
بسم الله الرحمن الرحيم

MSK-1

CASE BASED LEARNING (CBL)

1st year MBBS (BATCH 50)

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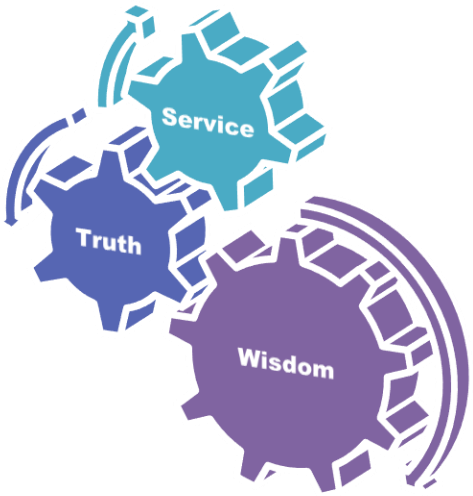
3rd April. 2023

Motto



Vision; The Dream/Tomorrow

- To impart evidence based research oriented medical education
- To provide best possible patient care
- To inculcate the values of mutual respect and ethical practice of medicine

CBL

- Case-based learning (CBL) is a teaching method where students learn by analyzing real-life cases and applying their knowledge to solve problems or make decisions. CBL is often used in medical education, where students analyze patient cases to develop diagnostic and treatment skills.

Conducting CBL

- Identify the learning objectives
- Choose a case: Select a real-life case that is relevant to the learning objectives you have identified
- Present the case
- Analyze the case: Have students work in groups to analyze the case
- Develop hypotheses

Conducting CBL (Cont.)

- Test hypotheses: Have students test their hypotheses by using relevant diagnostic tests or other methods.
- Discuss the results
- Evaluate learning: Evaluate student learning by assessing their ability to analyze the case, develop hypotheses, and apply their knowledge of medical physiology to diagnose and treat the patient.

LEARNING OBJECTIVES

At the end of the CBL, students will be able to:

- Understand what is insecticide poisoning.
- Comprehend the pathophysiology of insecticide poisoning.
- Discuss clinical manifestations of insecticide poisoning .
- What are the investigations and management of insecticide poisoning?
- Correlate and build core knowledge on the basis of latest research.

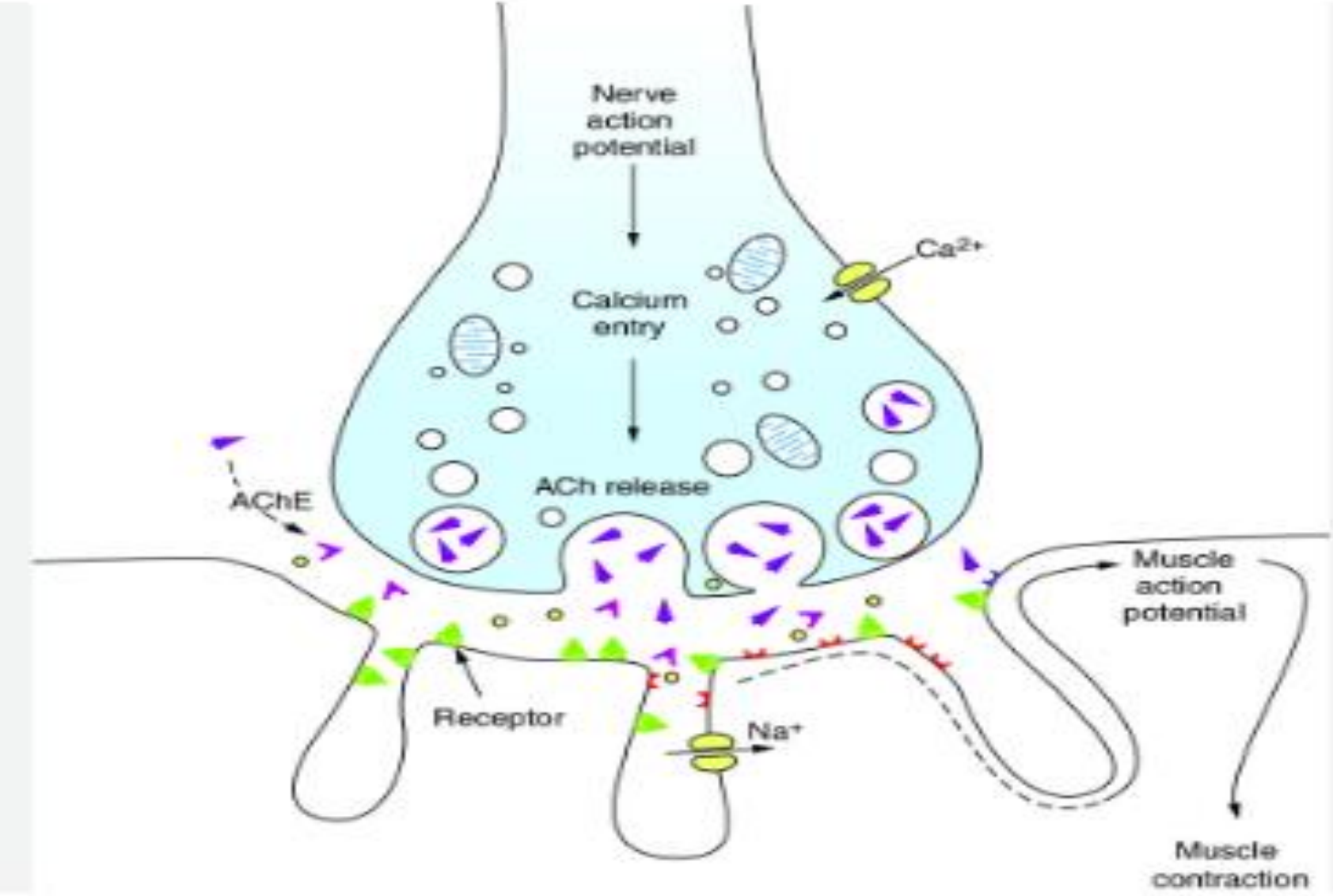
Insecticide Poisoning:

