

Written Physio MSK 2

1. Def motor unit ?
2. Give a short note on mechanism neuro muscular transmission ?
3. Enumerate character of synaptic transmission ?
4. Mention effect and causes of repeated stimulation of MEP ?
5. Mention effect and mechanism of hypercalcemia on NMT ?
6. Mention causes of myasthenia gravis ?

MCQ Physio MSK 2

<p>1. The motor unit consists of:</p> <ul style="list-style-type: none">a. Single muscle fibersb. Single nerve fiber and ms fibers supplied by itc. All motor nerve fibers supplying a skeletal muscled. All skeletal ms fiberse. All motor neurons arising from AHCS supplying several muscles	B
<p>2. Junctional folds of NMJ:</p> <ul style="list-style-type: none">a. Are present at motor end plateb. At present at axonal terminalc. Contains vesicles of acetylcholined. Contain catechol-orthomethyl transferase (CAT) enzymee. Decrease the surface area of postsynaptic membrane	A
<p>3. Which of the followings increase NMT:</p> <ul style="list-style-type: none">a. Hypercalcemiab. Curare.c. Mg⁺² ionsd. Botulinum toxins.e. Prostigmine as anticholinesterase	E

<p>4. The space between the axon terminal & the muscle cell membrane is?</p> <p>a. Motor end-plate. b. Myelin sheath. c. Synaptic cleft. d. Motor neuron. e. Terminal knob.</p>	C
<p>5. Synaptic vesicles which help in neuromuscular transmission is filled with?</p> <p>a. 100,000 adrenaline molecules. b. 300,00 noradrenaline molecules. c. 10,000 acetylcholine molecules. d. 20,000 dopamine molecules..</p>	C
<p>6. Which step of neuromuscular transmission appear after Na permeability increase :</p> <p>a. Action potential spread on the membrane. b. End plate potential develop. c. Release of acetylcholine. d. Muscle contraction. e. Muscle relaxation.</p>	B
<p>7. In the neuromuscular junction, acetylcholine:</p> <p>A. Binds to acetylcholine receptors on the postsynaptic muscle fiber. B. Is actively transported across the synaptic cleft and binds to voltage gated acetylcholine receptors on the postsynaptic muscle fiber. C. Diffuses across the synaptic cleft and causes calcium ions to diffuse into the postsynaptic muscle fiber. D. Diffuses across the synaptic cleft and causes sodium ions to diffuse out of the postsynaptic muscle fiber. E. Is actively transported across the synaptic cleft and causes chloride ions to diffuse into the postsynaptic muscle fiber.</p>	A

<p>8. An action potential arriving at the presynaptic terminal causes:</p> <p>A) Sodium ions to diffuse into the cell.</p> <p>B) Sodium ions to diffuse out of the cell.</p> <p>C) Calcium ions to diffuse into the cell.</p> <p>D) Acetylcholine to diffuse into the cell.</p> <p>E) Ligand-gated sodium channels to open.</p>	<p>C</p>
<p>9. Synaptic vesicles which help neuromuscular transmission have?</p> <p>a- Noradrenaline.</p> <p>b- Dopamine.</p> <p>c-Acetylcholine.</p> <p>d. Adrenaline.</p> <p>e. Muscarine.</p>	<p>C</p>
<p>10. During neuromuscular transmission, the arrival of nerve action potential at the synaptic knob leads to which of the following?</p> <p>A-Opening of Na channels.</p> <p>B-Opening of K channels.</p> <p>C-Opening of voltage gated- Ca channels.</p> <p>D- Opening of Cl channels.</p> <p>E-Closure of all channels.</p>	<p>C</p>
<p>11. During neuromuscular transmission, the arrival of nerve action potential at the synaptic knob leads to which of the following?</p> <p>A-Opening of Na channels.</p> <p>B- Opening of voltage gated Ca channels.</p> <p>C-Opening of ligand gate Ca⁺⁺ channels</p> <p>D-Opening of Cl⁻ channels.</p> <p>E-Closure of all channels.</p>	<p>B</p>

<p>12. As regard neuro-muscular transmission:</p> <ul style="list-style-type: none"> a. action potential in the motor nerve opens Ca^{++} channels, which at last causes acetylcholine vesicles to rupture. b. acetyl choline is destroyed in the axonal terminals. c. choline esterase enzyme is present inside the muscle fibers. d. choline esterase enzyme causes release of acetyl choline from its vesicles. e. combination of acetylcholine with its receptor, causes opening of Ca channels. 	<p>A</p>
<p>13. The neurotransmitter always used at the neuromuscular junction:</p> <ul style="list-style-type: none"> a. Is noradrenaline. b. Is dopamine. c. Is acetylcholine. d. Depends upon the type of muscle being innervated. e. Depends upon the frequency of action potential. 	<p>C</p>
<p>14. At the muscle end plate, acetylcholine (ACh) causes the opening of:</p> <ul style="list-style-type: none"> a. Na^{+} channels only. b. Ca channels only. c. Na^{+} and K^{+} channels and depolarization to a value halfway between Na^{+} and K^{+} equilibrium potentials. d. Na^{+} and K^{+} channels and hyperpolarization to a value halfway between Na^{+} and K^{+} equilibrium potentials. 	<p>C</p>
<p>15. Which of the following is thought to be an autoimmune disease of acetylcholine receptors?</p> <ul style="list-style-type: none"> a. Myasthenia gravis. b. Myotonic dystrophy. c. Multiple sclerosis. d. Muscular dystrophy. e. Fibromyalgia. 	<p>A</p>

