

Types of cholinergic drugs

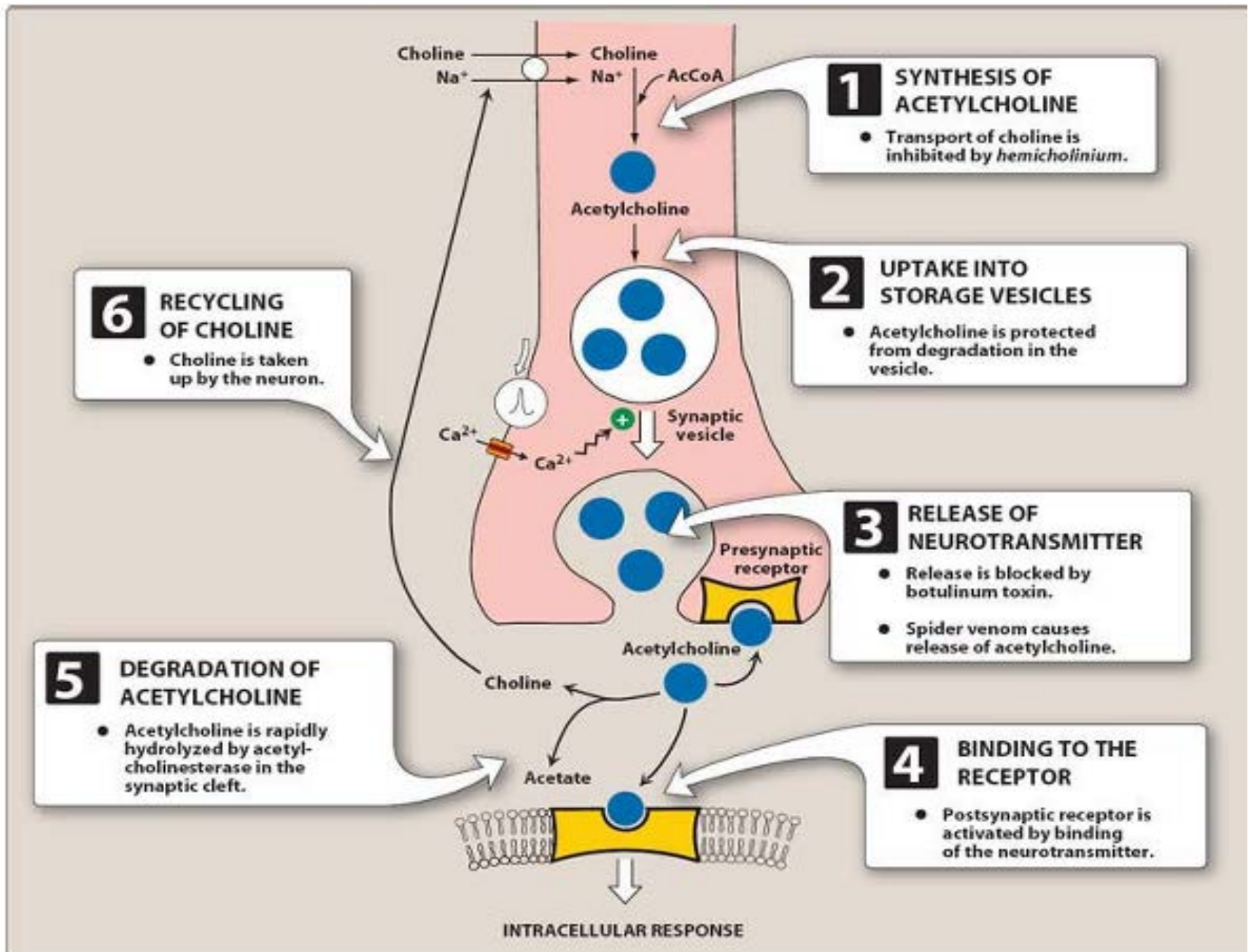
1- Direct acting cholinergic drugs

2- Indirect acting cholinergic drugs



Cholinergic drugs

The transmission of cholinergic neurons
involve six steps



Cholinergic receptors

1- Muscarinic R.

2- Nicotinic R.

Acetylcholine receptors

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graph TD; A[Acetylcholine receptors] --> B["CNS (muscarinic and nicotinic)"]; A --> C["Autonomic (muscarinic and nicotinic)"]; A --> D["Neuromuscular (nicotinic)"];
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CNS
(muscarinic and
nicotinic)

Autonomic
(muscarinic and
nicotinic)

Neuromuscular
(nicotinic)

