Pilocarpine hydrochloride

(pie-low-CAR-peon)

CLASSIFICATION(S):
Cholinergic agonist

PREGNANCY CATEGORY: C

Rx: Adsorbocarpine, Isopto Carpine, Pilocar, Piloptic-1/4, -1, -2, -3, -4, and -6, Pilostat, Salagen.

USES
HCl: (1) Chronic simple glaucoma (especially open-angle). Chronic angle-closure glaucoma, including after iridectomy. Acute angle-closure glaucoma (alone or with other miotics, epinephrine, beta-adrenergic blocking agents, carbonic anhydrase inhibitors, or hypromotic agents). (2) To reverse mydriasis (i.e., after cycloplegic and mydriatic drugs). (3) Pre- and postoperative intraocular tension. (4) Salagen (tablet) for treatment of radiation-induced dry mouth in head and neck cancer clients, as well as in Sjögren’s (dry mouth) syndrome. Investigational: Hydrochloride used to treat xerostomia in clients with malfunctioning salivary glands.

ACTION/KINETICS
Action
When used to treat dry mouth due to radiotherapy in head and neck cancer clients, pilocarpine stimulates residual functioning salivary gland tissue to increase saliva production.

Pharmacokinetics
Gel/Solution: Onset: 10–30 min; duration: 4–8 hr. Rate of absorption is decreased when taken with a high-fat meal.

CONTRAINDICATIONS
Inflammatory eye disease, acute-angle glaucoma, history of retinal detachment, ocular hypotension, asthma, epilepsy, parkinsonism, gangrene, diabetes, CV disease, GI or GU tract obstruction, spastic GI conditions, vasomotor instability, severe bradycardia or hypotension, recent MI, lactation, in those receiving choline esters or depolarizing neuromuscular blocking drugs.

SPECIAL CONCERNS
• Use with caution in those with narrow angles (angle closure may result), in those with known or suspected cholelithiasis or biliary tract disease, and in clients with controlled asthma, chronic bronchitis, or COPD.
• Safety and efficacy not established in children.

SIDE EFFECTS
Most Common
When used ophthalmically: Transient burning/stinging, tearing, blurred vision, headache.
When used orally: Sweating, headache, urinary frequency, nausea, flushing, flu syndrome, rhinitis, diarrhea, dyspepsia, dizziness, chills, asthenia.

Ophthalmic use. Transient burning/stinging, tearing, ciliary spasm, conjunctival vascular congestion, temporal/periorbital headache, superficial keratitis, induced myopia (especially in younger clients who have just begun therapy), blurred vision, poor dark adaptation, reduced visual acuity in poor illumination in older clients and in those with lens opacity, subtle corneal granularity (with gel), lens opacity with prolonged use, retinal detachment (rare).

Oral use (tablets). Dermatologic: Sweating, flushing, rash, pruritus.
GI: N&V, dyspepsia, diarrhea, abdominal pain, taste perversion, anorexia, increased appetite, esophagitis, tongue disorder, salivation. CV: Hypertension, tachycardia, bradycardia, ECG abnormality, palpitations, syncope. CNS: Dizziness, asthenia, headache, tremor, anxiety, confusion, depression, abnormal dreams, hyperkinesia, hysteria, nervousness, paresthesias, speech disorder, twitching. Respiratory: Sinusitis, rhinitis, bronchiolar spasm, pulmonary edema, pharyngitis, epistaxis, increased sputum, stridor, yawning. Ophthalmic: Lacrimation, amblyopia, conjunctivitis, abnormal vision, eye pain, glaucoma. GU: Urinary frequency, dysuria, metrorrhagia, urinary impairment. Body as a whole: Chills, sweating, edema, body odor, hypothermia, mucous membrane abnormality. Miscellaneous: Dyspha-
gia, voice alteration, myalgias, seborrhea.

**OD OVERDOSE MANAGEMENT**

Treatment: Titrate with atropine (0.5–1 mg SC or IM) and supportive measures to maintain circulation and respiration. If there is severe cardiovascular depression or bronchoconstriction, epinephrine (0.3–1 mg SC or IV) may be used.

**DRUG INTERACTIONS**

Anticholinergics / Antagonism of anticholinergic drug effects
Beta blockers / Possible conduction disturbances; use together with caution

**HOW SUPPLIED**

Pilocarpine hydrochloride: Ophthalmic Gel: 4%; Ophthalmic Solution: 0.25%, 0.5%, 1%, 2%, 3%, 4%, 5%, 6%, 8%, 10%; Tablets: 5 mg, 7.5 mg.

