



Department of physiology
Time allowed: Three hours
Total marks: 30

Physiology
MSC of Cardiothoracic surgery

Tanta University
Faculty of Medicine
Code: CARS 8002
Date 21 /3/2021

All the questions must be answered:

- 1- Discuss: Factors affecting venous return. (5 marks)
- 2- State : Significance of pulmonary surfactant . (5marks)
- 3- Mention : Role of hormones in erythropoiesis. (5 marks)

All the following must be answered by only one choice (15 marks)

1- The postganglionic sympathetic neurons release:

- | | |
|--------------------|-------------------|
| a. Acetyl choline. | c. Noradrenaline. |
| b. Adrenaline. | d. Serotonin. |

2- Peripheral vascular resistance is:

- a. Directly proportionate to heart rate.
- b. Inversely proportionate to heart rate.
- c. Directly proportionate to blood viscosity.
- d. Inversely proportionate to blood viscosity.

3- Stimulation to alpha 1 adrenergic receptors induce :

- | | |
|--------------------------|-----------------------------------|
| a. Miosis. | c. Contraction to splenic capsule |
| b. Decrease heart rate . | d. Bronchoconstriction. |

4- Intrinsic mechanism of blood coagulation start by activation of factor :

- | | | | |
|----------|-------|---------|---------|
| a. VIII. | b. X. | c. XII. | d. III. |
|----------|-------|---------|---------|

5- Heart rate is:

- a. Directly proportionate to arterial blood pressure.
- b. Inversely proportionate to arterial blood pressure.
- c. Increased by vagal stimulation.
- d. Decrease by sympathetic stimulation.

6- Pulse pressure normally equal:

- | | |
|--------------|-------------|
| a. 120 mmHg. | c. 90 mmHg |
| b. 40 mmHg. | d. 70 mmHg. |

7- Irreversible shock induce:

- | | |
|-------------------------------------|------------------------------------|
| a. Increase sympathetic activity. | c. Increase cardiac output. |
| b. Increase capillary permeability. | d. Decrease capillary permeability |

Look to back

- 8- Which of the following is characteristic for Cushing syndrome :
- Hypoglycemia .
 - Hypotension.
 - Abnormal fat deposition.
 - Bradycardia.
- 9- Which of the following is function of Vitamin K :
- Is anticoagulant.
 - Induce vascular spasm.
 - Help formation of prothrombin.
 - Inhibit formation of prothrombin.
- 10- Which of the following is calcium lowering hormone :
- Calcitonin.
 - Thyroxine.
 - Insulin.
 - Parathormone.
- 11- Vasoconstriction of arterioles induce:
- Increase peripheral resistance.
 - Decrease peripheral resistance.
 - Increase heart rate.
 - Decrease heart rate.
- 12- Hemophilia is caused by deficiency of coagulation factor.
- Factor VIII
 - Factor V
 - Factor VII
 - Factor III
- 13- Which of the following is function of insulin :
- Rise blood K^+ level.
 - Exert lipolysis.
 - Had protein catabolic effect.
 - Lower blood K^+ level.
- 14- Which of the following could induce respiratory alkalosis:
- Excess renal HCO_3 reabsorption.
 - Respiratory depression.
 - Obstructive lung disease.
 - Hyperventilation.
- 15- Metabolic acidosis differ from respiratory acidosis in that there is:
- Increase PCO_2 and HCO_3 .
 - Increase HCO_3 .
 - Increase PCO_2 .
 - Normal or low PCO_2 .

إمتحان الشفهي يوم الأربعاء ٢٤/٣/٢٠٢١ في قسم الفسيولوجي التاسعة صباحا



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M.Sc. Cardiothoracic Surgery Exam.

Tanta University

Date 21/3/2021

Faculty of Medicine

Time Allowed: 1 hour

Pharmacology Department

NO. of questions: 40 M.C.Qs.

Total : 40 marks



Answer The Following M.C.Qs. :

1-An elderly patient with a history of heart disease has difficulty breathing and is diagnosed with acute pulmonary edema. Which treatment is indicated ?