Muscarinic receptors

M₁

M₂

M₃

M₄

M₅

CNS

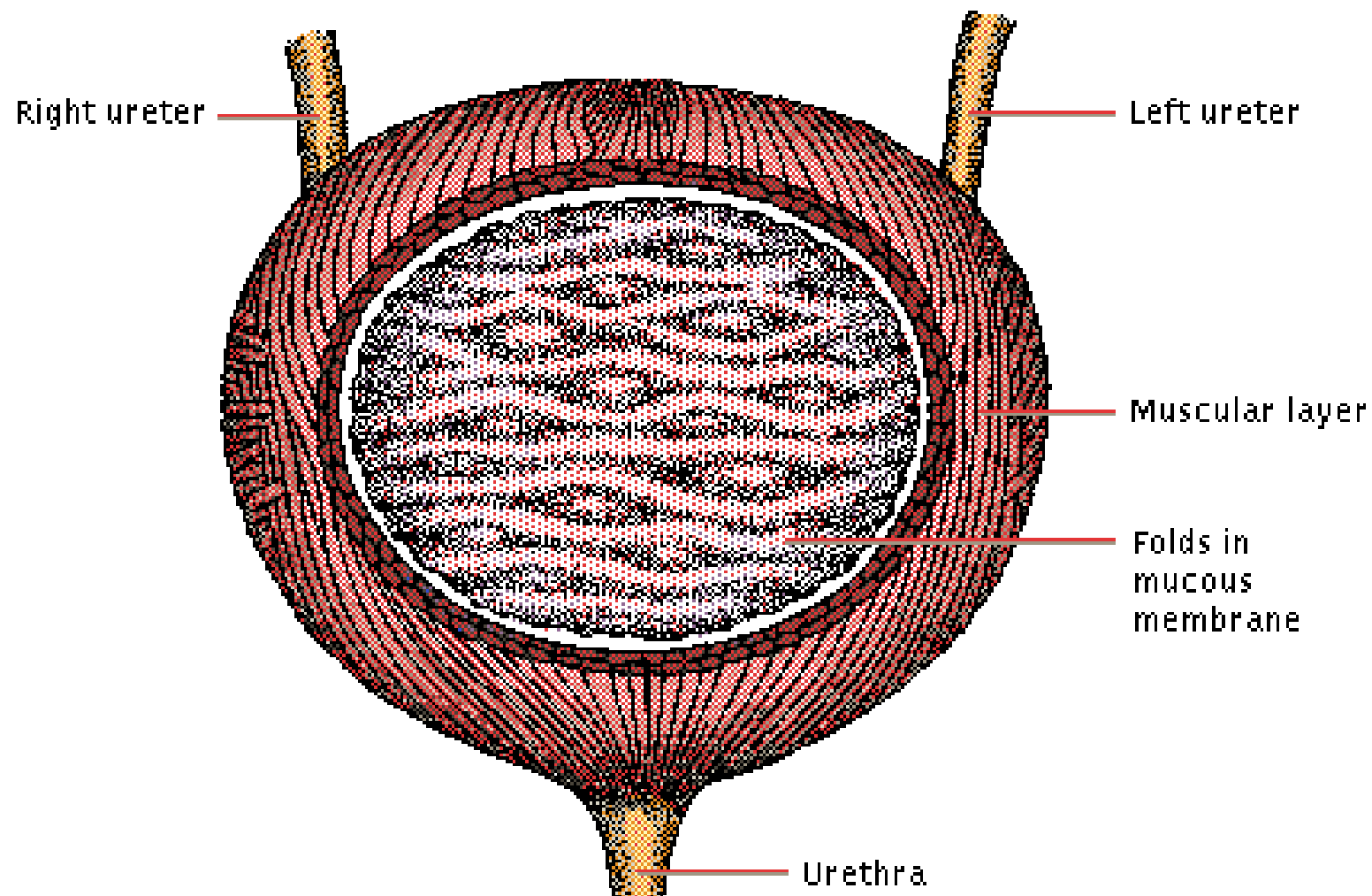
Heart

Smooth
muscle

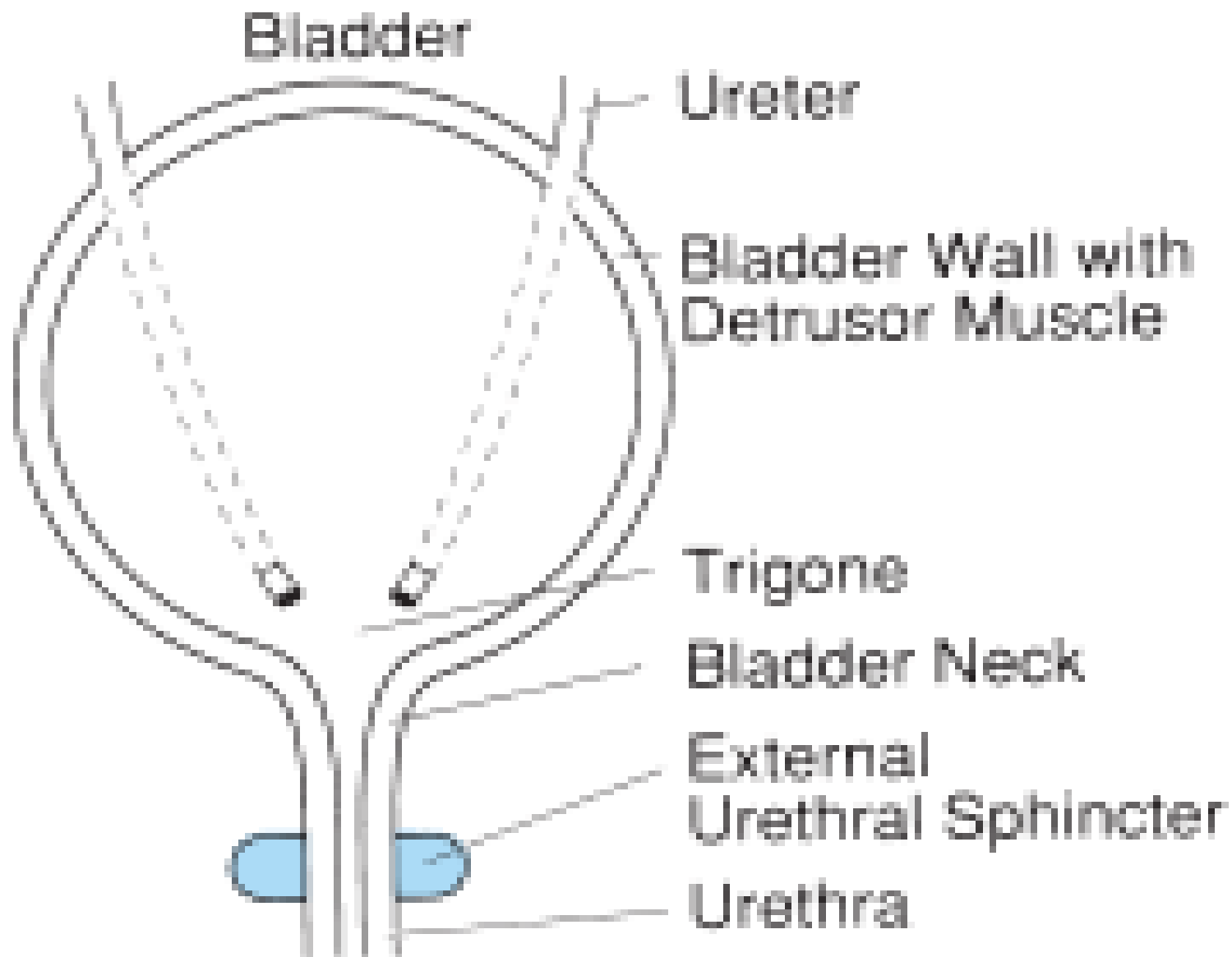
CNS

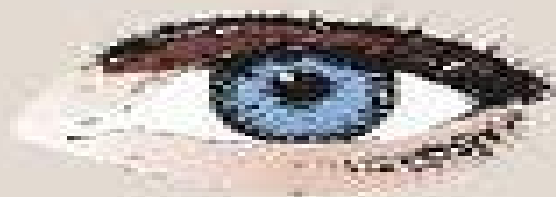
CNS





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**Eye treated
with *pilocarpine***



