Pilocarpine (Pilocar)

Pilocarpine (Pilocar) is a direct cholinergic agonist that contracts the iris sphincter and ciliary muscle of the eyes. The medication is indicated for patients with glaucoma and xerostomia (dry mouth). Side effects include retinal detachment, decreased visual acuity, and eye irritation. Patients taking pilocarpine may also experience cholinergic side effects, such as bradycardia, bronchospasm, hypotension, and diarrhea. Since pilocarpine may cause systemic effects, avoid administering the medication to patients with asthma and bradycardia.



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Mechanism

Direct Cholinergic Agonist
Direct-route Cola Dragonist
Pilocarpine is a direct-acting cholinergic agonist that increases aqueous blood flow. The medication mimics the effects of acetylcholine and serves as a messenger between nerve cells and various organs throughout the body. This parasympathomimetic agent stimulates cholinergic receptors and may lead to systemic effects such as bronchospasm or hypotension.

Contracts Iris Sphincter
Flexing Iris Sphinx
Pilocarpine contracts the iris sphincter of the eyes and causes pupil constriction or miosis. This action may help alleviate intraocular pressure (IOP) in patients with angle-closure glaucoma.

Contracts Ciliary Muscle
Flexing Seal Muscle
Pilocarpine contracts the ciliary muscle and focuses the lens for near vision. This action may help alleviate intraocular pressure (IOP) in patients with primary open-angle glaucoma glaucoma (POAG) or used in the emergency treatment of acute primary angle closure glaucoma (PACG).

Indications

Xerostomia
Zero-spit-mouth
Pilocarpine stimulates the salivary glands to make saliva, which is essential for lubricating the oral mucosa. Since the cholinergic effects of pilocarpine may cause hypersalivation, the medication is indicated for individuals with dry mouth. The condition, known as xerostomia, may be caused by medications, chemotherapy, or Sjögren's syndrome.

Glaucoma
Glock-eye
Since pilocarpine indirectly lowers IOP, the medication is indicated for patients with glaucoma. Pilocarpine is a second-line drug for patients with primary open-angle glaucoma (POAG). The drug decreases IOP as the ciliary muscle contracts and widens to facilitate aqueous humor outflow. In patients with primary angle-closure glaucoma (PACG), the contraction of the iris sphincter pulls the iris from impeding aqueous humor outflow. Pilocarpine may be used to treat acute cases of primary angle-closure glaucoma to relieve increased IOP.

Side Effects

Detached Retina
Detached Red-tins
The action of pilocarpine causes the lens and vitreous to move forward and may create a retinal tear. Sustained contraction of the ciliary muscle may lead to retinal detachment.

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Decreased Visual Acuity

Down-arrow Eye Accuracy

By constricting the pupils, pilocarpine may cause blurred vision and decreased visual acuity. Contraction of the ciliary muscle focuses the lens for near vision. Corrective lenses may be prescribed to help improve decreased visual acuity.

Eye Irritation

Eye Irritated

Pilocarpine is administered topically to the lower conjunctiva as either a solution or an ophthalmic gel. The medication may cause eye irritation, such as eye pain and brow ache.

Cholinergic Effects

Cola Fx

Although rare, pilocarpine may be absorbed by the body and cause systemic effects. Widespread stimulation of cholinergic receptors may lead to bradycardia, bronchospasm, hypotension, and hypersalivation. Additional cholinergic effects include urinary urgency, diarrhea, and sweating. A muscarinic antagonist, such as atropine, may be administered to reverse systemic toxicity (refer to the Picmonic on "Atropine").

Considerations

Avoid with Asthma or Bradycardia

Avoid-sign Asthma-inhaler and Snail-heart

Since pilocarpine may cause systemic cholinergic effects, the medication may induce bronchospasms or bradycardia. Avoid administering pilocarpine in patients with asthma or bradycardia to avoid worsening symptoms.

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