Physiology

1. Which one of the following statements is true regarding autorhythmicity?

A. Sympathetic stimulation decreases the slope of the prepotential
B. Parasympathetic stimulation increases the slope of the prepotential
C. The pacemaker potential is stable
D. Autorhythmicity is the ability to respond to stimulation
E. Slow depolarization is due to Ca^{2+}

Correct answer:
E. Slow depolarization is due to Ca^{2+}

2. Which one of the following is true about control of cardiac contractility?

A. Afterload determines the initial length of the muscle fiber
B. Preload is equal to end-diastolic volume
C. Afterload is directly proportional to velocity of contraction
D.

Correct answer:
B. Preload is equal to end-diastolic volume

3. During early ventricular diastole, the ventricular pressure is:

A. Zero
B. 120 mmHg
C. 80 mmHg

Correct answer:
A. Zero

4. According to regulation of arteriolar diameter, which of the following is false?

Angiotensin I and noradrenaline cause vasoconstriction.

Correct answer:
This statement is false.

5. When blood flow to a tissue decreases and blood pressure decreases, which mechanism helps to elevate blood pressure?

A. Decreased arteriolar diameter
B. Decreased resistance

Correct answer:
A. Decreased arteriolar diameter

6. According to ECG waves, which of the following is true?

A. Amplitude of R wave is 0.1 mV
B. QRS waves are negative
C. Duration of PR interval is 0.2 seconds
D. PR interval extends from the beginning of the P wave to the end of the QRS complex

Correct answer:
C. Duration of PR interval is 0.2 seconds

7. According to hemodynamics, which of the following is false?

A. In systemic circulation, flow equals cardiac output
B. Flow is directly proportional to blood pressure
C. Flow is inversely proportional to peripheral resistance
D. Differences in blood flow between organs depend on mean arterial pressure (MAP)

Correct answer:
D. Differences in blood flow between organs depend on MAP

8. According to forces influencing bulk flow, which statement is true?

A. Oncotic pressure opposes filtration
B. Interstitial fluid hydrostatic pressure is a filtration force
C.

Correct answer:
A. Oncotic pressure opposes filtration

9. When a woman stands up from a supine position, her blood pressure initially decreases followed by an increase in heart rate. What is the main reason for this response?

A. Decreased venous return
B. Increased peripheral resistance
C. Increased stroke volume
D. Decreased sympathetic activity

Correct answer:
A. Decreased venous return

10. The main vasodilator substance of the coronary arteries is:

A. Adenosine
B. Bradykinin
C. Prostaglandins

Correct answer:
A. Adenosine

11. A woman loses approximately 10% of her blood volume. Which of the following responses is expected?

A. Decreased cerebral blood flow
B. Increased insulin secretion
C. Release of antidiuretic hormone (ADH)
D. Decreased sympathetic activity

Correct answer:
Release of antidiuretic hormone (ADH)

12. An increase in blood volume leads to vasodilation and increased heart rate. This mechanism is called:

A. Bainbridge reflex
B. Baroreceptor reflex
C. Chemoreceptor reflex
D. Hering–Breuer reflex

Correct answer:
A. Bainbridge reflex

13. Hypocalcemia and hypokalemia lead to which ECG change?

Correct answer:
Prolonged QT interval

Dr , Arwa Discussion

14. Explain in detail what happens to heart rate, stroke volume, sympathetic tone, ejection fraction, and cardiac output during rest in an athlete.

Answer:
• End-diastolic volume (EDV) increases due to a large, compliant ventricle (physiological hypertrophy).
• Stroke volume increases because of the increased EDV.
• Ejection fraction remains approximately the same (may increase slightly if the heart is healthy).
• Resting heart rate decreases due to increased stroke volume.
• Sympathetic tone decreases at rest.
• Cardiac output remains approximately the same as in sedentary individuals at rest
(CO = HR × SV).

15. In case of cardiac ischemia and pulmonary edema, which medication is effective and why?

Answer:

Dobutamine is effective because it increases myocardial contractility, which enhances stroke volume and cardiac output. This improves cardiac performance and helps reduce pulmonary congestion by improving forward blood flow.

