FIGURE 86–1. Anatomy of the eye. (Redrawn from an original by Paul Beck and reproduced with permission from Anatomy of the Eye. Courtesy of Ledeerle Laboratories. In Vaughn D, Asbury T, Riordan-Eva P: General Ophthalmology, 14th ed. Stamford, CT, Appleton & Lange, 1995, with permission.)

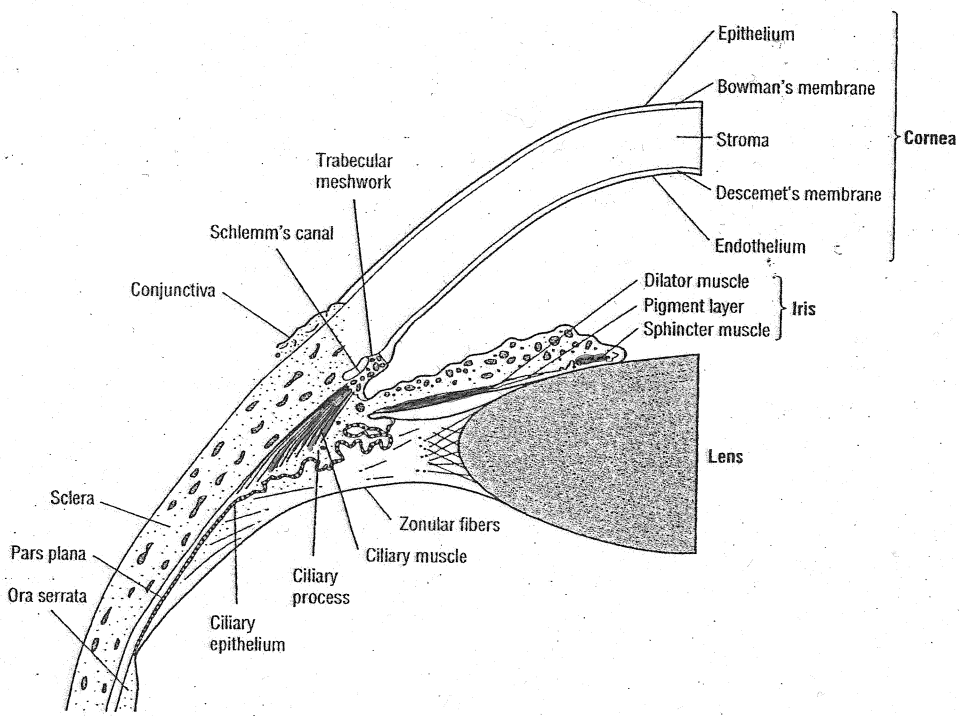
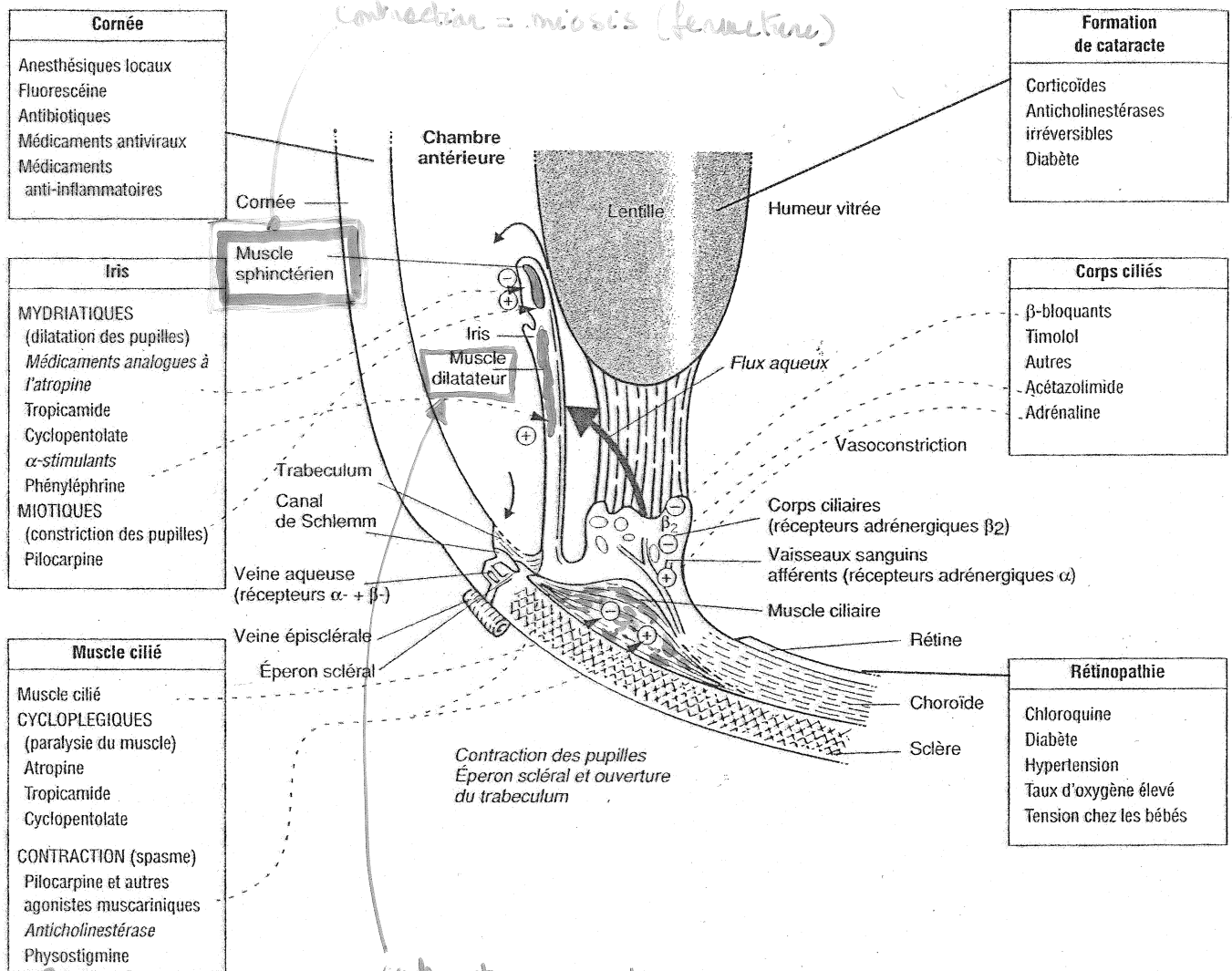


