King Saud University
College of medicine
432 Teams

PROPOSAL TITLE

A PROPOSAL TO: **CLIENT**

MONTH DAY YEAR

PLACE LOGO
OR COMPANY NAME HERE

1st pharmacology lecture (Anticholinergic Drugs)

Lecture's objectives:

- *Describe Kinetics of muscarinic antagonists*
- *The effects of atropine on the major organ systems.*
- *To list the clinical uses of muscarinic antagonists.*
- *To know adverse effects & contraindications of anticholinergic drugs.*
- *To identify at least one antimuscarinic agent for each of the following special uses: mydriasis, cyclopedia, peptic ulcer & Parkinsonism.*

icholinergic Drugs: are drugs that block cholinergic receptors.

Anticholinergic Drugs

Natural alkaloids

- **Atropine (*Hyoscyamine*).**
- **Scopolamine *(Hyoscine).***

Synthetic muscarinic antagonists

- **Benztropine**
- **Homatropine**
- **Tropicamaide**
- **Pirenzepine**
- **Ipratropium**
- **Glycopyrrolate**
- **Oxybutynin**

Comparison between the pharmacological actions of muscarinic agonists and muscarinic antagonists:

Muscarinic agonists	Muscarinic antagonists
Eye: ✓ **Miosis and accommodation of near vision**	Eye: ✓ Passive mydriasis and cycloplegia ✓ Loss of light reflex ✓ Increase intraocular pressure ✓ Decrease lacrimal secretion
Respiratory system: ✓ **Bronchoconstriction** ✓ **Increase bronchial secretion**	Respiratory system: ✓ Bronchodilatation ✓ Decrease bronchial secretion
CVS: ✓ **Bradicardia (decrease heart rate)**	CVS: ✓ Tachycardia ✓ Increase artioventricular conduction (+ve dromotropic effect)
GIT: ✓ **Peristalsis (increase motility)** ✓ **Increase secretion** ✓ **Relaxation of sphincter**	GIT: ✓ Decrease motility (Antispasmodic effect) ✓ Decrease secretion ✓ Contraction on sphincter
Urinary tract: ✓ **Contraction of muscles** ✓ **Relaxation of sphincter.**	Urinary tract: ✓ Relaxation of muscles ✓ Contraction of sphincter.
Secretion: ✓ **Increase the secretion**	Secretion: ✓ Decrease the secretion
CNS: **NON**	CNS: ✓ Sedation (CNS depression) ✓ Antiemetic effect (Block vomiting center) ✓ Antiparkinsonian effect (Block basal ganglia)

Notes:

- **Atrioventricular conduction:** Forward conduction of the cardiac impulse from the atria to ventricles via the atrioventricular node
- Decrease the bronchial secretion will increase the viscosity.
- Decrease the lacrimal secretion may result in sandy eye.
- Toxic dose of muscarinic antagonists may cause cutaneous vasodilatation which result in flushing, constipation, urinary retention, Hyperthermia, excitement, hallucination and coma.
- Atropine can cause hyperthermia for children even with therapeutic doses.
- Prostate hyperthermia causes urine retention.
- Intestinal spasm is due to hyper motility and its treated by antispasmodic drugs.

Uses of antimuscarinic drugs:

1. Fundus examination of eye.
2. Antiemetic in motion sickness. (Motion sickness is treated either by anti histamines or by antimuscarinic drugs which is (Scopolamine))
3. Pre-anesthetic medication. (Homatropine because of its short duration of action it is used for fundus eye examination)
4. Antispasmodic. (Antispasmodics are quaternary amines (polar))
5. Parkinson's disease we use (Benztropine)
6. Asthma. (Because of they cause vasodilatation)
7. Peptic ulcer. (Because they decrease gastric acid secretion)
8. Treatment of overdoses of cholinesterase inhibitors.

Ques. **Can antimuscarinic drugs reverse the action of Ach on skeletal muscles?**
No, because it can't block the action of Ach on nicotinic receptors.

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