**Miosis
(contraction of
the pupil)**



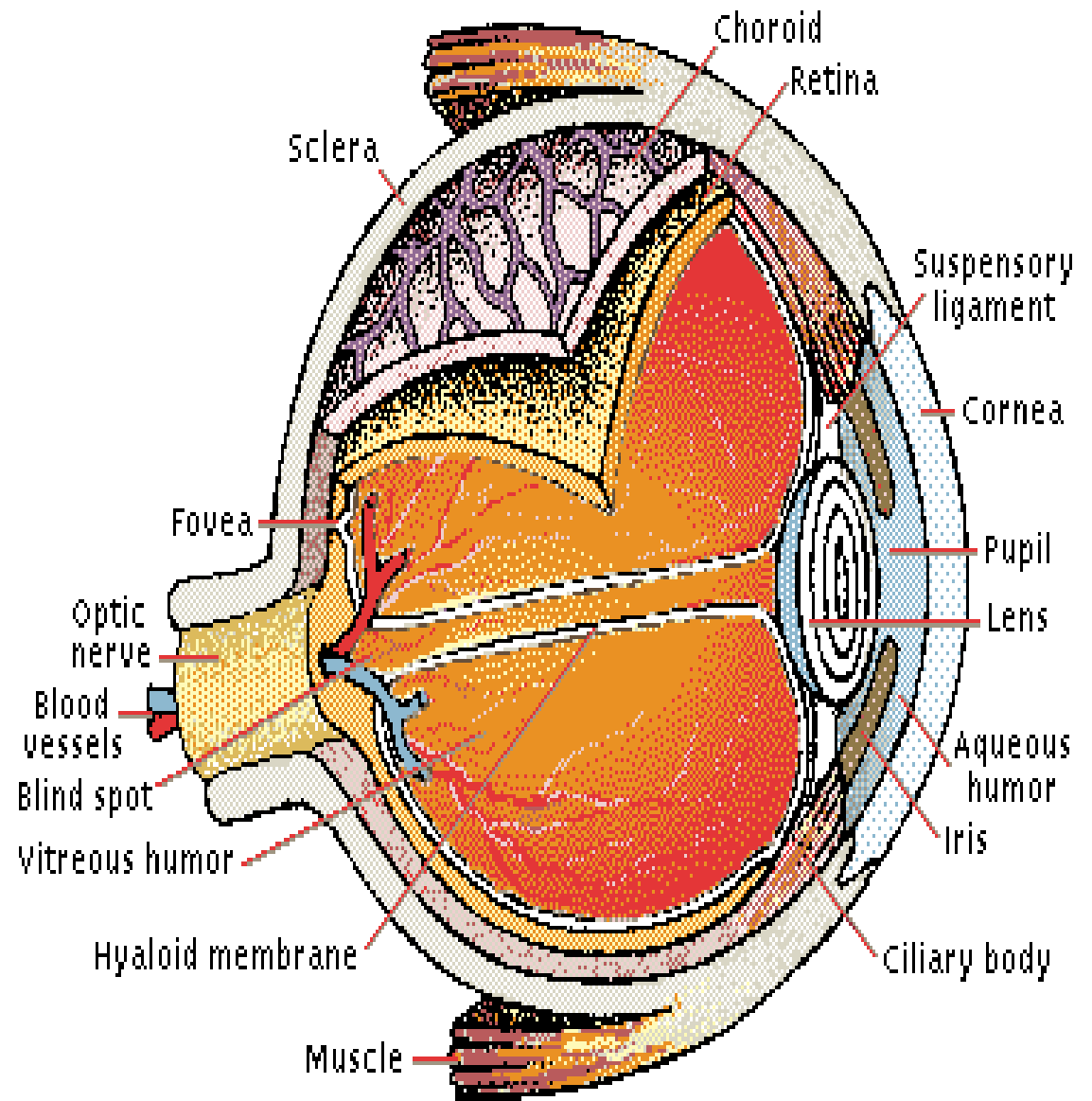
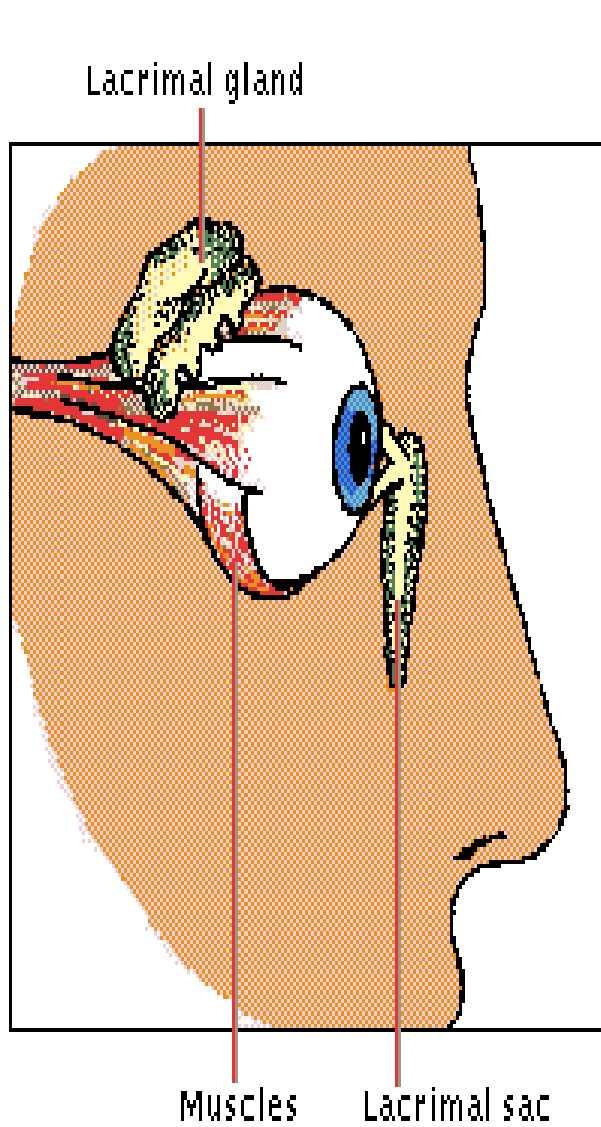
Untreated eye



**Mydriasis
(dilation of
the pupil)**



**Eye treated
with *atropine***

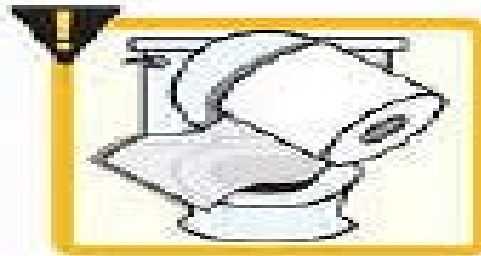




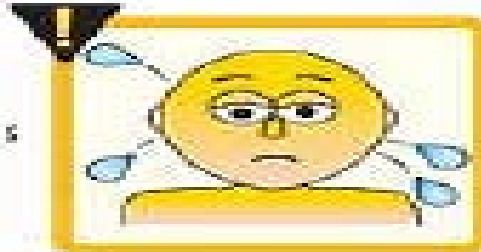
Encarta Encyclopedia, Raymond A. Mendez/Animals Animals



