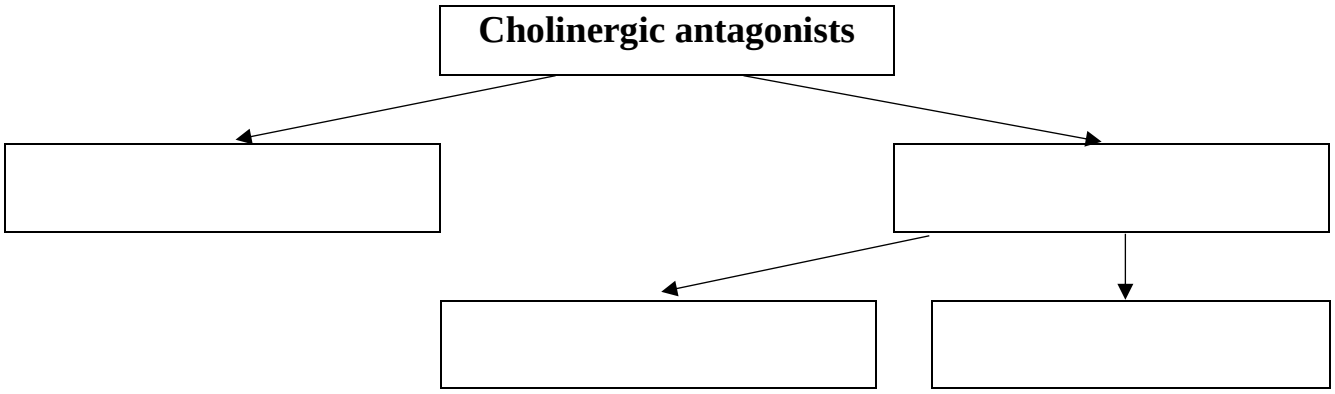
SMART PHARMACOLOGY

LESSON 7

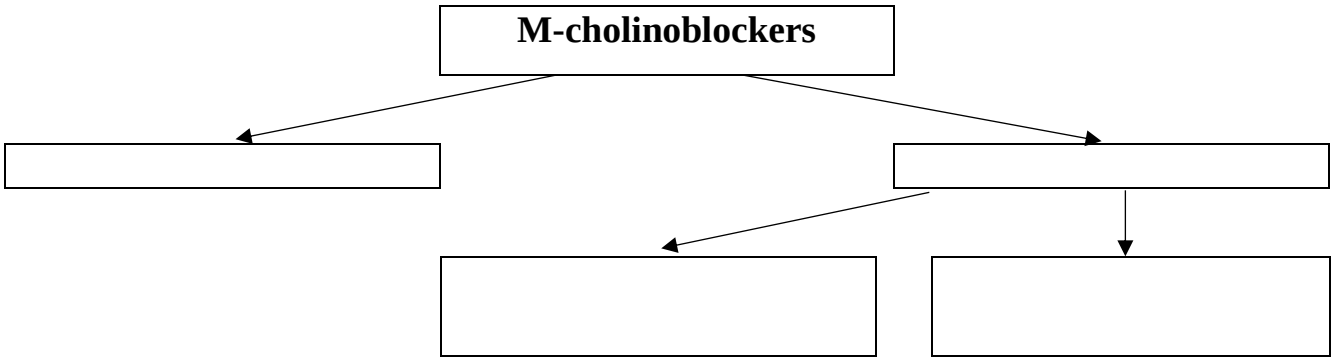
Task 1

Fill in the labels on the figure to identify the main groups of cholinergic antagonists.



Task 2

Fill in the labels on the figure to identify the main groups of M-cholinoblockers.



Pirenzepine (Gastrocepine)		Prifinium bromide (Riabal)		Butylscopolamine (Buscopan)
Ipratropium bromide (Atrovent)		Hyoscine (Scopolamine hydrobromide)		Platyphylline hydrotartrate
Atropine sulphate		Belladonna dry extract		Tropicamide

Task 3

Indicate the main localization of M-cholinoreceptors and effects at their stimulation.

