ANTICHOLINERGIC DRUGS

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OBJECTIVES

- Define Anticholinergic drugs
- Classify Anticholinergic drugs
- State Pharmacological Effects of Anticholinergic Drugs
- List Uses of Anticholinergic Drugs
- Discuss Anticholinergic Syndrome *(Toxicity)*
- Conclusion

DEFINE ANTICHOLINERGIC DRUGS

- **An anticholinergic drug is one that blocks the physiological action of the neurotransmitter acetylcholine in the central and the peripheral nervous system.**

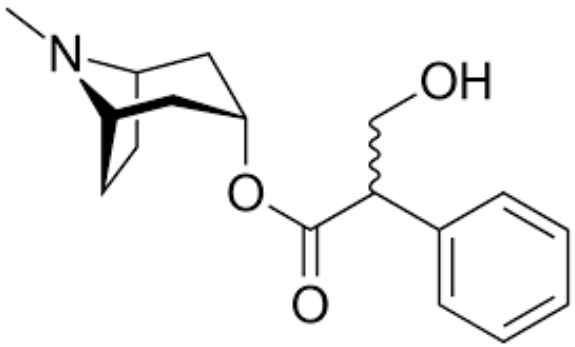
CLASSIFY ANTICHOLNERGIC DRUGS

1. **Antimuscarinic Agents (*parasympatholytics)***

Have high binding affinity for mAChRs which are found on nerve endings to smooth muscles cells, secretory glands and the eye. They are also found in the central nervous system.

They can be classified (structure):

- **Natural Alkaloid, e.g: *Atropine***
- **Semi Synthetic Agents, e.g: *Ipratropium Bromide***
- **Synthetic Agents, e.g: *Oxybutynin***

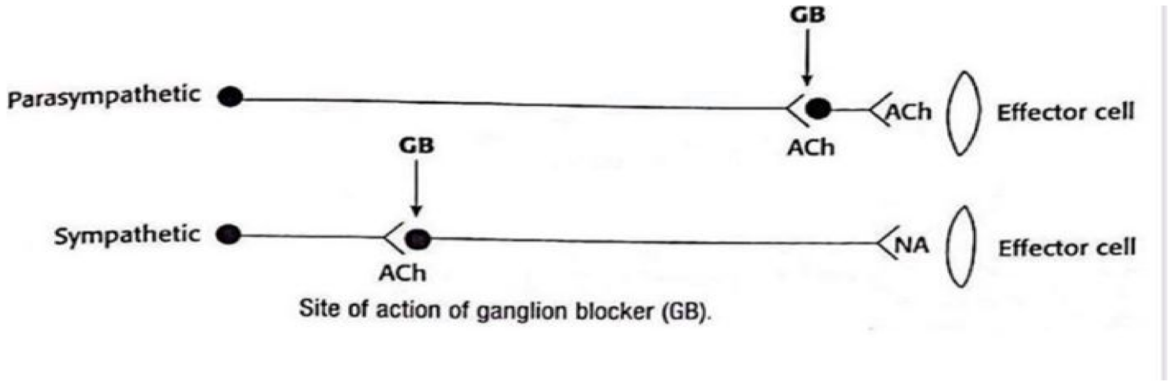


Structure of Atropine

Antinicotinic Agents

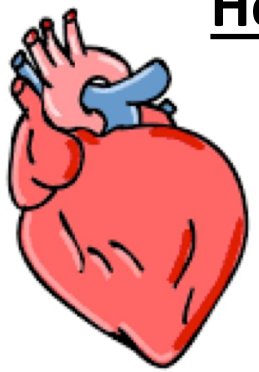
Chemical compounds that bind to nAChRs and are located at the nerve endings of neuromuscular junctions, they can be further classified into (action):

- **Skeletal Neuromuscular Blocking Agents, e.g: *Tubocurarine, Succinylcholine***
- **Ganglionic Blocking Agents, e.g: *Hexamethonium***



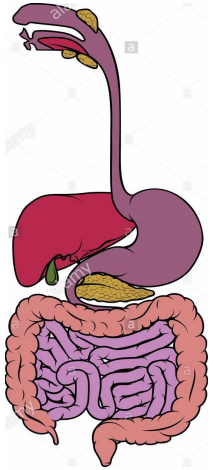
Site of action of ganglion blocker (GB).