Com

1. All of the following are normal levels of lipids, EXCEPT:

A. Total cholesterol
B. HDL cholesterol
C. Triglycerides
D. LDL (160–190 mg/dL)

✅ Correct answer: LDL (160–190 mg/dL)

2. All of the following are JNC 7 cardiovascular risk factors, EXCEPT:

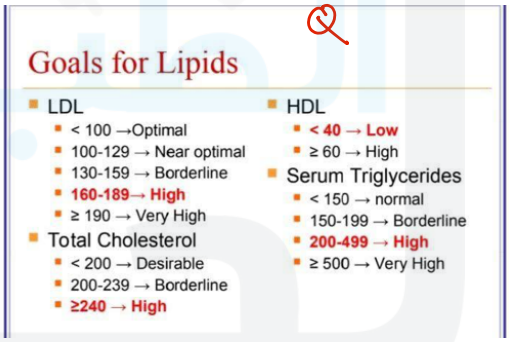
A. Smoking
B. Hypertension
C. Diabetes mellitus
D. Low LDL cholesterol

✅ Correct answer: Low LDL cholesterol

3. In Jordan, tobacco use is:

A. Decreasing
B. Stable
C. Still increasing
D. Completely controlled

✅ Correct answer: Still increasing



4. Symptoms of withdrawal peak at:

A. 6–12 hours
B. 12–24 hours
C. 24–48 hours
D. After 72 hours

✅ Correct answer: 24–48 hours

5. Which type of prevention aims to reduce the emergence of risk factors themselves?

A. Primary prevention
B. Secondary prevention
C. Tertiary prevention
D. Primordial prevention

✅ Correct answer: Primordial prevention

Histo

📌 According to the characteristics of cardiac muscle cells, which is FALSE?

A. Static cells
B. Satellite cells are absent
C. Intercalated disk located in Z line
D. Has triads
E. More mitochondria

✅ Correct answer: D. Has triads

📌 Somatic (continuous) capillaries are found in?

A. Endocrine
B. Intestine
C. Kidney
D. Brain

✅ Correct answer: D. Brain

📌 Regarding medium-sized artery and vein, which is FALSE?

A. Tunica adventitia of vein is thicker than artery
B. Tunica media of vein is thicker than artery
C. …

✅ Correct answer: B. Tunica media of vein is thicker than artery

Pharma

A patient presents with pitting edema and congested neck veins. What is the first-line treatment?

A. ACE inhibitors
B. Beta-blockers
C. Furosemide
D. Eplerenone
E. Digoxin

✅ Correct answer: C. Furosemide

Regarding anaphylactic shock (allergic reaction), what is the first step in management?

A. Antihistamines
B. Corticosteroids
C. IV fluids
D. Intramuscular adrenaline
E. Oxygen therapy

✅ Correct answer: Intramuscular adrenaline

All of the following are true regarding atrial arrhythmias, EXCEPT:

A. Treated with beta blockers
B. Treated with calcium channel blockers
C. Treated with amiodarone
D. Lidocaine

✅ Correct answer: Lidocaine

Which of the following statements is TRUE?

A. Quinidine causes thrombocytopenia
B. Disopyramide causes SLE

✅ Correct answer: A. Quinidine causes thrombocytopenia

A patient with angina was given a vasodilator. Afterwards, the patient developed tachycardia and ankle edema.

Which drug most likely caused these side effects?

A. Nitroglycerin
B. Nifedipine
C. Metoprolol
D. Furosemide

✅ Correct answer: B. Nifedipine

According to ACE inhibitors, which of the following is FALSE?

A. Captopril is given twice daily
B. Contraindicated in pregnancy
C. Causes loss of taste sensation
D. Decreases blood potassium

✅ Correct answer: D. Decreases blood potassium

According to potassium-sparing diuretics, which of the following is FALSE?

A. Effective in Conn's syndrome with hypertension
B. Act on distal tubules
C. Highly effective diuretics
D. Cause hyperkalemia

✅ Correct answer: C. Highly effective diuretics

Which of the following is WRONG about verapamil?

