

Cholinergic Drugs intro

Activity at Cholinergic synapses- that use Ach as neurotransmitter

Cholinergic Receptors Previous cheat sheet

Cholinergic Stimulants Increase activity at ACh line synapses.

Direct acting Cholinergic Stimulants Bind directly with the Cholinergic receptor

Indirect acting Cholinergic stimulants increase synaptic activity by inhibiting the ACh linesterase enzyme located at Cholinergic synapse

Direct Acting Cholinergic Stimulants

Cholinergic Agonists Function: similar to Ach Molecule

Ach Is DIRECT ACTING Cholinergic stimulant

Muscurinic Cholinergic Stimulants More beneficial , primarily AFFECT the peripheral tissues while exerting a minimal effect on the cholinergic receptors located in the autonomic ganglia and the neuromuscular junction.

Clinical use only few are useful

Follow The Table Every drug

Indirect-acting Cholinergic Stimulants

Function increase activity at cholinergic synapses by inhibiting the Achsterase enzyme that is responsible for destroying Ach after this neurotransmitter is released from the presynaptic terminal. So it allows more Ach to remain in the Synapse. FINALLY: It increases in cholinergic synaptic transmission.

Indirect-acting Cholinergic Stimulants (cont)

Also known as Cholinesterase inhibitors / anticholinesterase agents

What it does finally Exert a stimulatory effect on the peripheral muscuranic cholinergic synapses and on the cholinergic synapses found at the autonomic ganglia, at the skeletal neuromuscular junction, and within certain aspects of the CNS.

Adverse effects

p. 293 Problems and adverse effects

Clinical Applications

Mainly: Both decrease in smooth muscle tone that occur in GI tract and bladder following abdominal surgery or trauma.

Indirectly glaucoma, myasthenia gravis, alzheimer disease and to reverse the effects from an overdose of other drugs such as neuromuscular blocking agents and anticholinesterics.

Alzheimer disease p. 292

Glaucoma

Myasthenia Gravis

Reversal of Neuromuscular blockage

Reversal of Ach-Induced CNS toxicity

Antecholinergic Drugs

Function Competitive antagonists of the postsynaptic Cholinergic receptors: So they bind reversibly to the cholinergic receptor but do NOT activate it.

Antecholinergic Drugs (cont)

Binding... BLOCKS the receptor from the effects of endogenously released Ach --> diminishing the cellular response to Cholinergic stimulation.

Other names Antinuscenic/antinicotic DRUGS

AntiNicotinic Nn-Antagonists USED for Extreme High BP and Hypertensive emergencies

To produce Surgery by blocking the Skeletal NMJ

Antimuscarinic AntiCholinergic Drugs

Atropine Prototype Drug

Obtained from: Extract of plants such as belladonna and jimsonweed

Action BLOCK Postsynaptic Cholinergic Muscarinic Receptor

Five subtypes M1-M5 Antagonize cholinergic receptors on number of tissues which leads to side effects (see above Cheat sheet)

Clinical Application GI, Parkinson, and treat clinical disorder (table 19-2, p. 295)

Parkinsons Deficiency of the dopamine in the basal ganglia. --> leads to overactivity of central cholinergic synapse

CVS Atropine- primarily use to block vagus nerve on myocardium. Slows heart rate, conduction of the cardiac action potential throughout the myocardium.

Motion sickness antimuscarinics - Scopolamine

poisoning