Chemical Injury

Case Description
young lab technician was splashed in the eye with an alkaline solution

Image Description


diffuse conjunctival injection with corneal edema and haze

Differential Diagnosis
- chemical burn
- AACG
- traumatic iritis
- globe trauma

Data acquistion

History
- time of injury
- type of chemical
- eye protection
- time to irrigation

Physical Exam
- VA
- IOP
- facial & lid burns
- inspect fornices for debris
- eyelid eversion — Desmarres eyelid retractor
- chemosis
- conjunctival or corneal ulcer
- limbal blanching
- fluorescein staining
- corneal stromal edema & opacity
- AC rxn
- retinal necrosis — severe alkali burns

Assessment
chemical injury

- mild-moderate
  - 2nd-3rd degree skin burn
- severe
  - high IOP
  - severe chemosis
  - conjunctival/limbal blanching
  - corneal edema/opacification
  - moderate/severe AC rxn
  - local necrotic retinopathy

Treatment

Medical
- start rx at the scene
- copious irrigation
  - lactated ringer
  - saline
  - tap water
  - until pH is 7.0 — check PH 10 min after irrigation ends
- sweep & irrigate fornices
- cycloplegia
- topical antibiotic — for severe burns — q1h
- preservative-free artifical tears — q1h
- oral pain medication
- lower eye pressure — start if IOP elevated or cannot be measured
  - oral acetazolamide
  - topical timolol
- topical steroids — taper after 7 days — x 7 days
  - even in presence of CED
- oral doxycycline — MMP inhibitor
- oral ascorbate & citrate — for alkali burns — promote collagen synthesis
- if limbal ischemia
  - avoid phenylephrine
  - avoid alpha-agonsist
- lysis of conjunctival adhesions — bid

Surgical
- amniotic membrane graft
- tarsorrhaphy
- PK — 12-18 months after injury

Patient Education

Prognosis & Complications
- conjunctival scarring/ symblepharon
- entropion/trichiasis
- dry eye
- corneal melting
- corneal scarring

Follow-up
- daily, then every few days until CED heals