A. Used as an antiarrhythmic
B. Decreases heart rate
C. Causes constipation
D. Safe in patients with heart failure

✅ Correct answer: Safe in patients with heart failure

Female suffers from CHF and she takes a combination of hydrochlorothiazide and an ACE inhibitor. What is the predicted effect of this treatment?

A) Increase exercise tolerance
B) Increase distention of jugular vein
C) Increased vascular resistance
D) Increase vascular tone

✅ Correct answer: A. Increase exercise tolerance

Patho

Most characteristic histological feature of hypertrophic cardiomyopathy is:

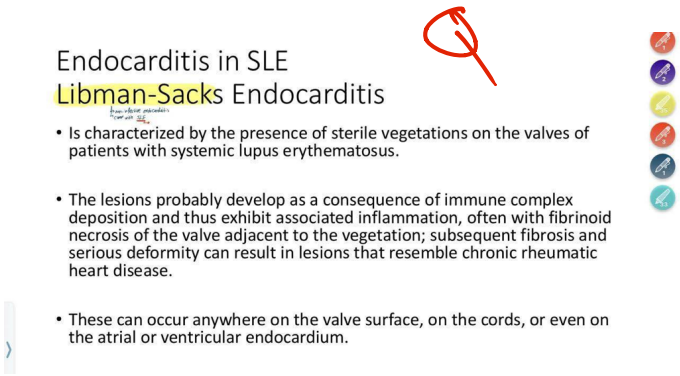
A. Myocyte necrosis
B. Fatty infiltration
C. Amyloid deposition
D. Myocyte disarray and interstitial fibrosis

✅ Correct answer: Myocyte disarray and interstitial fibrosis

Most severe location for atherosclerosis is:

A. Popliteal artery
B. Infrarenal abdominal aorta
C. Internal carotid artery
D. Coronary artery
E. Circle of Willis

✅ Correct answer: B. Infrarenal abdominal aorta



Genetic background associated with aneurysm formation is related to:

A. VEGF
B. PDGF
C. Collagen type I
D. TGF-β

✅ Correct answer: TGF-β

Regarding left-sided hypertensive heart disease, which is FALSE?

A. Left ventricular hypertrophy with absence of other valvular disease and a history of hypertension
B. Pulmonary hypertension
C. Related to valvular stenosis
D. Cor pulmonale

✅ Correct answer: A

All of the following are complications of thoracic aortic aneurysm (TAA), EXCEPT:

A. Dyspnea
B. Pain
C. Cough
D. Hemoptysis

✅ Correct answer: D. Hemoptysis

Kawasaki disease is associated with:

A. Anti-DNA antibodies
B. ANCA
C. Anti-cardiolipin antibodies
D. Anti-endothelial cell antibodies

✅ Correct answer: Anti-endothelial cell antibodies

Which of the following proteins is most commonly associated with granulomatosis with polyangiitis (GPA)?

A. Myeloperoxidase
B. Proteinase 3
C. Type III collagen

✅ Correct answer: B. Proteinase 3

Regarding transmural myocardial infarction, which is TRUE?

A. ST elevation
B. Prolonged QRS
C. ST depression

✅ Correct answer: A. ST elevation

According to the major diagnostic criteria of rheumatic fever, which is FALSE?

A. Subcutaneous nodules
B. Erythema marginatum
C. Arthritis
D. Carditis
E. Arthralgia

✅ Correct answer: E. Arthralgia

According to the distribution of ischemic heart disease, the most commonly affected site is:

A. Right coronary artery
B. Left circumflex artery
C. Posterior descending artery
D. Left anterior descending artery (LAD)

✅ Correct answer: Left anterior descending artery (LAD)

Carcinoid heart disease most commonly affects which part of the heart?

A. Left side of the heart
B. Right side of the heart (especially valves)

✅ Correct answer: B. Right side of the heart

Embryology

The dorsal part of the subclavian artery is derived from:

A. Pharyngeal arch 4
B. 7th cervical intersegmental artery
C. 4th cervical intersegmental artery
D. Pharyngeal arch 5
E. Thoracic intersegmental artery

✅ Correct answer: B. 7th cervical intersegmental artery

All of the following statements are correct regarding the primitive atrium, EXCEPT:

A. Foramen ovale is formed between septum primum and septum secundum
B. Septum primum descends toward the bulbus cordis

✅ Correct answer: B. Septum primum descends toward the bulbus cordis

The most cranial part of the heart tube is:

A. Primitive ventricle
B. Primitive atrium
C. Bulbus cordis
D. Sinus venosus

✅ Correct answer: C. Bulbus cordis

Right-to-Left shunt is classically remembered by the 5 T's. Which of the following is FALSE?