- **SEQUENCE OF EVENTS:**

- Case (shared with students)
- Time given to read.
- Initial discussion.
- Groups formed.
- Detailed discussion.

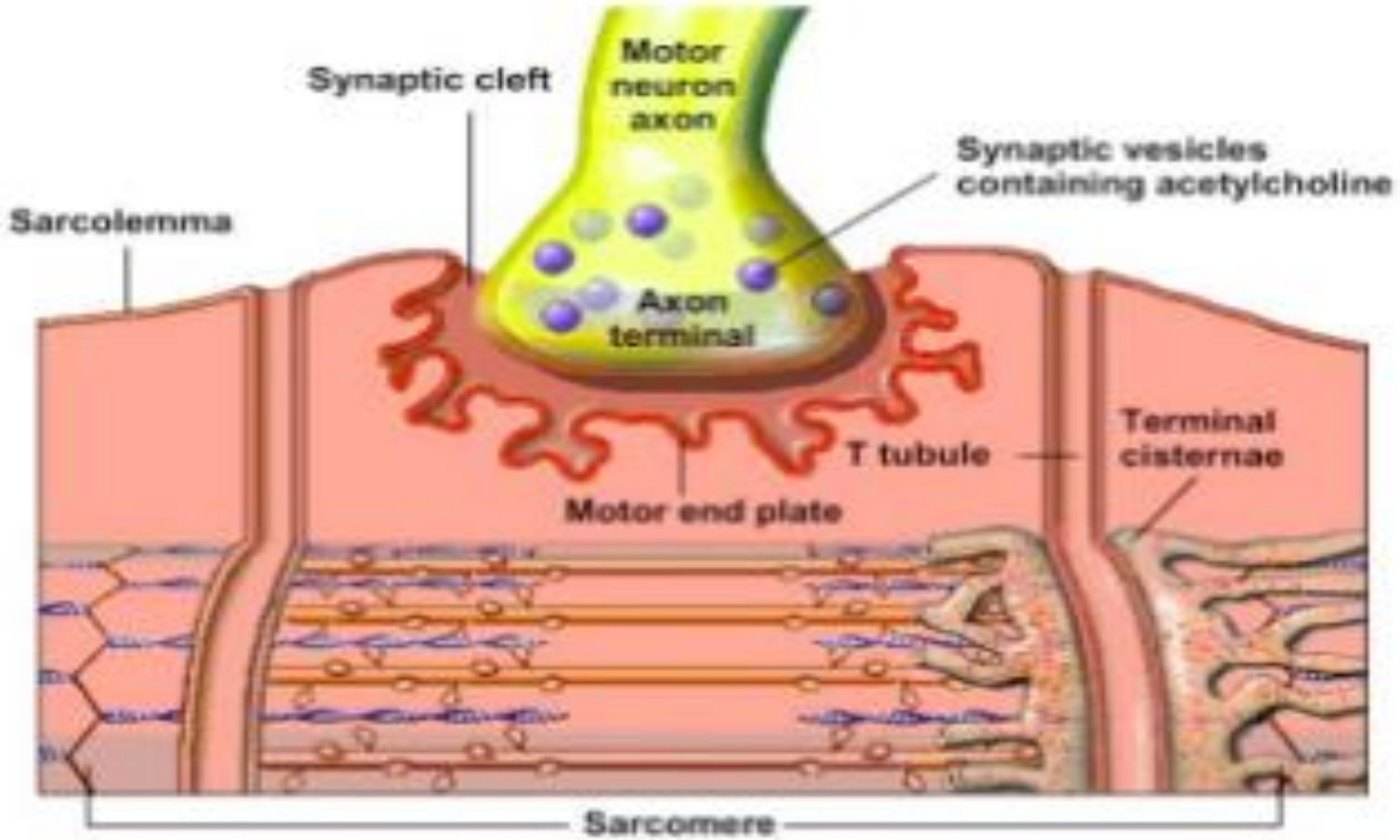
CORE CONCEPTS

- What is insecticide poisoning?
- Discuss Neuromuscular junction.
- **Horizontal integration**: Application of principles of anatomy regarding histological changes in insecticide poisoning.
- **Vertical integration:** Clinical features\ presentation \ diagnosis & treatment \ complications.



https://www.researchgate.net/publication/284287403/figure/fig1/AS:669544347619344@1536643220908/1-Diagram-of-the-neuromuscular-junction-Top-A-nerve-action-potential-AP-arrives-at.png