STATE PHARMACOLOGICAL EFFECTS OF ANTICHOLINEGRIC DRUGS



Heart & Blood Vessels

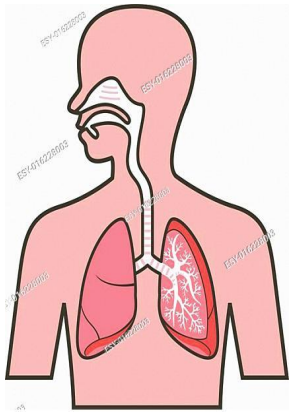
- Positive Chronotropic Effect
- Positive Dromotropic Effect
- No affect on blood vessels
- Low BP



Gastrointestinal Tract

- Decreased HCL secretion
- Relax of wall and spasm of sphincters

Bronchioles



-Bronchodilation

Salivary Glands

- Decreased salivary secretions

Urinary Bladder

- Relaxation of wall and spasm of sphincters

Skeletal Muscles

-Decrease muscle spasm

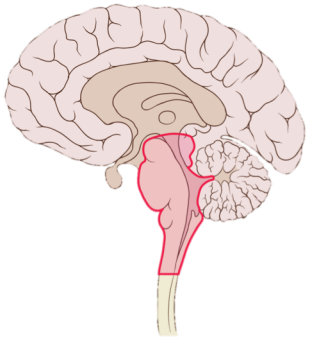
Eyes

-Paralysis of constrictor pupillae muscle & ciliary muscle

-Increase intra-ocular pressure

-Decreased lacrimation

Central Nervous System



- Restlessness, Excitation
- Decrease vomiting centre
- Anti-Parkinsonian effect

LIST USES OF ANTICHOLINERGIC DRUGS

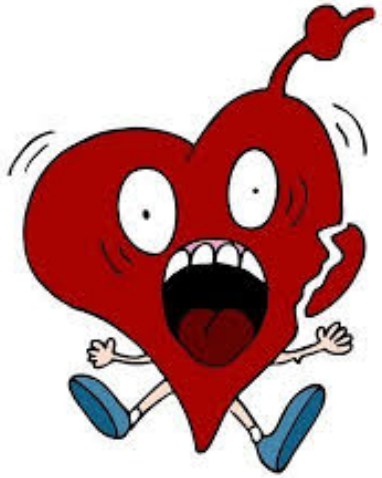
- **Respiratory Diseases and Conditions *(COPD, Asthma, Bronchitis)***
- **Antidepressants**
- **Antispasmodic:**
- **Anesthesia**
- **Irritable Bowel Syndrome (IBS)**

- **Overactive Bladder and Abdominal Pain**
- **May Prevent Nausea or Motion Sickness**
- **Help Manage Parkinson's Disease Symptoms**
- **Prevent Excessive Sweating in Anxiety**

LIST SIDE AFFECT OF ANTICHOLINERGIC DRUGS

- Dry mouth
- Blurred vision
- Sensitivity to light
- Lack of sweating
- Dizziness
- Nausea

- Hypersensitivity reactions (such as skin rash)
- Rapid heartbeat (tachycardia)
- Sedation
- Constipation
- Urinary retention
- Hyperthermia



DISCUSS ANTICHOLNIERGIC SYNDROME *(TOXICITY)*

- **Anticholinergic syndrome (ACS) is produced by over inhibition of cholinergic neurotransmission at muscarinic receptor sites.**
- **Causes: *intentional overdose, inadvertent ingestion, medical noncompliance, geriatric polypharmacy***
- **Severe poisoning may produce coma, medullary paralysis, and death.**
- **Reversible Acetylcholinesterase inhibitor agents such as *physostigmine* can be used as an antidote in life-threatening cases**

CONCLUSION

- Anticholinergic drugs block acetylcholine action, and give the opposites effects.
- They can either be muscarinic or nicotinic.
- Anticholinergic drugs can be used to treat Parkinson's disease
- They have many side effects such as rapid heart beat, urinary retention, and constipation
- Toxicity of these drugs may lead to coma, or death

REFERENCES

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thank
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