FIGURE 86–2. The anterior chamber of the eye. *(From Vaughn D, Asbury T, Riordan-Eva P. General Ophthalmology, 14th ed. Stamford, CT, Appleton & Lange, 1995, with permission.)*

10 Pharmacologie oculaire



Acétylcholine

contraction = miosis (fermeture)

contraction = mydriase (ouverture)

noradrénaline
adrénaline

adrénaline / noradrénaline
= relaxation (ouverture)

acétylcholine
= contraction (fermeture)

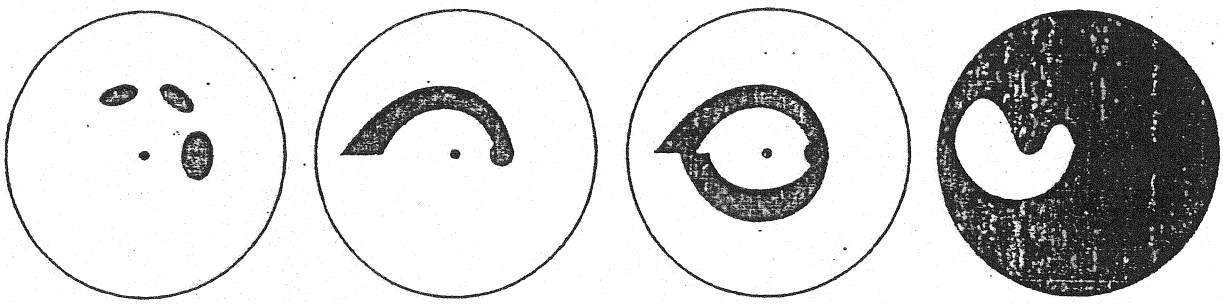


FIGURE 86–4. Schematic representation of the progression of visual field loss.