- a-Acetazolamide.
- b-Chlorthalidone.
- c-Furosemide.
- d-Spironolactone.

2-A 60 years old woman had a myocardial infarction. Which agent should be used to prevent life-threatening arrhythmias that can occur post myocardial infarction in this patient ?

- a-Digoxin.
- b-Flecainide.
- c-Metoprolol.
- d-Procaïnamide.

3-All of the following can be used in treatment of mycoplasma pneumonia EXCEPT:

- a. Tetracyclines
- b. Macrolide
- c. Chloramphenicol
- d. Fluroquinolones

4-Which of the following is an IV Antiplatelet agent ?

- a. Aspirin
- b. Eptifibatide (Integrilin)
- c. Clopidrogel (Plavix)
- d. Ticlopidine (Ticlid)

M.Sc. Cardiothoracic Surgery Exam.

◦-A 40-year-old female is to have angioplasty following an acute myocardial infarction. As part of her treatment, she is given intravenously administered eptifibatid. What is the mechanism of action of eptifibatid?

- a. Inhibition of platelet thromboxane production
- b. Antagonism of ADP receptor
- c. Antagonism of glycoprotein IIb/IIIa
- d. Inhibition of the synthesis of vitamin K-dependent coagulation factors

∧-Competitive neuromuscular blocker that has short duration:

- a. Metocurine
- b. Atracurium
- c. Cisatracurium
- d. Vecuronium

∨-For which of the following conditions could aspirin be used prophylactically?

- a. Noncardiogenic pulmonary edema
- b. Peptic ulcers
- c. Thromboembolism
- d. Metabolic acidosis

∧-A 39 years old man with aortic insufficiency and a history of multiple antibiotic resistances is given a prophylactic intravenous dose of antibiotic before surgery to insert a prosthetic heart valve. As the antibiotic is being infused, the patient becomes flushed over most of his body. Which of the following antibiotics is most likely responsible ?

- a-Erythromycin.
- b-Penicillin G.
- c-Vancomycin.
- d-Gentamycin.

M.Sc. Cardiothoracic Surgery Exam.

9-A sputum culture of 60 years old man with pneumonia is positive for B-lactamase positive staphylococci. Which of the following is the best choice for penicillin therapy in this patient ?

- a-Arapicillin.
- b-Carbenicillin.
- c-Oxacillin.
- d-Penicillin G.

10-Which of the following NSAIDs is used to treat patent ductus arteriosus in neonates ?

- a-Ketoprofen.
- b-Celecoxib.
- c-Phenylbutazone.
- d-Indomethacin.

11-Combined therapy with dipyridamole and warfarin is recommended in subjects with the following :

- a-Prosthetic heart valves.
- b-Chronic arteriovenous shunts for repeated haemodialysis.
- c-Pulmonary embolism.
- d-Deep vein thrombosis.

12-Centrally acting skeletal muscle relaxant is:

- a. Dantrolene
- b. Gallamine
- c. Succinylcholine
- d. Baclofen

M.Sc. Cardiothoracic Surgery Exam.

13-Although their advantages over non-selective NSAIDs, the use of selective COX-2 inhibitors may have increased risk of cardiovascular complications due to:

- a. Additional effect on myocardial ion channels
- b. Inhibition of gastric PGs production
- c. Lack of effect on platelets TxA₂
- d. Increased production of prostacyclin in vascular endothelium

14-If the plasma concentration of a drug declines with "first-order kinetics", this means that :

- a. There is only one metabolic path for drug disposition
- b. The half-life is the same regardless of the plasma concentration
- c. The drug is largely metabolized in the liver after oral administration and has low bioavailability elimination
- d. The drug is not distributed outside the vascular system

15-Characteristic of competitive neuromuscular blockers INCLUDE:

- a. Produce hypertension.
- b. Produce hypotension.
- c. Histamine blocking action.
- d. Muscle fasciculation during onset of block.

16-Indicate the opioid analgesic, which has 100 times analgesic potency and respiratory depressant properties of morphine ?

