Drugs in Ophthalmology

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- 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%

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