A. Tricuspid stenosis
B. Tetralogy of Fallot
C. Truncus arteriosus
D. Transposition of the great vessels
E. Total anomalous pulmonary venous return (TAPVR)

✅ Correct answer: A. Tricuspid stenosis

Anatomy

A patient presents with a mass in the right lung extending above the sternal angle (Angle of Louis) and compressing the trachea.

In which part of the mediastinum is this mass located?

A. Inferior mediastinum
B. Superior mediastinum
C. Middle mediastinum
D. Posterior mediastinum

✅ Correct answer: B. Superior mediastinum

According to the left atrium, which of the following is FALSE?

A. The posterior relation is the esophagus
B. It forms the oblique sinus
C. Most of its wall is smooth
D. All of its interior surface is smooth

✅ Correct answer: D. All of its interior surface is smooth

According to the relations of the ascending aorta, which structure lies posteriorly above it?

A. Left pulmonary artery
B. Superior vena cava
C. Trachea
D. Right pulmonary artery

✅ Correct answer: Right pulmonary artery

Regarding the branches of the external carotid artery, which is FALSE?

A. Facial artery
B. Lingual artery
C. Occipital artery
D. Inferior thyroid artery

✅ Correct answer: Inferior thyroid artery

Blood supply of the medial side of the big toe is by:

A. 1st dorsal metatarsal artery
B. 1st plantar metatarsal artery
C. 1st dorsal metatarsal and 1st plantar metatarsal arteries

✅ Correct answer: C

The highest intercostal artery is a branch of which artery?

A. Thyrocervical trunk
B. Costocervical trunk
C. Internal thoracic artery

✅ Correct answer: B. Costocervical trunk

Which artery supplies the posterior one-third of the interventricular septum?

A. Right marginal artery
B. Posterior interventricular artery
C. Left circumflex artery
D. Anterior interventricular artery

✅ Correct answer: B. Posterior interventricular artery

Which of the following is INCORRECT regarding the left atrium?

A. The interior part of the left atrium is totally smooth
B. The esophagus lies posterior to it
C. It is related to the oblique sinus

✅ Correct answer: A. The interior part of the left atrium is totally smooth

Biochemistry

Troponin level is negative, but copeptin is positive.

What is the BEST interpretation?

A. Myocardial infarction is ruled out
B. Copeptin alone is sufficient to rule out MI
C. Troponin alone is sufficient to rule out MI
D. Both troponin and copeptin should be negative to rule out MI

✅ Correct answer: D

Increased flux of the polyol pathway is associated with:

A. Improved glucose utilization
B. Decreased oxidative stress
C. Normal cardiac metabolism
D. Cardiac dysfunction, abnormal glucose metabolism, and increased oxidative stress

✅ Correct answer: D

A patient is using a drug that partially inhibits β-oxidation. What is the expected effect?

A. Decreased ATP production
B. Increased fatty acid toxicity
C. Impaired mitochondrial function
D. Improved cardiac efficiency and protection of mitochondrial function

✅ Correct answer: D

Cholesterol synthesis and ketogenesis pathways share which enzymes?

A. Acetyl-CoA carboxylase and HMG reductase
B. Citrate synthase and thiolase
C. HMG reductase and HMG synthase
D. β-thiolase and HMG synthase

✅ Correct answer: D

Heme A is synthesized from which intermediate?

A. Acetyl-CoA
B. Mevalonate
C. Squalene
D. Farnesyl pyrophosphate (Farnesyl-PP)

✅ Correct answer: Farnesyl pyrophosphate

Micro

Painful red nodules on the pads of the fingers and toes due to immune complex deposition are called:

A. Janeway lesions
B. Osler nodes
C. Splinter hemorrhages
D. Petechiae

✅ Correct answer: B. Osler nodes