**DOSAGE**

**PILOCARPINE HYDROCHLORIDE**

- **OPHTHALMIC GEL, 4%**
  - **Glaucoma.**
  - Adults and adolescents: ½ inch ribbon in the lower conjunctival sac of the affected eye(s) once daily at bedtime.
  - **OPHTHALMIC SOLUTION, 0.25%, 0.5%, 1%, 2%, 3%, 4%, 5%, 6%, 8%, 10%**
  - Doses listed are all for adults and adolescents.
  - **Chronic glaucoma.**
    - 1–2 gtt of a 0.5–4% solution 2–4 times per day.
  - **Acute angle-closure glaucoma.**
    - 1 gtt of a 1% or 2% solution q 5–10 min for three to six doses; then, 1 gtt q 1–3 hr until pressure is decreased.
  - **Miotic, to counteract sympathomimetics.**
    - 1 gtt of a 1% solution.
    - **Miosis, prior to surgery.**
      - 1 gtt of a 2% solution q 4–6 hr for one or two doses before surgery.
    - **Miosis before iridectomy.**
      - 1 gtt of a 2% solution for four doses immediately before surgery.

- **TABLETS**
  - **Dry mouth due to radiotherapy in head and neck cancer.**
    - Initial: 5 mg 3 times per day. Adjust dose based on therapeutic response.
    - **Usual dose range:** 15–30 mg/day, not to exceed 10 mg/dose. At least 12 weeks of uninterrupted therapy may be needed to assess beneficial effect.

**Sjögren’s syndrome.**

5 mg 4 times per day. Efficacy may take up to 6 weeks.

**NURSING CONSIDERATIONS**

- Do not confuse Salagen with selegiline (an antiparkinson drug).

**ADMINISTRATION/STORAGE**

1. Start with 5 mg twice a day and increase as tolerated in clients with a Child-Pugh score of 7–9. Pilocarpine is not recommended for clients with a Child-Pugh score of 10–15.
2. Concentrations greater than 4% of pilocarpine HCl may be more effective in clients with dark pigmented eyes; however, the incidence of side effects increases.
3. For acute, narrow-angle glaucoma, give pilocarpine in the unaffected eye to prevent angle-closure glaucoma.
4. Store the solution, protected from light, at 8–30°C (46–86°F). Refrigerate the gel at 2–8°C (36–46°F) until dispensed. Do not freeze gel; discard any unused portion after 8 weeks.

**ASSESSMENT**

1. Note reasons for therapy, eye exam findings, other agents trialed, and outcome.
2. Assess for any conditions that may preclude therapy: uncontrolled asthma, acute iritis/inflammatory disease of anterior segment of eye, narrow-angle glaucoma.
3. With acute infectious conjunctivitis or keratitis evaluate carefully before use.

**CLIENT/FAMILY TEACHING**

1. With tablets, (used for dry mouth R/T radiation therapy or Sjögren’s syndrome) drink additional water or noncaffeinated fluids during therapy.
2. Report if sweating, nausea, nasal congestion, chills, flushing, dizziness, weakness, headache, indigestion, tearing, diarrhea, fluid retention occurs with oral form.
3. With eye drops, wash hands, do not allow dropper to touch eye. Tilt head back looking up; pull lower eyelid down and instill prescribed number of drops. Close eye, apply gentle pressure to bridge of nose for 1 to 3 min. Do not rub eye or touch top of dropper bottle to eye, fingers, or other surface. If more
than 1 topical eye drug used, give at least 5 min apart administering the ointment last. May experience temporary stinging or burning.
4. Use caution while night driving or performing hazardous tasks in poor light (difficulty with dark adaptation). May cause headache or brow ache and blurring, altered distance vision and night vision.
5. During acute phases, a miotic (agent that causes pupil to constrict) also must be instilled into unaffected eye to prevent occurrence of angle-closure glaucoma.
6. If other glaucoma medication (i.e., drops) used with the gel at bedtime, instill drops at least 5 min before the gel.
7. With glaucoma, must adhere to prescribed regimen to prevent blindness; long-term therapy may be required.
9. Keep all F/U to assess response, eye pressure readings, oral evaluation, and for adverse SE.

OUTCOMES/EVALUATE
- ↓ IOP; pupillary constriction
- ↑ Saliva production; relief of radiation-induced or Sjögen’s syndrome
dry mouth (tablets)