Chronic GVHD and the Eyes

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Disclosures

- John A. Irvine, M.D. has no proprietary or financial interest in any contact lens or prosthetic device.
The Ocular Surface Functional Unit

- Eye lids
  - Tear distribution
- Skin
- Lashes
- Lacrimal drainage system
  - Tear Drainage
- Intricate nervous connections
The Ocular Surface

- Conjunctiva
- Tear film
- Cornea
  - Highly innervated

**FUNCTION**
- Protective barrier
- Powerful refracting surface

**Dysfunction**
- Infection
- Decreased vision
- Discomfort
Requirements
LUBRICATION

- Lacrimal gland
- Goblet cells
- Meibomian Glands

- Aqueous
- Mucin/other glycoproteins
- Oil
Tear Film Abnormalities

- Volume abnormality
- Mucin abnormality
- Lipid abnormality
- Surface abnormality

- Dryness
- Filaments
- Evaporation
- Decreased vision
Ocular cGVHD – The Problem

- Ocular surface disease that (despite attentive care) is:
  - Chronic
  - Debilitating
    - Blurry vision (surface-related)
    - Foreign body sensation
    - Burning, stinging, dryness
    - Light sensitivity
  - Very rarely, sight-threatening
Ocular Surface Disease or Dry Eye Syndrome

• White blood cells from donor damage:
  • Tear glands and mucus producing glands
  • Conjunctiva - thin membrane covering the eyeball and lining the lids
• True “keratoconjunctivitis sicca”
  kerat- = cornea
  conjunctiv- = conjunctiva
  -itis= inflammation
  sicca = dry
• Reduced tears, altered tears, altered mucus
Traditional Approach

• **Wet it, correct it, close it!**

• Dryness
  – Tears

• Exposure
  – Correct lid malposition
  – Tarsorrhaphy

• Sew the eyelids together
Clinical Manifestations

- Chronic conjunctivitis ("pink eye")
- Superficial punctate keratopathy (dry spots associated with foreign body sensation)
- Filamentary keratitis (stringy mucus that feels like needles)
- Superior limbal keratoconjunctivitis (dry spots and foreign body sensation under upper lid)
- Very rare) Corneal ulceration
Generally both eyes, often one eye worse
Independent of systemic manifestations
In absence of systemic manifestations
May herald systemic flare of cGvHD
May appear as systemic agents are tapered (often with skin and/or mouth activity)

“You can show my eyes and face, only if you show my foot!”
Treatment

- Treatment route
  - Local (ophthalmologist) or systemic (oncologist)
    - Can do both at once
    - Local spares systemic drugs and side effects
    - Local is preferred if eyes the worst /only organ
    - Add or increase systemic treatment if vision is threatened

- Treatment goals
  - Treating underlying disease
  - Reducing symptoms
    - Can do both at once
Local Treatment

- **Topical Steroid**
  - Potential side effects
    - Cataract
    - Glaucoma
  - Drops and ointment forms

- **Topical Immunosuppression**
  - Restasis (Cyclosporine A) – (disappointing)
  - “Off-label” Elidel or Protopic ointments or drops
  - Investigational IL1-Ra (Kineret)

- **Serum tears** (Beneficial healing/soothing factors?)
  - Hard to get, risk of contamination and infection
Local Treatment for Symptoms

- Lubricants, Lubricants, Lubricants !!!!!!!
- Punctal Occlusion
- Glasses and Goggles
- Therapeutic Contact Lens
- Scleral lens
- Prosthetic Replacement of the Ocular Surface Ecosystem (PROSE)
- Minimal likelihood of side effects
Local Treatment for Symptoms
Local Treatment for Symptoms

- Punctal Occlusion
  - Dissolving plugs
  - Collagen – days
  - Polymer- months
  - Silicone Plugs
    - May fall out, irritate
- Cautery
Local Treatment for Symptoms

- Bandage soft contact lens
  - Some eyes too dry; they fall out or are uncomfortable

- Scleral lens
  - Not possible to fit all eyes
  - Need specialty fitter

- PROSE Treatment
  - Highly customized prosthetic device
  - Available in MA, TX, CA, MI, NY, IL, MD
Therapeutic Lenses / PROSE Goals

- Promote corneal healing
- Mechanical protection and support
- Maintenance of hydration
- Relief of pain
- (Side effect: visual rehabilitation)
cGVHD and the Eye

PROSE Device

Before treatment

After 4 hours of treatment
Prosthetic replacement of the ocular surface ecosystem

Treatment model to
- restore vision
- support healing
- reduce symptoms
- improve quality of life
- for patients suffering with complex corneal disease
Clinical Experience
2009 online survey
Boston Foundation for Sight

- 96% moderate to severe discomfort
- 87% reading difficulty
- 85% worried about their eyesight
- 80% difficulty with hobbies with near vision
- 75% problems with night driving
Treatment response

- Topical immunosuppression
- Punctal plugs
- Oral antibiotics, fish oil, flaxseed oil
- Topical steroids

- Lubricants

- PROSE

0 %

7%

76%
cGVHD and the Eyes

- Despite attentive care patients may have
  - Surface-related blurry vision (like a windshield with a faulty wiper blade)
  - Disabling foreign body sensation
  - Disabling burning or dry sensation
  - Disabling photophobia (light sensitivity)
cGVHD and the Eyes

- Treatment is available that improves quality of life
- See an eye care provider who is
  - informed about treatment options
  - experienced with cGVHD


Russo PA, Bouchard CS, Galasso JM  Extended-wear silicone hydrogel soft contact lenses in the management of moderate to severe dry eye signs and symptoms secondary to graft-versus-host disease.  Eye Contact Lens. 2007; 33: 144-7. (Loyola, Chicago)

Insurance Issues

• Contact lens (cosmetic) typically not covered

• Therapeutic (medically necessary) lens differs
  • Some payers do cover, most eventually will
  • May require appeal
  • Must be stubborn and persistent!

• PROSE is a medical treatment and should be covered.
Thank you for your attention.

Questions