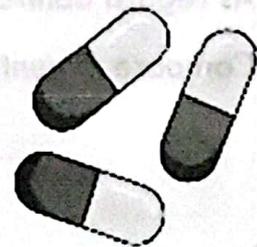
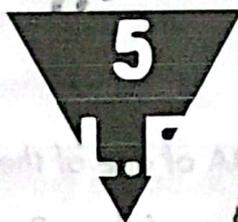
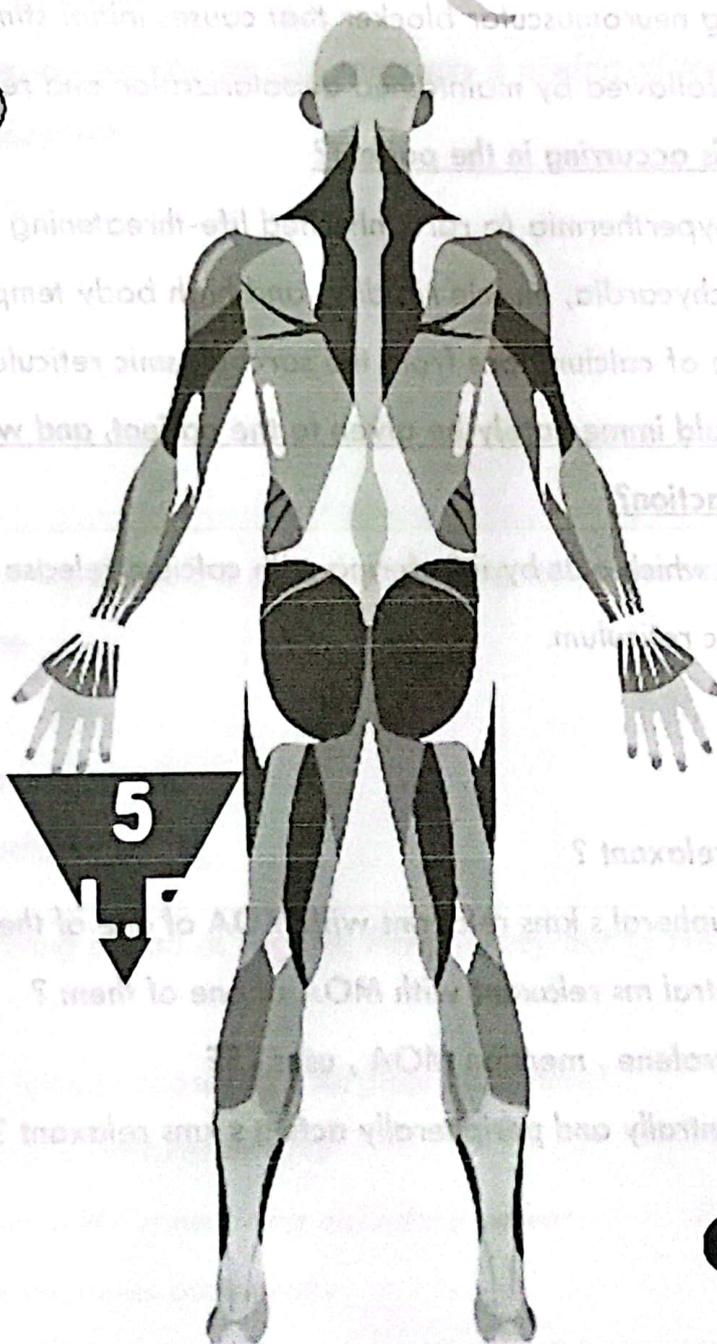


LEVEL 1 - SEMESTER 2

PHARMACOLOGY

MSK

MCQ 5



Dr. M. M.

Case Scenario

1. A healthy 25-year-old man is undergoing a brief surgical procedure requiring general anesthesia. Intubation and induction of anesthesia using IV succinylcholine and inhaled halothane proceed unremarkably. During surgery the patient develops muscle rigidity and tachycardia, and his temperature rapidly rises.

A. What is the mechanism of action of succinylcholine?

- Depolarizing neuromuscular blocker that causes initial stimulation and contraction followed by maintained depolarization and relaxation .

B. What reaction is occurring in the patient?

- Malignant hyperthermia (a rare inherited life-threatening disorder that results in tachycardia, muscle rigidity, and high body temperatures caused by a release of calcium ions from the sarcoplasmic reticulum in muscle cells.

C. What drug should immediately be given to the patient, and what is its mechanism of action?

- Dantrolene, which acts by interfering with calcium release from the sarcoplasmic reticulum.

