QUIZ Time

physiology10

Corrected by:Nadine alloom

لجنة طب الأسنان

physiology 10

1. What is the resting membrane potential (RMP) of a cell?
(A) -70mV
(B) +70mV
(C) 0mV
(D) +35mV

2. What state do ions exist in at the resting membrane potential?
(A) Depolarized state
(B) Polarized state
(C) Equilibrium state
(D) Hyperpolarized state

3. Which ion's leak channels are more numerous than sodium's in the resting state?
(A) Calcium
(B) Potassium
(C) Chloride
(D) Hydrogen

4. What is the main cause of the polarized state in resting membrane potential?
(A)Equal permeability to all ions
(B)Active transport of calcium ions
(C) Non-existence of the Na+-K+ pump
(D)Selective permeability of the membrane

5. What percentage of the RMP is due to the selective permeability of the membrane?
(A) 25%
(B) 50%
(C) 7%
(D) 93%

لجنة طب الأسنان

physiology 10

6. During resting membrane potential, how does the membrane's permeability to K+ compare to Na+?
(A)Equally permeable to K+ and Na+
(B)It's more permeable to Na+
(C)It's much more permeable to K+
(D)Impermeable to both K+ and Na+

7. What molecule contributes to the poor permeability of Na+ in the resting state by surrounding the ions?
(A) Water
(B) Proteins
(C) Phosphate
(D) Sulfate

8. What immediate effect does the opening of fast voltage-gated Na+ channels have during an action potential?
(A) Depolarization
(B) Resting membrane potential
(C) Hyperpolarization
(D) Repolarization

9. At what membrane voltage do Na+ channels close during the action potential?
(A) -70 mv
(B) +35 mv
(C) +70 mv
(D) 0 mv

10. What percentage of the action potential curve is attributed to rapid repolarization?
(A) 90%
(B) 50%
(C) 30%
(D) 70%

لجنة طب الأسنان

physiology 10

11. During depolarization, what is the consequence of Na+ channel closure and K+ channel opening?
(A) Rapid repolarization
(B) Continued depolarization
(C) Hyperpolarization
(D) Stable membrane potential

12. What type of after potential occurs when the outer surface of the cell becomes less positive than in resting conditions?
(A) Positive after potential
(B) Resting potential
(C) Negative after potential
(D) Hyperpolarized potential

13. What is primarily responsible for re-establishing the resting membrane potential after an action potential?
(A) Na+-K+ pump
(B) K+ channels
(C) Ca+ channels
(D) Na+ channels

14. How do local anesthetics like lidocaine and procaine affect nerve impulse transmission?
(A) Facilitate ion movement through Na+ channels
(B) Enhance repolarization
(C) Block ion movement through Na+ channels
(D) Increase resting membrane potential

15. What is the role of the Na+-K+ pump in the context of resting membrane potential (RMP)?
(A) Causes depolarization
(B) Contributes to 7% of RMP
(C) Blocks ion flow
(D) Directly generates RMP

لجنة طب الأسنان

physiology 10

16. Which stage of the action potential is characterized by a period with no change in membrane potential despite application of a stimulus?
(A) Repolarization stage
(B) Hyperpolarization stage
(C) Latent period
(D) Depolarization stage

ANSWERS:
1.A -70mV
2.B Polarized state
3.B Potassium
4.D Selective permeability of the membrane
5.D 93%
6.C It's much more permeable to K+
7.A Water
8.D Repolarization
9.B +35 mv
10.D 70%
11.A
12.C Negative after potential
13.A Na+-K+ pump
14.C
15.B
16.C Latent period

لجنة طب الأسنان

QUIZ Time

physiology 11

Corrected by:Nadine alloom

لجنة طب الأسنان

physiology 11

1. What properties of cardiac muscle are discussed in Prof. Khaled Abdel's lecture?
(A) Excitability, autorhythmicity, contractility, and conductivity
(B) Resistance, endurance, and speed
(C) Contractility, rigidity, and sturdiness
(D) Excitability, strength, flexibility, and conductivity

2. What is the standing of the outer and inner surfaces of cardiac muscle cells in terms of charge distribution?
(A) Both the outer and inner surfaces are negative
(B) The outer surface is positive mainly due to sodium and calcium; the inner surface is negative due to proteins, phosphates, and sulphates
(C) Both the outer and inner surfaces are neutral
(D) The outer surface is negative and the inner surface is positive

3. What is the range of the resting membrane potential in cardiac muscle cells?
(A) +100 to +120 mv
(B) +70 to +90 mv
(C) 0 to -50 mv
(D) -85 to -100 mv

4. What phases comprise the action potential in cardiac muscle cells?
(A) Phase 0 (depolarization), Phase 1 (initial repolarization), Phase 2 (plateau), Phase 3 (repolarization), and Phase 4 (resting potential)
(B) Phase X, Phase Y, Phase Z, and Phase W
(C) Phase A, Phase B, Phase C, and Phase D
(D) Phase 1, Phase 2, Phase 3, and Phase 5

5. What is the significance of the plateau phase in the action potential of cardiac muscle cells?
(A) It increases the action potential time, leading to a long absolute refractory period
(B) It has no significance
(C) It shortens the action potential time and reduces the refractory period
(D) It decreases the heart rate