Chapter 65

▶ GLAUCOMA

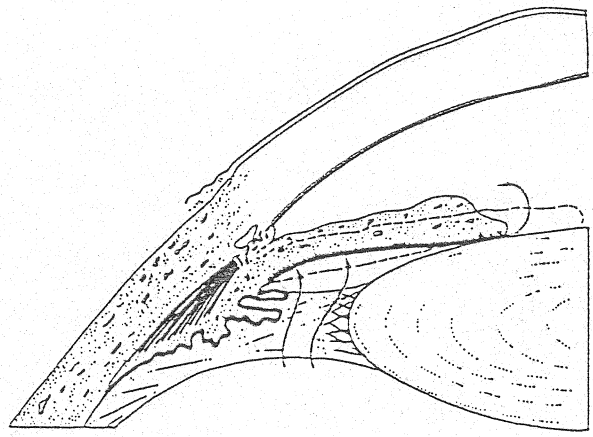
▶ DEFINITION

The glaucomas are a group of ocular diseases characterized by changes in the optic nerve head (optic disk) and loss of visual sensitivity and field.

▶ PATHOPHYSIOLOGY

- The two major types of glaucoma are open-angle glaucoma, which accounts for most cases, and angle-closure glaucoma. Either type may be a primary, inherited disorder; secondary to disease, trauma, or drugs; or congenital (Table 65–1).
- The specific cause of glaucomatous optic neuropathy is unknown. Increased intraocular pressure (IOP) was considered to be the sole cause of visual damage, but IOP is only one of many contributing factors.
- Additional contributing factors include increased susceptibility of the optic nerve due to retinal ischemia, reduced or dysregulated blood flow, and physiologic processes of the extracellular matrix of the optic nerve head.

GLAUCOME AIGU !



glaucome à angle fermé (clinik)

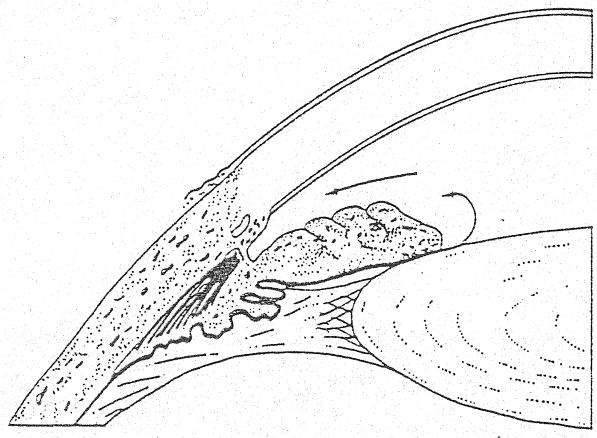
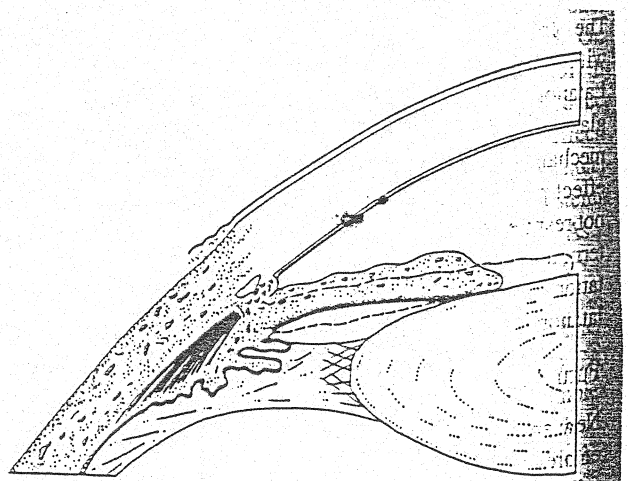