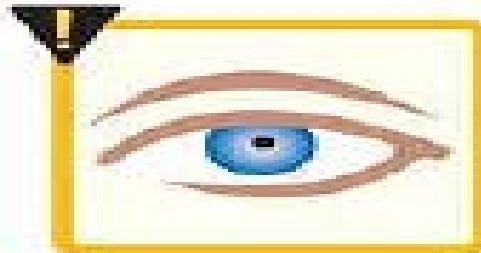
Diarrhea



Diaphoresis



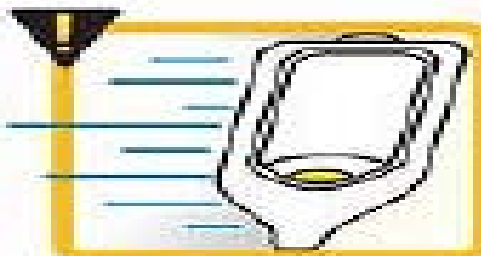
Miosis



Nausea



Urinary urgency



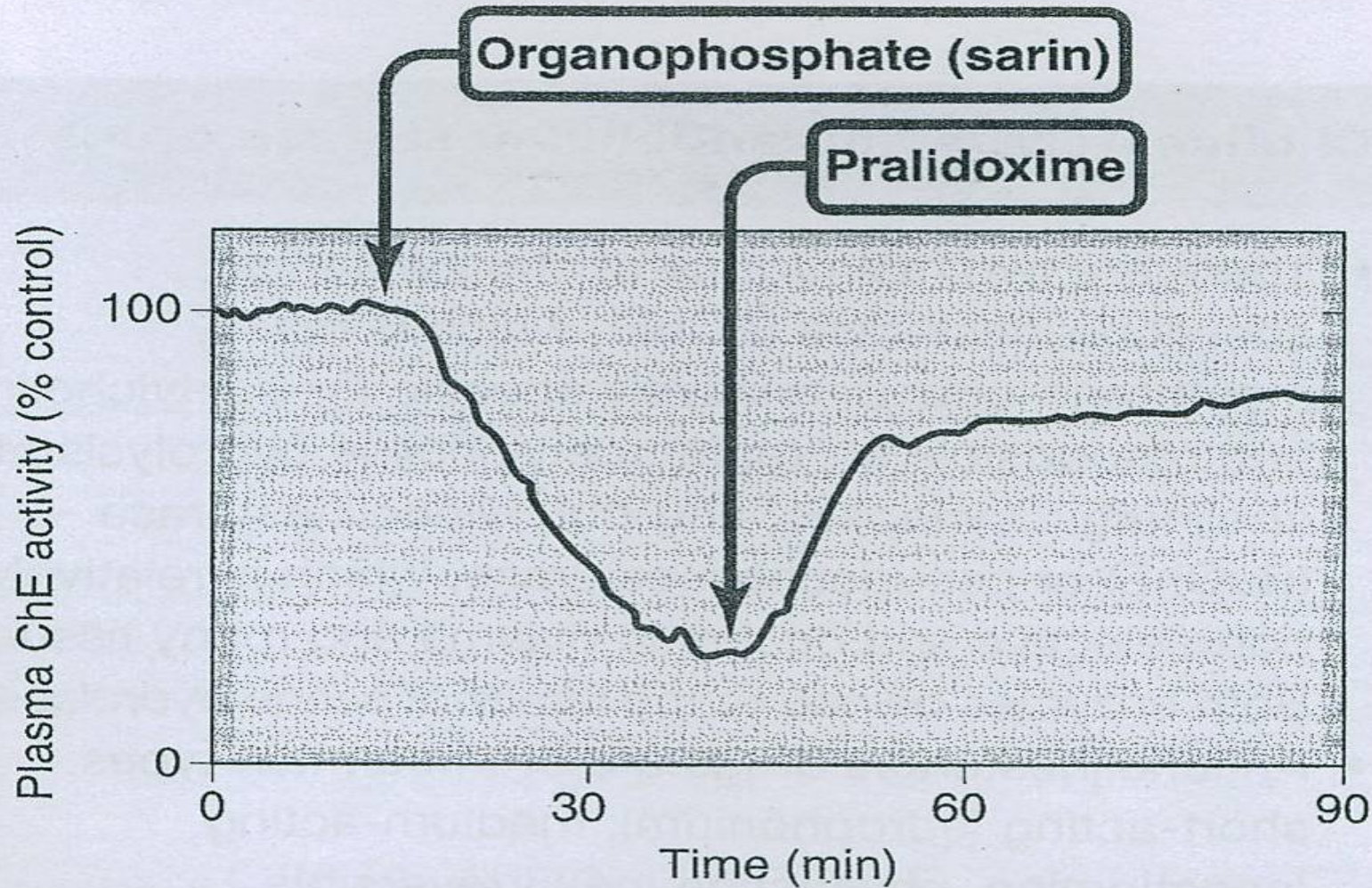
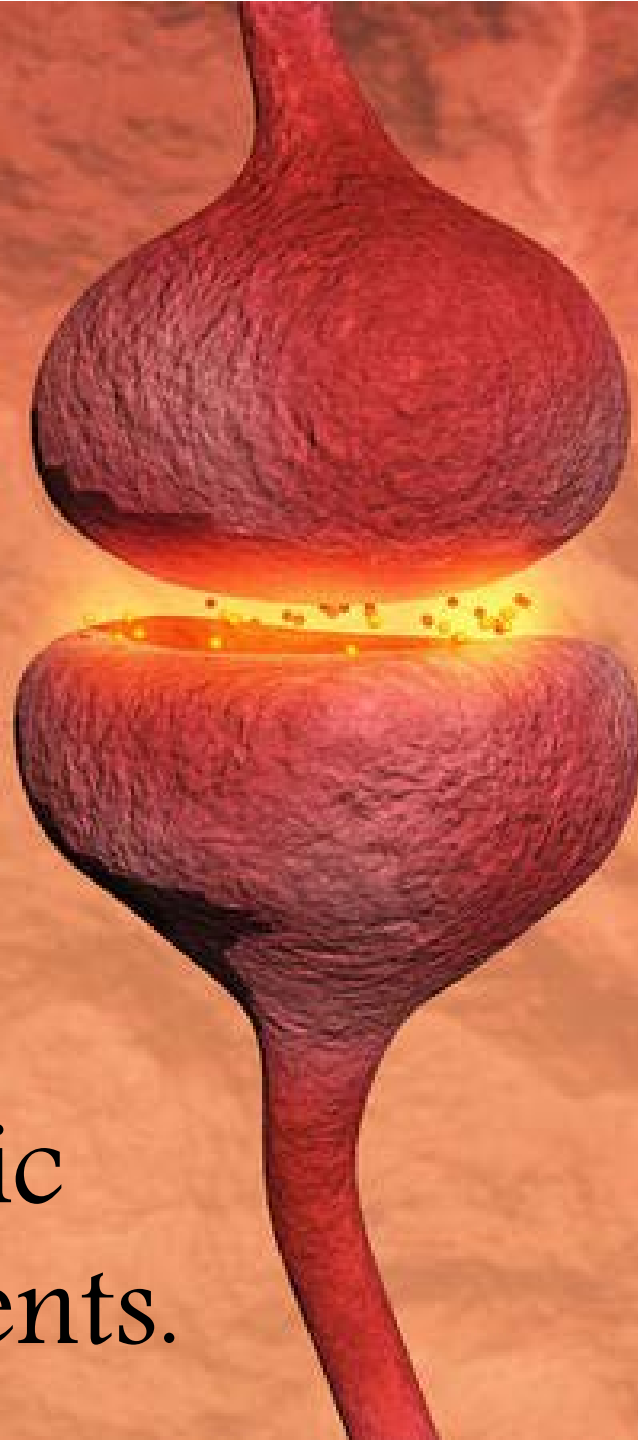
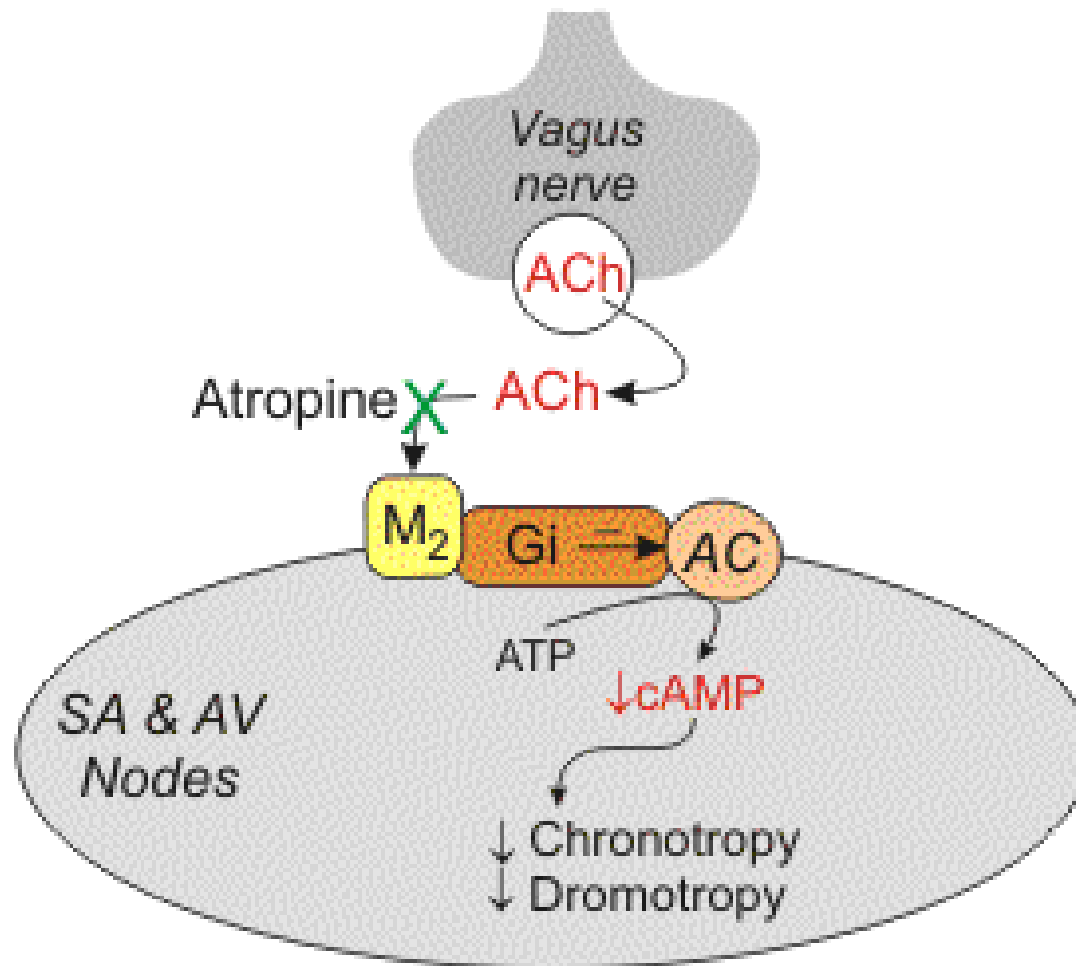