لجنة طب الأسنان

physiology 11

6. What two main actions occur during Phase 2 of the cardiac action potential?
(A) Rapid influx of sodium and potassium
(B)Balanced influx and efflux of chloride ions
(C)Complete closure of sodium channels with no efflux
(D)Balance between calcium influx and potassium efflux

7. What is Autorhythmicity in the context of cardiac muscle?
(A) Immediate cessation of contraction
(B) Automatic rhythmic contractions without nervous stimulation
(C)Pain response due to cardiac contraction
(D) Involuntary response to stimuli

8. Which part of the heart is the primary pacemaker due to its high rhythm?
(A) Sinoatrial (SA) node
(B) Atrial muscle
(C) Ventricular muscle
(D) Atrioventricular (AV) node

9. What is the role of the vagal tone on the heart rate during rest?
(A) It causes irregular heartbeats
(B)It has no effect on the heart rate
(C)It increases the heart rate significantly
(D)It decreases the high rhythm of the SA node from about 105 to 70 impulses/min

10. What does the All or None rule state about cardiac muscle contraction?
(A) The cardiac muscle either contracts maximally or not at all, provided conditions remain constant
(B)The muscle contracts slowly under any condition
(C)The rule has no relation to the cardiac muscle contraction
(D)The cardiac muscle contracts partially depending on stimuli

لجنة طب الأسنان

physiology 11

11. What is the physiological significance of Starling's Law of the heart?
(A) The force of myocardial contraction is directly proportional to the initial length of the cardiac muscle fibers
(B) The heart's efficiency decreases with increased fiber length
(c)Contraction varies inversely with fiber length
(D)It has no effect on the contraction force of the heart

12. What is conductivity in the context of cardiac muscle?
(A) Ability to increase heartbeat rate
(B)Ability to stop heart contraction only
(C)Ability to reduce heartbeat rate
(D)Ability to transmit excitation wave from one part of the heart to another

ANSWERS:
1.A Excitability, autorhythmicity, contractility, and conductivity
2.B The outer surface is positive mainly due to sodium and calcium; the inner surface is negative due to proteins, phosphates, and sulphates
3.D -85 to -100 mv
4.A Phase 0 (depolarization), Phase 1 (initial repolarization), Phase 2 (plateau), Phase 3 (repolarization), and Phase 4 (resting potential)
5.A It increases the action potential time, leading to a long absolute refractory period
6.D Balance between calcium influx and potassium efflux
7.B Automatic rhythmic contractions without nervous stimulation
8.A Sinoatrial (SA) node
9.D It decreases the high rhythm of the SA node from about 105 to 70 impulses/min
10.A The cardiac muscle either contracts maximally or not at all, provided conditions remain constant
11.A The force of myocardial contraction is directly proportional to the initial length of the cardiac muscle fibers
12.D Ability to transmit excitation wave from one part of the heart to another

لجنة طب الأسنان

QUIZ Time

physiology 12

Corrected by:Nadine alloom

لجنة طب الأسنان

physiology 12

1. This phase is known as the period when the heart fills with blood
(A) Systole
(B) Ventricular systole
(C) Diastole
(D) Isometric relaxation

2. During which the heart ejects blood, this phase is called
(A) Isometric contraction
(B) Ventricular diastole
(C) Systole
(D) Diastole

3. What happens to the ventricle chambers during the isometric contraction phase?
(A) Ventricular volume stays constant
(B) Ventricular pressure stays constant
(C) Ventricular pressure decreases
(D) Ventricular volume decreases

4. Which phase includes both rapid and slow ejection phases?
(A) Ventricular systole
(B) Cardiac relaxation
(C) Ventricular diastole
(D) Atrial systole

5. During which phase do the AV valves open and allow rapid filling of the ventricles?
(A) Rapid filling phase
(B) Atrial systole phase
(C) Isometric relaxation phase
(D) Slow filling phase

لجنة طب الأسنان

physiology 12

7. In which phase do the atria contract to complete the filling of the ventricles?
(A) Atrial systole phase
(B) Ventricular diastole
(C) Rapid filling phase
(D) Ventricular systole

8. Where does the majority of ventricular blood ejection occur?
(A) Slow ejection phase
(B) Rapid filling phase
(C) Rapid ejection phase
(D) Isometric contraction phase

9. The term means during which phase both valves are closed and ventricular volume remains constant?
(A) Isometric contraction
(B) Rapid ejection
(C) Atrial systole
(D) Slow filling

10. What does 'pressure increases by contraction' signify about the cardiac cycle?
(A)During systole, pressure in heart chambers decreases
(B)During diastole, pressure in heart chambers increases
(C)During systole, pressure in heart chambers increases
(D)During diastole, pressure in heart chambers decreases

لجنة طب الأسنان

physiology 12

11. Which ventricular phase involves a gradual increase in ventricular volume?
(A) Slow filling phase
(B) Isometric relaxation phase
(C) Atrial systole phase
(D) Rapid filling phase

ANSWERS:
1.C Diastole
2.C Systole
3.A Ventricular volume stays constant
4.A Ventricular systole
5.A Rapid filling phase
7.A
8.C Rapid ejection phase
9.A Isometric contraction
10.C During systole, pressure in heart chambers increases
11.D

لجنة طب الأسنان