Events at the Neuromuscular Junction: Anatomy



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Case Scenario

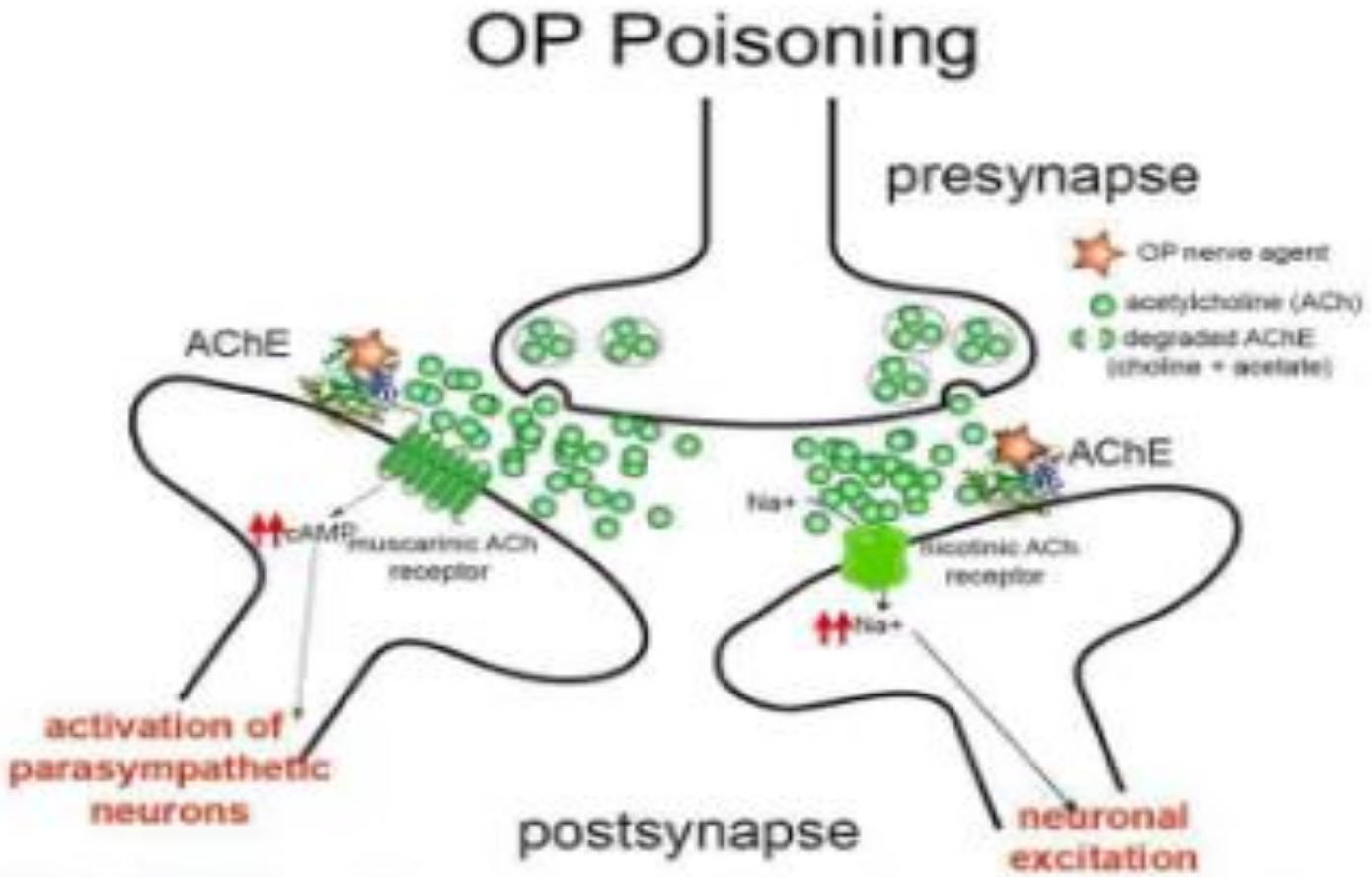
- A 20- year female was admitted to intensive care unit after intake of an insecticide in suicidal attempt . She had shortness of breath , decreased level of consciousness, diarrhoea, increased salivation, fatigue and seizures during admission. On complete examination his pupils were constricted, pulse rate 62 per min, blood pressure 120/80 and respiratory rate14 per min.
- After immediate resuscitation, she was treated with atropine. She required ventilator support for one week and after 9 days she recovered completely.