2. Classify sk ms relaxant ?

3. Enumerate peripheral s kms relaxant with MOA of one of them

4. Enumerate central ms relaxant with MOA of one of them ?

5. As regard dantrolene , mention MOA , uses , SE

6. Compare () centrally and peripherally acting s kms relaxant ?

MCQ pharma MSK 5

<p>1. Which of the following is true as regards centrally acting skeletal muscle relaxants?</p> <p>A. Used for short term purposes like surgical operations</p> <p>B. Inhibit polysynaptic reflexes in CNS</p> <p>C. Block neuromuscular transmission</p> <p>D. Cause muscle paralysis and voluntary movement loss</p> <p>E. Practically always given IV</p>	<p>B</p>
<p>2. Which of the following skeletal muscle relaxants is preferred for endotracheal intubation?</p> <p>A. Botulinum toxin.</p> <p>B. Succinylcholine.</p> <p>C. Diazepam.</p> <p>D. Dantrolene</p> <p>E. Baclofen</p>	<p>B</p>
<p>3. Which of the following drugs is a non- depolarizing neuromuscular blocker?</p> <p>(a) Succinylcholine</p> <p>(b) Vecuronium</p> <p>(c) Decamethonium</p> <p>(d) Dantrolene sodium</p>	<p>B</p>
<p>4. Which of the following is true as regards Peripherally acting skeletal muscle relaxants?</p> <p>A. Used for short term purposes like surgical operations</p> <p>B. Inhibit polysynaptic reflexes in CNS</p> <p>c. decrease ms tone without reducing voluntary power</p> <p>D. given orally , sometimes parentally</p>	<p>A</p>

<p>5. Succinylcholine action when used as an adjunct to general anesthetics during surgery is based on its ability to:</p> <ul style="list-style-type: none">a) Block the action of acetylcholine at the motor end plateb) Increase release of acetylcholine from autonomic gangliac) Increase release of histamine from mast celld) Inhibit cholinesterase enzyme at the motor end platee) Enhance sensitivity of the motor end plate to acetylcholine	<p>A</p>
<p>6. Which of the following drugs is the most effective in the emergency management of malignant hyperthermia?</p> <ul style="list-style-type: none">(A) Atropine(B) Dantrolene(C) Haloperidol(D) Succinylcholine(E) Vecuronium	<p>B</p>
<p>7. Regarding the spasmolytic drugs, which of following is not accurate?</p> <ul style="list-style-type: none">A. Baclofen acts on GABA receptors in the spinal cord to increase chloride ion conductanceB. Cyclobenzaprine decreases both oropharyngeal secretions and gut motilityC. Dantrolene has no significant effect on the release of calcium from cardiac muscleD. Diazepam causes sedation at doses commonly used to reduce ms spasmsE. Intrathecal use of baclofen is effective in refractory cases of muscle spasticity	<p>A</p>

<p>8. In review of the benzodiazepine class, which of the following agents has the longest duration of action and may be useful in the treatment of a 39-year-old patient with spinal cord injury and with skeletal muscle spasticity?</p> <p>(A) Diazepam (B) Lorazepam (C) Oxazepam (D) Temazepam (E) Triazolam</p>	A
<p>9. Which of the following is used in cosmetic reduction of facial wrinkles , cervical dystonia , blepharospasm :</p> <p>(A) botulinium toxin (B) dantroline (C) succinylecholine (D) baclophen</p>	A
<p>10. Which of the following inhibit release of acetylcholine from nerve terminal leading to s kms paralysis :</p> <p>(A) botulinium toxin (B) dantroline (C) succinylecholine (D) baclofen</p>	A
<p>11. Dantrolene may cause :</p> <p>(A) nephrotoxicity (B) hepatotoxicity (C) neurotoxicity (D) myelotoxicity</p>	B

<p>12. Which of the following effective in acute spasm from ms injury and ineffective in cerebral palsy and used in caution in cardiac dse :</p> <p>(A) baclofen (B) dantrolene (C) diazepam (D) cyclobenzaprine</p>	<p>D</p>
<p>13. A 29-year-old woman who has been diagnosed with multiple sclerosis presents to her primary care physician with muscle rigidity and spasms. She also complains of difficulty sleeping, heartburn, and muscle pain. One of the drugs her physician prescribes is baclofen. Which of the following will baclofen do for this patient?</p> <p>(A) Anti-inflammatory to decrease muscle pain (B) Decrease heartburn (C) Relieve muscle spasms (D) Reverse the progression of MS (E) Sleep aid</p>	<p>C</p>
<p>14. At the muscle end-plate, d-tubocurarine reduces the:</p> <p>(a) Number of Na⁺ Channels (b) Duration for which the Na⁺ channels remain open (c) Ion conductance of the open Na⁺ channels (d) Frequency of Na⁺ channel opening</p>	<p>D</p>
<p>15. Which of the following is applicable to mivacurium?</p> <p>(a) It undergoes Hofmann elimination (b) It is the shortest acting nondepolarizing neuromuscular blocker (c) It is excreted unchanged by kidney (d) It does not cause histamine release</p>	<p>B</p>