<p>16. Arrange the following in the proper order in which they occur at the pre-synaptic side of a neuromuscular junction.</p> <p>1) Calcium ions are released</p> <p>2) Action potential arrives at the presynaptic terminal</p> <p>3) Neurotransmitter is released</p> <p>a. 3,2,1</p> <p>b. 3.1.2</p> <p>c. 1.3.2</p> <p>d. 1.2.3</p> <p>e. 2.1.3</p>	<p>E</p>
<p>17. As regard neuro-muscular transmission all are true except:</p> <p>A- it shows fatigue due to depletion of acetylcholine vesicles.</p> <p>B- occurs from nerve to muscle i.e. one way conduction.</p> <p>C- it is stimulated by succinylcholine.</p> <p>D- it is blocked by botulinum toxins.</p>	<p>C</p>

Q (18-21): A 55 year old woman visit her physician by eyelid drop , difficulty in chewing and general weakness , the physician suspect myasthenia gravis and orders tensilon test , the test is positive.

18. The increased ms strength observed during test due to increase of which of the following:

- a) Amount of Ach released from motor neuron
- b) Level of Ach at muscle end plate
- c) Number of Ach receptor at MEP
- d) Synthesis of norepinephrine

B

19. What is the most likely basis of this dse :

- a) Autoimmune response
- b) Botulinium toxin
- c) Depletion of voltage gated ca channels
- d) Over exertion

A

20. Which of the following drugs will alleviate this patient symptoms

- a) Atropine
- b) Botulinium toxin
- c) Curare
- d) Halothan
- e) Neostigmine

E

21. At the neuromuscular junction

- a) the muscle membrane possesses muscarinic receptors
- b) there is a one-to-one transmission of excitatory impulses from the motor neurone to the muscle fibres it innervates
- c) the motor nerve endings secrete noradrenaline
- d) the typical summed end plate potential (EPP) is usually 10 times the potential necessary to trigger an action potential

B

<p>22. Concerning the neuromuscular junction and the release of Ach:</p> <ul style="list-style-type: none"> a) the miniature end plate potential (MEP) is 5 mv. b) the MEP is produced by Ach released from one vesicle. c) the cholinergic receptors can be blocked by atropine. d) Ach exocytosis is decreased by an increase in Ca^{++} influx. e) both b and d are correct. 	B
<p>23. The neurotransmitter at the motor end plate is:</p> <ul style="list-style-type: none"> a) adrenaline. b) noradrenaline. c) acetylcholine. d) calcium ions. e) atropine. 	C
<p>24. Neuromuscular transmission is characterized by:</p> <ul style="list-style-type: none"> a) bi-directional. b) blocked by succinyl choline. c) inhibited by increased Ca^{++}. d) the chemical transmitter is noradrenaline. e) stimulated by curare. 	B
<p>25. Neuromuscular transmission is:</p> <ul style="list-style-type: none"> a) unidirectional. b) bidirectional. c) stimulated by curare. d) inhibited by acetyl choline. e) inhibited by calcium. 	A

<p>26. During neuromuscular transmission:</p> <ul style="list-style-type: none"> a) Ca^{++} enters through synaptic gutter. b) Ach is released from synaptic gutter. c) the impulse is transmitted in one direction. d) motor endplate potential occurs in synaptic knobs. e) there is a delay of about 5 milliseconds. 	C
<p>27. Which of the following statement is true for impulse transmission at the neuromuscular junction:</p> <ul style="list-style-type: none"> a) it is stimulated by high level of choline esterase. b) it is associated with influx of potassium ions through the muscle membrane. c) it is depressed by a low level of magnesium. d) it is dependent on the amount of acetyl choline released at the end plate. e) none of the above is correct. 	D
<p>28. During neuromuscular transmission:</p> <ul style="list-style-type: none"> a) Ach release can be inhibited by excess Mg^{++}. b) Ach release can be inhibited by hypercalcemia. c) Ach acts on voltage gated Na^{+} channels in the synaptic gutter. d) Ach is released by simple diffusion. e) acetyl choline esterase enzyme blocks Ach gated ion channels. 	A
<p>29. Neuromuscular transmission is inhibited by:</p> <ul style="list-style-type: none"> a) acetylcholine. b) curare. c) noradrenaline. d) methacholine ions. e) calcium ions. 	B

<p>30. Myasthenia gravis is due to:</p> <ul style="list-style-type: none"> a) <i>loss of ATP.</i> b) <i>decrease of acetylcholine in synaptic knobs.</i> c) <i>hyperpolarization of sarcolemma.</i> d) <i>destruction of myosin heads.</i> e) <i>destruction of acetylcholine-gated ion channels on synaptic gutter (destruction of Ach receptors).</i> 	<p>E</p>
<p>31. Myasthenia gravis:</p> <ul style="list-style-type: none"> a) <i>means muscle stiffness.</i> b) <i>is a disease of the nerve.</i> c) <i>is a disease of the muscle.</i> d) <i>is a disease of the neuromuscular junction.</i> e) <i>is due to loss of ATP.</i> 	<p>D</p>