Insecticide poisoning

- Insecticide is a chemical that kill bugs. Insecticide poisoning occurs when someone swallows or breaths in this substance or it is absorbed through the skin.
- Insecticide contains harmful substances like **ORGANOPHOSPHATES ,** pyrethroids and carbamates.

Pathophysiology of insecticide poisoning

- Organophosphates are absorbed through the gastrointestinal tract ,skin and lungs. They inhibit acetyl cholinesterase, preventing breakdown of acetylcholine which then accumulates in synapses.
- Excess accumulation of acetylcholine at nerve endings mimics hyperactivity of the parasympathetic system.



OPs inhibit AChE, leading to accumulation of acetylcholine at the synapse. Excess acetylcholine **hyperstimulates muscarinic ACh receptors** leading to excess **salivating, vomitting, tearing, urinating, defecating, bronchoconstriction, reduced heart rate, diarrhea**
Excess acetylcholine also **hyperstimulates nicotinic ACh receptors** leading to **convulsions and tremors**

https://medicoapps.org/wp-content/uploads/2018/10/med_op_poisoning_ops_inh_krrxf.jpg

Clinical features of Insecticide poisoning

- Increased salivation
- Lacrimation
- Diarrhea
- Nausea
- Vomiting
- Small pupils
- Sweating
- Muscle tremors and confusion

Organophosphate Poisoning Symptoms

D	Diarrhea
U	Urination
M	Miosis
B	Bradycardia
B	Bronchospasm
E	Excitation of skeletal muscle & CNS
L	Lacrimation
S	Salivation
S	Sweating

Investigations

- Routine bloods
- ECG
- Chest X-RAY
- Serum pseudocholinesterase activity
- Arterial blood gases
- Serum electrolytes

Management

Management of organophosphate poisoning.

- Check airway, breathing , circulation.
- Monitor arterial oxygen saturation, cardiac rhythms, blood pressure and pulse rate.
- Look for signs and symptoms
- Obtain IV access.
- Remove the contaminated clothes and wash the skin thoroughly with soap and water.
- **ATROPINE** is definitive treatment for insecticide poisoning.

REFERENCE BOOKS:

- Guyton And Hall textbook of Medical Physiology 14th Edition.

- Google

Suggested research article

https://www.wjgnet.com/2220-6124/full/v11/i5/139.htm

•Google scholar article of 2020 on management and outcomes of acute glomerulonephritis in children

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Thank You!