marrow aplasia.
- d. Decreased vitamin B₁₂ absorption.

Q.15. Intrapleural pressure is positive during:

- a. Deep inspiration.
- b. Tidal expiration.
- c. Forced expiration.
- d. Tidal inspiration.

Oral exam will be on Sunday 24/4/2016 at 9 am in physiology department