Education Session Five

Ocular Trauma

EYE EDUCATION FOR EMERGENCY CLINICIANS
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Modules originally designed for emergency nurses as a component of the Eye Emergency Manual Project.  
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Aims and Objectives

On completion of this session you will be able to:

• Understand the principles of management of ocular trauma

• Identify various types of trauma and safely, appropriately manage patient care
GOLDEN RULES

• Immediate treatment is directed at preventing further injury or vision loss
• Never think of the eye in isolation, always compare both eyes
• Always record visual acuity as it has important medicolegal implications
• A visual acuity of 6/6 does not necessarily exclude a serious eye injury
• Beware of the unilateral red eye as it is rarely ‘just’ conjunctivitis
GOLDEN RULES (cont)

• If injury is self evident avoid further manipulation
  - requires urgent ophthalmic consult

• If in doubt always X-Ray, CT scan, MRI scan

• Documentation.
BLUNT TRAUMA

• May result in considerable damage to the ocular contents
• Objects – champagne cork, squash / tennis ball, car airbag, closed fist, wood or octopus strap.
BLOWOUT FRACTURE

- Medial and inferior orbital walls are the most common sites of fracture
- Observe for limited eye movement
- Nerve damage may result in reduced feeling on cheek or front teeth on affected side
- Advise patient not to blow their nose as this increases the risk of further ocular damage
- Enophthalmos (sunken eye) may be evident
BLOWOUT FRACTURE (cont)

- X-RAY, CT scan mandatory
- Increased risk of orbital cellulitis day 2-7 so observe for increased pain, swelling, red eye
- Antibiotic cover important
- All patients require ophthalmic consult
LID LACERATIONS

- Vascular area and will heal quickly if clean and edges well apposed
- Complex structure of lids and lacrimal system requires urgent Ophthalmic repair
- A lid laceration is a potential penetrating eye injury until proven otherwise
LID LACERATIONS (cont)

- Lid swelling - use of ice packs helpful
- Patient comfort
- X-ray, CT scan may be required
- Animal / human bites need antibiotic cover and meticulous cleaning
- Check tetanus status
HYPHAEMA

- Urgent ophthalmic consult required
- Usually trauma related-however always consider non accidental injury in children and blood dyscrasias
- Blood visible in anterior chamber or may be microscopic
- May only be visible on slit lamp examination
HYPHAEMA (cont)

• May require hospital admission, more often sent home
• Bed rest / limited activity
• Elevate head of bed 45 degrees
• Only use dilating drops under ophthalmic direction
• Risk of secondary bleed, raised intraocular pressure (IOP), corneal staining over next week
• Therefore warn patient to return immediately if they experience pain, reduced vision or nausea and vomiting
HYPHAEMMA (cont)

- Avoid aspirin, NSAIDs, warfarin and alternative medicines
- Daily review
- Daily visual acuity and IOP
- Topical and oral steroids only following ophthalmic review / advice
INTRAOCULAR FOREIGN BODY (IOFB)

• Damage dependent on type of material that enters eye
• Glass, porcelain, plastic, silica and aluminium are inert
• Copper, iron, other metals, vegetative matter are extremely toxic
• Always consider slow growing organisms carried by retained organic material
IOFB (cont)

- Complications may include-
  - Rust ring on cornea at entry point
  - Persistent inflammation
  - Corneal defects / damage if fragments not removed – corneal scarring
  - Infection - endophthalmitis
  - Secondary glaucoma
  - Lens damage – traumatic cataracts
  - Retinal / vitreous damage
  - Sympathetic ophthalmia
PENETRATING EYE INJURY (PEI)

- The aim is for micro-surgical repair within 24 hours
- If PEI is suspected DO NOT TOUCH THE EYE.
- Immediate referral required
- No drops or ointment
- Apply a shield lightly: to protect the eye; to prevent pressure on globe; and to prevent loss of ocular content
PENETRATING EYE INJURY (cont)

• Eye Exam in PEI
  – Cursory if injury is obvious otherwise VA, slit-lamp examination
  – Important to check anterior chamber in both eyes and compare
• Avoid nausea, vomiting, coughing and sneezing
• Do not remove embedded/protruding object or apply pressure on eye
• Consider tetanus immunisation status
CHEMICAL BURNS

- Treat first do not wait to triage
- Instil LA drops
- IMMEDIATE, copious irrigation of effected eye/s for 30 minutes
- Visual acuity must come after irrigation
- pH check at end of each litre of irrigation
- Evert upper lids and irrigate under lids, use moist cotton bud / irrigation flow to remove any particles
- Hospital admission may be required
CORNEAL FOREIGN BODY/ABRASION

- Local anaesthetic
- Fluorescein stain
- Slip lamp examination
- Irrigate with 10mL normal saline to flush off
- Moist cotton bud touch off
- Antibiotic eye drops +/- eye pad
RETINAL / VITREOUS INJURY

- Injury can include retinal detachment, haemorrhages, orbital wall fracture, optic nerve damage
- Beware if patient complains of flashes, floaters, visual field defect (see vision loss session)
- Urgent ophthalmic assessment required
- Reduce patients activity if suspect macula or retinal detachment
CONCLUSION

• The key is to prevent further ocular damage and vision loss

• IF YOU DON’T KNOW ASK… if in doubt don’t touch and always seek ophthalmic advice for ocular trauma.