Fig. 10.10 Reactivation of plasma cholinesterase (ChE) in a volunteer subject by intravenous injection of pralidoxime. (Redrawn from Sim V M 1965 JAMA 192: 404.)

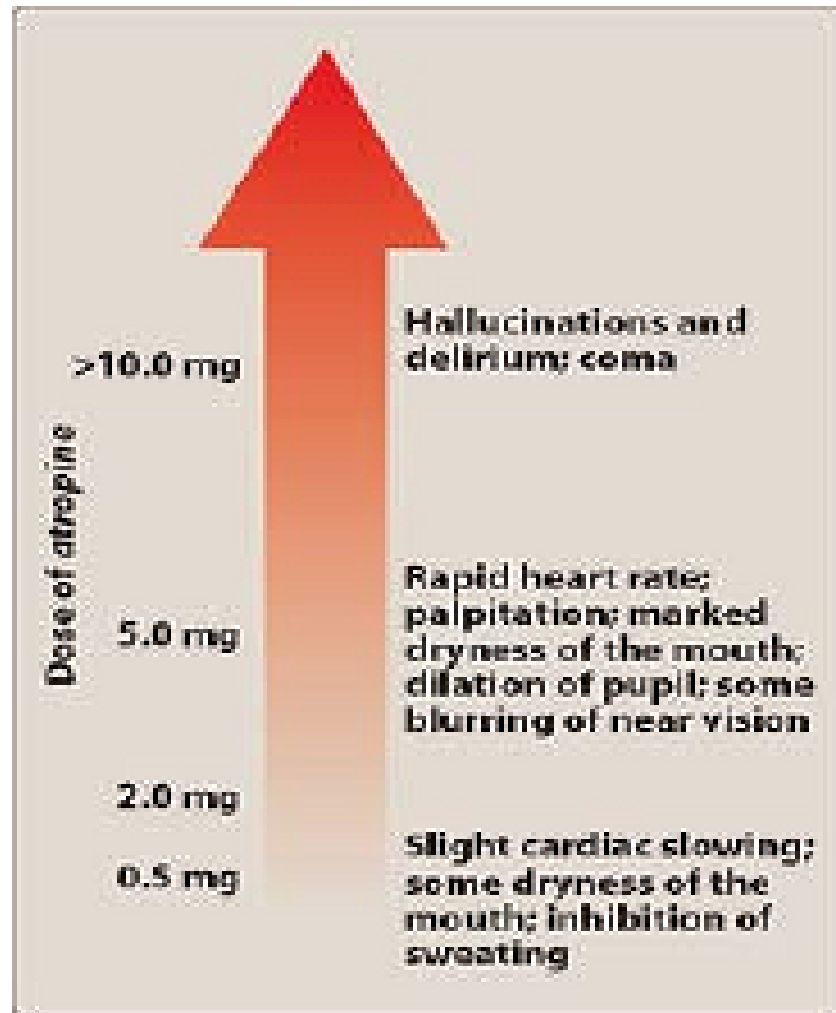


Cholinergic
Blocking Agents.



Abbreviations: ACh, acetylcholine; M₂, muscarinic receptor; AC, adenylate cyclase; SA, sinoatrial; AV, atrioventricular

Side effects of Antimuscarinic (Atropine).