Cholinoreceptors	Localization	Effects of stimulation
M_2		
M_3		
M_1-M_3		
M_1-M_5		

Task 4

Combine the pharmacological effects of atropine on the corresponding organs and systems and fill in the table:

Organ	Pharmacological effects	Therapeutic uses
1. Eye	A. Blocks muscarinic receptors in the salivary glands, producing dryness of the mouth (xerostomia). The salivary glands are exquisitely sensitive to atropine. Sweat and lacrimal glands are similarly affected.	a. Atropine is used as an antispasmodic agent to relax the GI tract.
2. Gastrointestinal tract	B. At low doses, the predominant effect is a slight decrease in heart rate. Higher doses of atropine cause a progressive increase in heart rate.	b. Topical atropine exerts both mydriatic and cycloplegic effects, and it permits the measurement of refractive errors without interference by the accommodative capacity of the eye.

3. Cardiovascular system	C. Reduce spasms of the GI tract. Although gastric motility is reduced, hydrochloric acid production is not significantly affected.	c. Atropine is sometimes used as an antisecretory agent to block secretions in the upper and lower respiratory tracts prior to surgery.
4. Secretions	D. Blocks muscarinic activity in the eye, resulting in mydriasis (dilation of the pupil), unresponsiveness to light, and cycloplegia (inability to focus for near vision).	d. The drug is used to treat bradycardia of varying etiologies.

Task 5

Atropine sulphate can be used as antidote in cases of poisoning with:

A. Muscarine-containing mushrooms.

B. M-cholinomimetics.

C. Anticholinesterases (Physostigmine).

D. Organophosphate (insecticides, nerve gases) poisoning.

E. All listed above.

Task 6

Please compare the pharmacological profile of M-cholinoblockers:

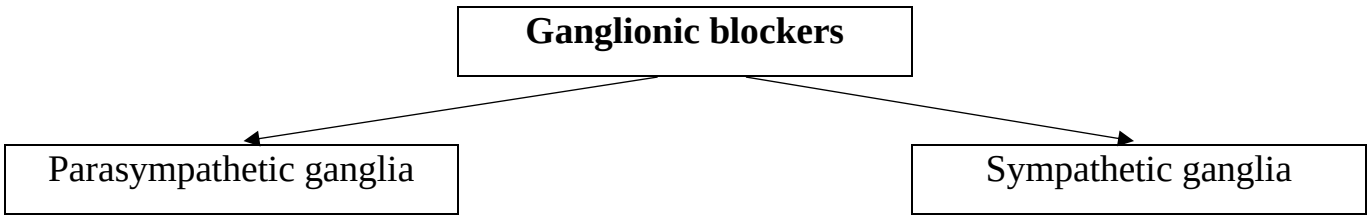
The pharmacological profile of M-cholinoblockers

Drugs	**Action**				
	Strength	**Duration**	**Resorptive**	**Local**	**Spasmolytic**
Atropine sulphate					
Homatropine hydrobromide					
Scopolamine hydrochloride					
Platyphyllin hydrotartrate					
Methacine iodide					
Ipratropium bromide					
Pirenzepine					

Tropicamide					

Task 7

Combine the influence of ganglionic blockers on N-ChR of sympathetic and parasympathetic ganglia:



Constipation

Vasodilatation

Urinary retention

Tachycardia

Cycloplegia

Xerostomia

Task 8

Please compare the pharmacological profile of ganglionic blockers:

The pharmacological profile of ganglionic blockers

Drugs	**Action**	
	Strength	**Duration**
Azamethonium bromide		
Pachicarpine hydroiodide		
Dimecoline iodide		
Hexamethonium benzosulphonate		

Task 9

Discuss the mechanism of action of muscle relaxants and fill in the table:

Muscle relaxants	**Drugs**	**Mechanism of action**
Antidepolarizing (non-depolarizing) **agents** (pachicurare)		

Depolarizing agents (leptocurare)		

Task 10

Please compare the pharmacological profile of muscle relaxants:

The pharmacological profile of muscle relaxants

Drugs	**Action**		**It causes**		**BP**
	Strength	**Duration**	**Bronchospasm**	**Pseudoallergy**	
Suxamethonium iodide					
Diplacine dichloride					
Tubocurarine chloride					
Pipecuronium bromide					