- a. Fentanyl
- b. Pentazocine
- c. Meperidine
- d. Methadone

17-If malignant hyperthermia occurs, it should be treated with:

- a. Baclofen
- b. Diazepam
- c. Neostigmine
- d. Dantrolene

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18-Propofol has the following characteristic:

- a. Has delayed onset and prolonged recovery
- b. Has analgesic and skeletal muscle relaxant effects
- c. Used for induction of anesthesia by i.v. injection
- d. Does not produce hypotension or apnea

19-Local anesthetics are less potent when applied to inflamed tissues due to :

- a. Acidity increases unionization \rightarrow \uparrow penetration of the drug
- b. Acidity decreases unionization \rightarrow \downarrow penetration of the drug
- c. Alkalinity increases unionization \rightarrow \uparrow penetration of the drug
- d. Alkalinity decreases unionization \rightarrow \downarrow penetration of the drug

20-When a patient takes infiltration combination of lignocaine and tetracaine with adrenaline for stitching deep wound, he immediately develops urticaria, wheeze and allergic reaction that is caused by:

- a. Adrenaline
- b. Lignocaine
- c. Tetracaine
- d. Allergic complex of lignocaine-adrenaline

21-Which of the following drugs combination shows antimicrobial synergism?

- a. Erythromycin + Chloramphenicol
- b. Penicillin + Aminoglycosides
- c. Ampicillin + Tetracycline
- d. Chloramphenicol + Aminoglycosides

22-The primary mechanism of action of local anesthetics involves the blockade of which of the following ion channels?

- a. Resting, voltage-gated, K⁺ channels
- b. Resting, ligand-gated, Na⁺ channels
- c. Inactivated, voltage-gated, Na⁺ channels
- d. Inactivated, ligand-gated, K⁺ channels

M.Sc. Cardiothoracic Surgery Exam.

२३-Which one of the following structures is responsible for the absorption (Potency) of the local anesthetic drug?

- a. Intermediate chain
- b. Unionized basic amino group
- c. Ionized acidic amino group
- d. Aromatic lipophilic group

२४-The following statement is TRUE about doxapram :

- a. It is highly toxic with low therapeutic index
- b. It stimulates the medullary respiratory center by reflex effect
- c. It stimulates the medullary respiratory center by dual effect (direct & reflex)
- d. It causes minimal effect on depressed medullary centers

२०-Regarding Antiviral drugs, choose the FALSE statement :

- a. They inhibit HCV NS⁵B polymerase
- b. They are used for prophylaxis and treatment of HIV infection
- c. Oseltamivir is given by inhalation
- d. Zanamivir causes respiratory tract irritation & bronchoconstriction

२६-"Plasma concentration of the drug at which the rate of administration is equal to rate of elimination". This statement defines?

- a. Bioequivalence
- b. Bioavailability (F)
- c. Maximum concentration (C_{max})
- d. Steady state concentration (C_{ss})

२७-When compared to unfractionated heparin, low molecular weight heparins have :

- a. Preferential binding affinity to factor Xa relative to factor IIa (thrombin)
- b. Shorter half-lives
- c. Dose-dependent renal clearance
- d. Less bleeding tendency

M.Sc. Cardiothoracic Surgery Exam.

٢٨-In contrast to morphine, methadone:

- a. Causes longer duration of action
- b. Is more effective orally
- c. Causes less tolerance and physical dependence & Withdrawal is less severe
- d. All of the above

٢٩-A ٤٥-year-old male post-myocardial infarction for one week is being treated with IV heparin; he has recently an episode of hematemesis and fecal occult blood. The heparin is discontinued, and a drug is given to counteract the bleeding. What drug was given?

- a. Aminocaproic acid
- b. Factor IX
- c. Protamine
- d. Vitamin K

٣٠-Ampicillin and amoxicillin are in the same group of penicillins. However, there are important differences. Which of the following best states how amoxicillin differs from ampicillin ?

- a-Has better oral bioavailability, particularly when taken with meals.
- b-Is effective against penicillinase-producing organisms.
- c-Is a broad-spectrum penicillin.
- d-Does not cause hypersensitivity reactions.

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GOOD LUCK

امتحان الشفوى يوم الاربعاء 24/3/2021