Figure 88.7. In the narrow-angle eye, the lens is displaced anteriorly in relation to the ciliary body and the iris root. When the eye is miotic (dotted line), the iris lies firmly against the lens, producing pupillary block, but the iris root is pulled away from the trabecular meshwork. In mid-dilation, pupillary block is present but the lax iris bows forward to block the meshwork. With further dilation, pupillary block is broken and the iris does not bow forward, allowing aqueous to flow to the meshwork. *(From Kolker A, Hetherington S. Becker-Shaffer's Diagnosis and Therapy of the Glaucomas, 5th ed. St Louis, MO, CV Mosby, 1983, with permission.)*

glaucome sur iris enroulé



Traitement urgent !!

Figure 88.8. In an eye with plateau iris, the iris is attached anteriorly on the ciliary body. In miosis (dotted line), the root of the iris is pulled away from the meshwork and pupillary block is minimal. In mydriasis, the root of the iris bunches up, blocking the meshwork and producing angle closure. *(From Kolker A, Hetherington S. Becker-Shaffer's Diagnosis and Therapy of the Glaucomas, 5th ed. St Louis, MO, CV Mosby, 1983, with permission.)*

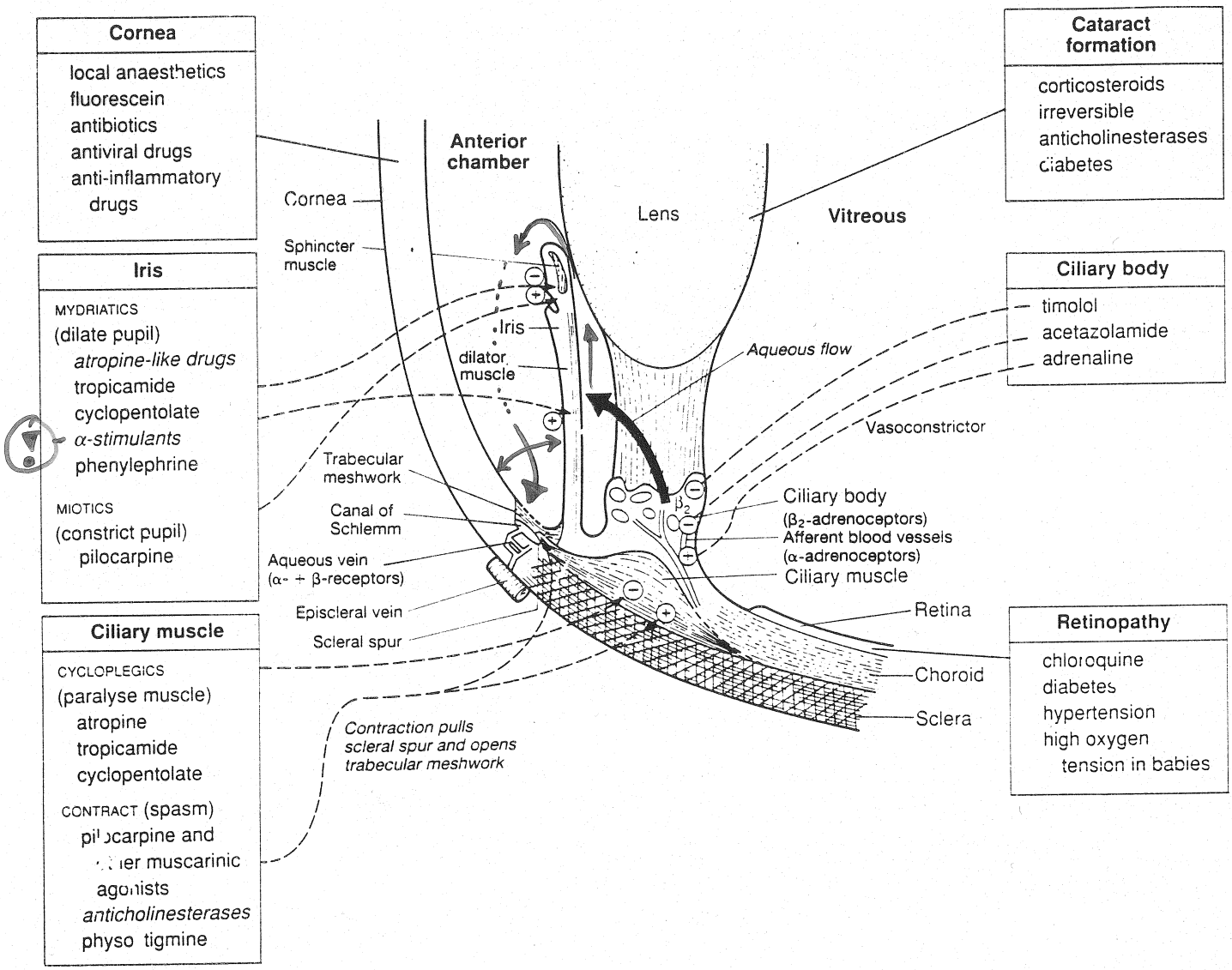
▶ CLINICAL PRESENTATION

- Characteristic visual field loss occurs in glaucoma, but loss of central visual acuity does not occur until late in the disease. Visual field defects may include general peripheral visual field constriction, isolated scotomas or blind spots, nasal visual field depression or nasal step, enlargement of the blind spot, large arc-like scotomas, and reduced contrast sensitivity.
- Patients with untreated angle-closure glaucoma typically experience intermittent prodromal symptoms (e.g., blurred or hazy vision with halos around lights and, occasionally, headache). Acute angle closure produces symptoms associated with a cloudy, edematous cornea; ocular pain; nausea, vomiting, and abdominal pain; and diaphoresis.

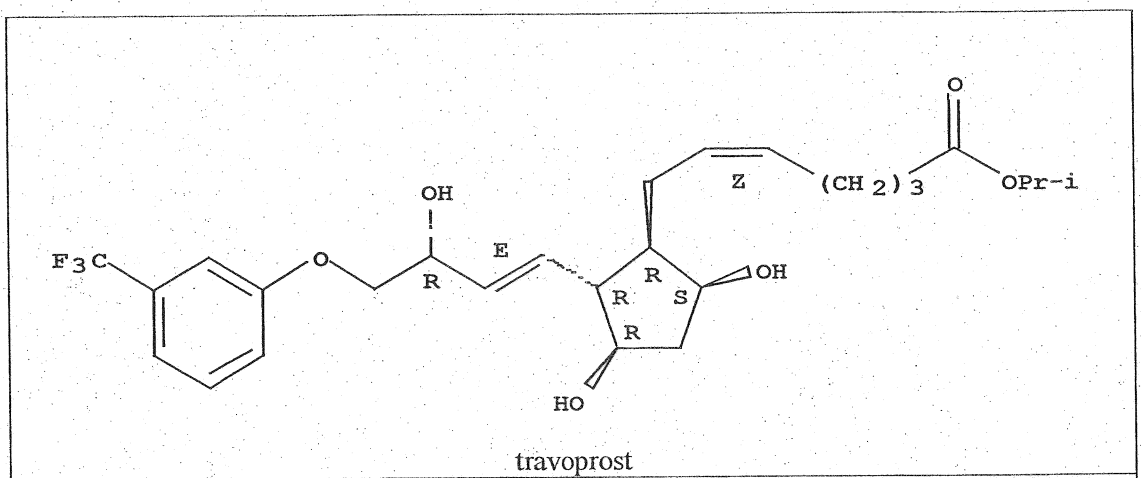
▶ DESIRED OUTCOME

The ultimate goal of drug therapy in patients with glaucoma is to preserve visual function by reducing the IOP to a level at which no further optic nerve damage occurs.