<p>16. Baclofen acts as:</p> <ul style="list-style-type: none"> (a) GABAA receptor agonist (b) GABAB receptor agonist (c) GABAA receptor antagonist (d) GABAB receptor antagonist 	B
<p>17. Following drug inhibits release of calcium from sarcoplasmic reticulum:</p> <ul style="list-style-type: none"> (a) Dantrolene (b) Rocuronium (c) Caffeine (d) Succinylcholine 	A
<p>18. Which of the following is a centrally acting skeletal muscle relaxant?</p> <ul style="list-style-type: none"> (a) Carisoprodol (b) Dantrolene sodium (c) Quinine (d) Decamethonium 	A
<p>19. Dantrolene sodium reduces skeletal muscle tone by:</p> <ul style="list-style-type: none"> (a) Reducing acetylcholine release from motor nerve ending (b) Suppressing spinal polysynaptic of reflexes (c) Inhibiting the generation of muscle action potential (d) Reducing Ca²⁺ release from sarcoplasmic reticulum in the muscle fiber 	D
<p>20. The following is a skeletal muscle relaxant that acts as a central α_2 adrenergic agonist:</p> <ul style="list-style-type: none"> (a) Tizanidine (b) Brimonidine (c) Chlormezanone (d) Quinine 	A

<p>21. Which of the following is NOT true for tizanidine?</p> <p>(a) It is a clonidine congener used in spasticity due to stroke or spinal injury</p> <p>(b) It reduces muscle tone by activating GABAB receptors</p> <p>(c) It inhibits release of excitatory amino acids in spinal interneurons</p> <p>(d) It reduces muscle spasms without producing weakness</p>	B
<p>22. The mechanism by which central muscle relaxant act by is:</p> <p>(a) Decreasing nerve conduction</p> <p>(b) Inhibiting spinal polysynaptic reflexes</p> <p>(c) Blocking conduction across NM junction</p> <p>(d) Causing CNS depression</p>	B
<p>23. Which of the following is a peripherally acting skeletal muscle relaxant?</p> <p>(a) Pancuronium</p> <p>(b) Baclofen</p> <p>(c) Chlorzoxazone</p> <p>(d) Diazepam</p>	A
<p>24. One of the following is a centrally acting skeletal muscle relaxant:</p> <p>(a) Tizanidine</p> <p>(b) Pipecuronium</p> <p>(c) Atracurium</p> <p>(d) Succinylcholine</p>	A
<p>25. Neuromuscular blocking drugs do not produce central actions because:</p> <p>(a) They do not cross the blood-brain barrier (BBB)</p> <p>(b) Nicotinic receptors are not present in the brain</p> <p>(c) They are sequestered in the periphery by tight binding to the skeletal muscles</p> <p>(d) They do not ionize at the brain pH</p>	A

<p>26. Shortest acting muscle relaxant:</p> <p>(a) Pancuronium (b) Atracurium (c) Mivacurium (d) Vecuronium</p>	C
<p>27. Which one is Depolarizing blocker:</p> <p>(a) Mivacurium (b) Doxacurium (c) Succinyl choline (d) Quinine</p>	C
<p>28. Baclofen is:</p> <p>A. Centrally acting muscle relaxant B. Peripherally acting muscle relaxant C. Both centrally and peripherally acting muscle relaxant D. Direct-acting muscle relaxant</p>	A
<p>29. Which of the following drugs is a nondepolarizing neuromuscular blocker?</p> <p>A. Succinylcholine B. Vecuronium, C. Decamethonium D. Dantrolene sodium</p>	B
<p>30. d-Tubocurarine acts by:</p> <p>A. Inhibiting nicotinic receptors at myoneural junction B. Inhibiting nicotinic receptors at autonomic ganglion C. Producing depolarizing block D. By inhibiting reuptake of acetylcholine</p>	A

31. Which alpha adrenergic agonist act as centrally acting muscle relaxant?

- A. Tizanidine
- B. Prazosin
- C. Tamsulosin
- D. Phentolamine

A

32. Succinylcholine:

- a. Is used mainly for tracheal intubation.
- b. Effects can be reversed by neostigmine.
- c. Has a long duration of action.
- d. Is a non-depolarizing neuromuscular blocker.

A

33. Release of calcium from sarcoplasmic reticulum of skeletal muscle is prevented by:

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

A

34. A 30 year-old female is being prepared for anesthesia before exploratory surgery for a mass in her neck. In addition to using an inhalation anesthetic, which one of the following drugs is given to cause complete paralysis of the skeletal muscles?

