Drugs in Ophthalmology

Last updated: May 9, 2019

[Mydriatics 1](#_Toc2988398)

[Cycloplegics 1](#_Toc2988399)

[Miotics 1](#_Toc2988400)

[Anesthetics 1](#_Toc2988401)

[Steroids 1](#_Toc2988402)

[Mast cell stabilizers 1](#_Toc2988403)

[Antihistamines 1](#_Toc2988404)

* drugs applied topically may be easily absorbed systemically (esp. through cornea).
* eye preparations have warnings not to use longer than 1 month; but all preparations contain ***bacteriostatic drugs***, so contamination is rare (preparations in practice may be used > 1 month).

Ointments vs. drops:

* ointments are retained much longer than drops.
* drops need application q 2 h; allow 5 min between drops to avoid overspill.
* ointments are especially useful at night or when eyelid crusting & sticking is problem.

Drugs that may precipitate glaucoma:

* 1. mydriatics
  2. steroids
  3. anticholinergics

Mydriatics

* for *eye examination* use **short acting** mydriatics (repeated in 5-10 min if necessary):

2.5% **phenylephrine**

0.5-1% **tropicamide** (lasts 3 hours)

* for **longer action / wider dilation** - 10% **phenylephrine** and/or 1% **cyclopentolate** (lasts 24 hours).

Do not dilate pupils of any patient with unexplained visual loss, ptosis, dysmotility until reviewed by senior examiner:

1. pupil involvement markedly changes management of ***new-onset CN3 palsy***.
2. pupil examination - ***objective indicator of visual function*** (important in suspected functional visual loss).
3. ***Horner syndrome*** is missed easily unless combination of anisocoria that is worse in dark, pupil dilation lag, and ptosis can be correlated.
4. pupils are clinically normal in ***myasthenia gravis***.

N.B. if *neurologic vital signs* are being monitored (e.g. head trauma, acute CNS disease), pupil dilation should not be used!!!

Do not dilate pupil in any ***glaucoma*** suspicion! (intraocular pressure and anterior chamber depth should be estimated before dilation).

Contraindication for **phenylephrine** – hypertension (esp. if treated with β-blockers).

Cycloplegics

**cyclopentolate** 1% (lasts 24 hours)

**atropine** 1% (lasts 7 days)

**homatropine** 5%

Miotics

**pilocarpine** 1-4%

* used to reverse mydriatics, to treat glaucoma.

Anesthetics

* use for eye examinations, short procedures.
* *do not use for eye pain treatment* – anesthetics abolish corneal reflex →→ corneal damage.

instead use: eye pads, cold compresses, mydriatics (not in glaucoma!)

Steroids

*Potentially dangerous* – risk of:

1. dendritic (herpetic) corneal ulcer progression (slit lamp examination is essential before steroid administration!)
2. glaucoma

Mast cell stabilizers

**Cromolyn** 4%

**Olopatadine** 0.1%

**Lodoxamide** 0.1%

Antihistamines

**Azelastine** 0.05%

**Emedastine** 0.0.5%

**Ketotifen** 0.25%

**Levocabastine** 0.05%

Bibliography for ch. “Ophthalmology” → follow this [link >>](http://www.neurosurgeryresident.net/Eye.%20Ophthalmology\Eye.%20Bibliography.pdf)

[Viktor’s Notes℠ for the Neurosurgery Resident](http://www.neurosurgeryresident.net/)

[Please visit website at www.NeurosurgeryResident.net](http://www.neurosurgeryresident.net)