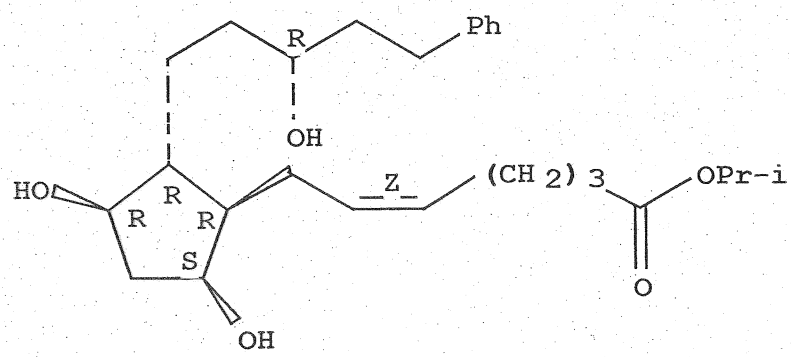
10 Ocular pharmacology



Analogues des prostaglandines



travoprost



latanoprost

➢ PRINCIPLES OF PHARMACOTHERAPY

- The objective of treating primary open-angle glaucoma is to reduce intraocular pressure.
- Effective glaucoma therapy stops progression of visual field loss.
- Each patient needs an effective, well-tolerated, and convenient drug regimen for treating glaucoma.
- Topical glaucoma medications have the potential to produce systemic adverse effects.
- Patient and family education is necessary to assure compliance and successful outcomes for treating glaucoma.

PATIENT EDUCATION

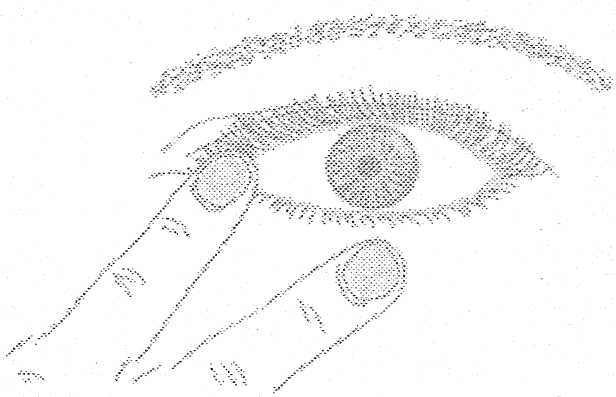
An important consideration in patients failing to respond to drug therapy is compliance. Poor compliance or noncompliance occurs in 25% to 60% of glaucoma patients. A large percentage of patients also fail to use topical ophthalmic drugs correctly. The patient should be taught the following procedure:

- Wash and dry the hands; shake bottle if it contains a suspension.
- With a forefinger, pull down the outer portion of the lower eyelid to form a "pocket" to receive the drop.
- Grasp the dropper bottle between the thumb and fingers with the hand braced against the cheek or nose with the head upward.
- Place the dropper over the eye while looking at the tip of the bottle; then, look up and place a single drop in the eye.
- The lids should be closed (but not squeezed or rubbed) for 1 to 3 minutes after instillation. This increases the ocular availability of the drug.
- Recap bottle and store as instructed.
- Note that many patients are physically unable to administer their own eyedrops without assistance.

Les collyres ?