- a- Baclofen
- b- Dantrolene
- c- Atracurium
- d- Diazepam

C

<p>35. A 22 year-old patient having normal hepatic & renal functions was given a bolus I.V. dose of a neuromuscular blocker with duration of action should have lasted only for 5-10 min. Instead, the patient required mechanical ventilation for over 8 hours. Which statement about this problem is correct?</p> <p>a- The agent administered was atracurium</p> <p>b- This is an example of genetic variation in drug metabolism</p> <p>c- The agent was tubocurarine</p> <p>d- It is due to rapid distribution of the drug into the brain</p>	B
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Other MCQ on succinylcholine + curare (practical)

<p>1. Which of the following drugs could produce hyperkalemia leading to cardiac arrest especially in patients with excessive burns?</p> <p>a- Baclofen</p> <p>b- Dantrolene</p> <p>c- Tubocurarine</p> <p>d- Succinylcholine</p>	D
<p>2. Which drug is most often associated with hypotension caused by histamine release?</p> <p>a- Diazepam</p> <p>B- Tubocurarine</p> <p>C- Pancuronium</p> <p>d- Vecuronium</p>	B
<p>3. Post-operative muscle pain may be a side effect of the following neuromuscular blockers:</p> <p>a) Tubocurarine</p> <p>b) Mivacurium</p>	E

<p>c) Atracurium d) Vecuronium e) succinylcholine</p>	
<p>4. Which drug is most likely to cause hyperkalemia leading to cardiac arrest in patients with spinal cord injuries?</p> <p>(A) Baclofen (B) Dantrolene (C) Pancuronium (D) Succinylcholine (E) Vecuronium</p>	D
<p>5. Concerning skeletal muscle relaxants, which of the following is INCORRECT:</p> <p>a. Atracurium is a competitive neuromuscular blocker b. Succinylcholine is a depolarizing neuromuscular blocker c. Neostigmine can reverse the action of succinylcholine. d. Benzodiazepines are central muscle relaxants.</p>	C
<p>6. Prolonged apnea is sometimes seen in patients who have undergone an operation. Which of the following muscle relaxants could be the cause?</p> <p>a- Tubocurarine b- Succinylcholine c- Mivacurium d- Vecuronium</p>	B
<p>7. The underlying cause of the prolonged apnea resulting from succinylcholine is:</p> <p>a- Cardiac arrest b- A mutation in acetyl cholinesterase c- Increased release of nicotine at MEP d- Decreased levels of plasma cholinesterase</p>	D

<p>8. The following statements are true for neuromuscular blockers EXCEPT:</p> <ul style="list-style-type: none"> A. Succinylcholine can cause postoperative muscle pain. B. Atracurium undergoes spontaneous plasma hydrolysis C. Vecuronium breakdown products may cause seizures. D. Neostigmine can reverse muscle block caused by competitive blockers E. Synthetic derivatives are generally preferred than d-tubocurarine 	<p>C</p>
<p>9. The metabolites of which of the following neuromuscular blockers can lead to seizures?</p> <ul style="list-style-type: none"> A. d-tubocurarine B. Atracurium C. Mivacurium D. Vecuronium E. Succinylcholine 	<p>B</p>
<p>10. When succinylcholine is used to provide muscle relaxation during delivery by cesarean section, the following is true:</p> <ul style="list-style-type: none"> A. It can cause fetal hypotonia and even fetal paralysis B. It can relax the uterus and aggravate postpartum hemorrhage C. It can cause acute hyperkalemia and arrest the heart of the fetus D. It can cause maternal tachycardia E. It can decrease the effect of general anesthetics 	<p>C</p>
<p>11. A patient was administered NMB prior to a surgical procedure. This NMB drug caused initial skeletal muscle fasciculations before the onset of paralysis. Its effect could not be reversed with neostigmine. Which of the following neuromuscular blockers was administered to this patient?</p> <ul style="list-style-type: none"> A. Cisatracurium. B. Succinylcholine. C. Diazepam. D. Tubocurarine. E. Vecuronium 	<p>B</p>

12. A patient underwent a surgical procedure of 2 h. Anaesthesia was provided by isoflurane, supplemented by intravenous midazolam and a nondepolarizing muscle relaxant. At the end of the procedure, a low dose of atropine was administered followed by pyridostigmine. The main reason for administering atropine was to:

- A) Block cardiac muscarinic receptors
- B) Enhance the action of pyridostigmine
- C) Prevent spasm of gastrointestinal smooth muscle
- D) Provide postoperative analgesia
- E) Reverse the effects of the muscle relaxant

A