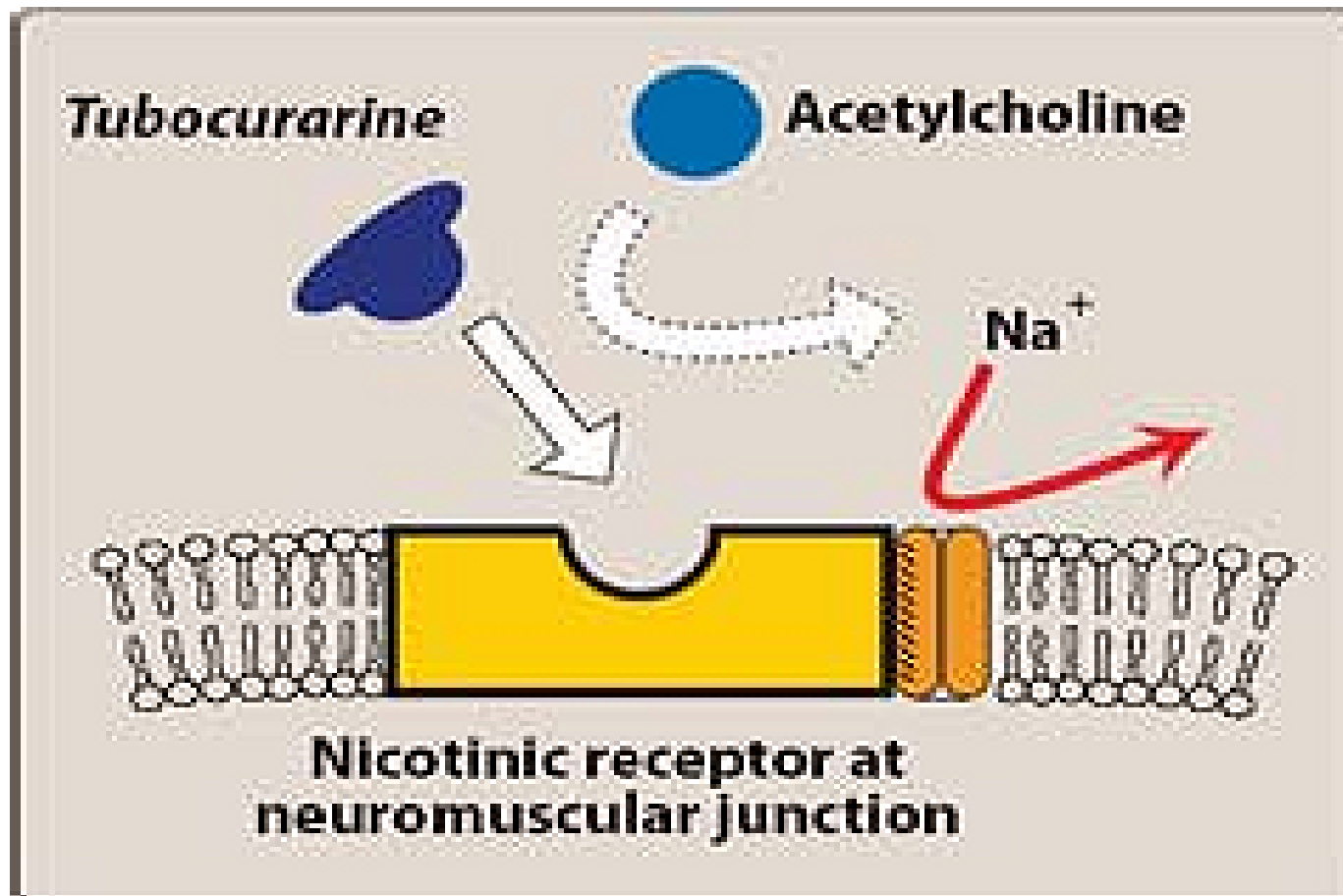


Scopolamine (L-Hyoscine).

- produce sedation at low doses in contrast to atropine
- At high doses it act like atropine.
- Used as antiemetic and prophylactically in motion sickness either orally or transdermally.

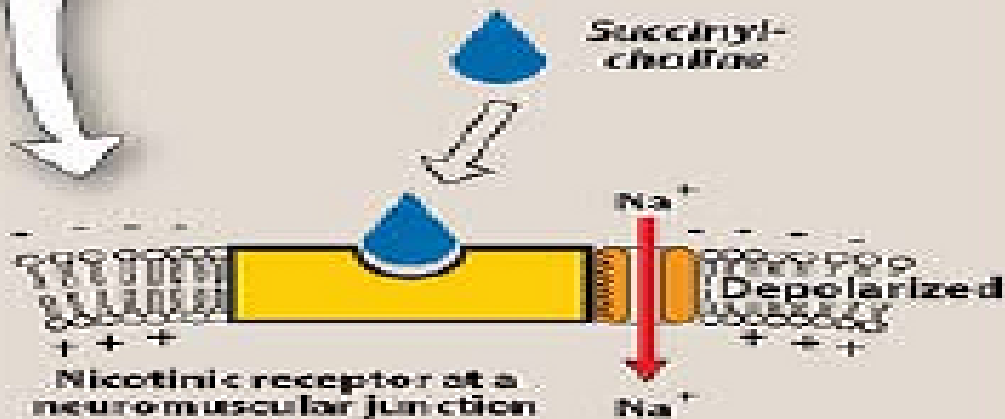


Mechanism of Action



PHASE I

Membrane depolarizes, resulting in an initial discharge that produces transient fasciculations followed by flaccid paralysis.



PHASE II

Membrane repolarizes, but receptor is desensitized to the effect of acetylcholine.