Il existe de nombreuses classes thérapeutiques qui permettent d'abaisser la pression intra-oculaire, ce sont : Les béta-bloquants, les myotiques (comme la pilocarpine), les inhibiteurs de l'anhydrase carbonique, les prostaglandines, et les dérivés de l'adrénaline. Votre ophtalmologiste vous prescrira le traitement le mieux à même de controler votre glaucome. Le but est d'utiliser le moins de médicaments possible afin d'éviter leurs effets indésirables. Suivez donc strictement les instructions de votre ophtalmologiste. Il faut également signaler à votre médecin généraliste les collyres que vous instillez dans votre œil car ceux ci peuvent avoir des effets secondaires sur le plan de l'état général.

● Comment les instiller ?



Après avoir déposé une goutte dans votre œil, appuyez délicatement un doigt sur l'angle des paupières proches du nez pendant un minute. Cette pression délicate permet de bloquer le canal lacrymal, et votre collyre aura moins de chances de passer dans nez puis dans le courant sanguin.

● Est-il important des respecter les horaires ?

Il est important de respecter les horaires. Lorsqu'on instille un collyre dans l'œil, celui ci n'agit que pendant un certain nombre d'heures. Certains collyres ont une durée d'action de 8h et seront instillés 3 fois par jour toutes les 8 heures, d'autres ont une durée d'action de 12h et seront instillés 2 fois par jour, ou enfin une durée d'action plus longue de 24h nécessitant une seule instillation par jour

● Devez-vous instiller les gouttes avant de venir en consultation ?

Sauf instructions contraires de votre ophtalmologiste, il faut instiller les gouttes avant de venir en consultation afin de pouvoir contrôler l'efficacité du traitement.

● Quelques règles fondamentales à suivre

Prenez vos médicaments régulièrement. Essayez de programmer la prise du traitement en fonction de vos activités journalières (réveil, heures des repas, coucher). Si vous devez instiller 2 collyres, attendez environ 5mn avant d'instiller le second dans votre œil.

Signalez à votre ophtalmologiste les autres médicaments que vous prenez, même ceux qui sont en vente libre (comme par exemple l'aspirine). Assurez vous que les autres médecins qui vous suivent sont au courant de votre traitement anti-glaucomateux.

▶ TREATMENT OF ANGLE-CLOSURE GLAUCOMA

- Iridectomy, the definitive treatment of angle-closure glaucoma, produces a hole in the iris that permits aqueous flow to move directly from the posterior chamber to the anterior chamber.
- Drug therapy of an acute attack typically consists of hyperosmotic agents and a secretory inhibitor (e.g., β blocker, α_2 agonist, or CAI), with or without **pilocarpine.** An osmotic agent is often used because it rapidly decreases IOP (Table 65–5).
- Although traditionally the drug of choice, pilocarpine use is controversial as initial therapy. Once the IOP is controlled, pilocarpine should be given every 6 hours until iridectomy is performed.

1) agent hyperosmotique (mannitol).

2) β-bloquant
⊕
pilocarpine

toutes les 6 h

→ traitement chirurgical.

TABLE 88.7. DRUGS THAT MAY INDUCE OR POTENTIATE GLAUCOMA

Open-Angle Glaucoma	Angle-Closure Glaucoma
Corticosteroids (high risk)	Topical anticholinergics (high risk)
Topical anticholinergics	Topical sympathomimetics (high risk)
Systematic anticholinergics (low risk)	Antihistamines
Heterocyclic antidepressants (low risk)	Systemic anticholinergics
Phenothiazines (low risk)	Heterocyclic antidepressants
Vasodilators (low risk)	Antihistamines
Cimetidine (low risk)	Phenothiazines
	Ipratropium
	Benzodiazepines
	Theophylline (low risk)
	Vasodilators (low risk)
	Systemic sympathomimetics (low risk)
	CNS stimulants (low risk)
	Tetracyclines (low risk)
	Carbonic anhydrase inhibitors (low risk)
	Monoamine oxidase inhibitors (low risk)
	Topical cholinergics (low risk)