

Fundamental EYEdeas: Ophthalmic Counseling Points for Pharmacists

Rachel Fritz, O.D.

Home Study Webcast

4 Slides Per Page



Fundamental EYEdeas: Ophthalmic Counseling Points for Pharmacists

ACTIVITY DESCRIPTION

This activity will review key counseling points that pharmacists encounter daily, especially when caring for patients with diabetes. We will discuss diabetic retinopathy and importance of routine eye exams. This activity will also include treatment of herpetic eye disease as well as possible ocular complications with the misuse of topical steroids. After completion of this activity, participants will have a greater confidence counseling patients regarding common general treatment concepts, including eye vitamins, cap color, and recommendations for styes.

TARGET AUDIENCE

The target audience for this activity is **pharmacists, pharmacy technicians** and **nurses** in hospital, community, and retail pharmacy settings.

LEARNING OBJECTIVES

After completing this activity, the **pharmacist** will be able to:

- Summarize key counseling points for diabetic patients with ocular complications.
- Review herpetic eye disease to include treatment with topical antivirals and topical corticosteroids
- Describe the benefit and relevance of eye vitamins

After completing this activity, the **pharmacy technician** will be able to:

- Summarize key counseling points for diabetic patients with ocular complications.
- Review herpetic eye disease to include treatment with topical antivirals and topical corticosteroids
- Describe the benefit and relevance of eye vitamins

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Knowledge-Based Home Study Webcast

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Dr. Fritz's optometric interests include the management of ocular disease (diabetic retinopathy, macular degeneration, etc.), glaucoma, pediatrics, and contact lenses. She enjoys humanitarian work, and has traveled to El Salvador, in order to provide eye care to the impoverished in remote villages. She is a member of the Gold Key Optometric Honor Society, the Beta Sigma Kappa Optometric Honor Society, the American Optometric Association, and the Pennsylvania Optometric Association. Dr. Fritz resides in Lewisburg, PA with her husband

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Objectives

- Summarize key counseling points for diabetic patients with ocular complications.
- Review herpetic eye disease to include treatment with topical antivirals and topical corticosteroids.
- Describe the benefit and relevance of eye vitamins.



Systemic conditions & the eye

- Most common
 - **Diabetes**
 - **Hypertension**
 - **High Cholesterol**
- Hyperthyroidism
- Multiple sclerosis
- Myasthenia gravis
- Viral
 - **Herpetic (HSV, HZV)**
 - HIV
 - Viral Conjunctivitis
- Bacterial
 - Gonorrhea
 - Lyme disease
 - Tuberculosis
 - Syphilis
- Collagen/inflammatory
 - HLA B27 (ankylosing spondylitis, RA,
 - Rheumatoid arthritis
 - Systemic lupus erythematosus
 - Temporal arteritis - GCA
 - Sarcoidosis
- Others
 - Carcinomas - metastasis
 - Leukemia
 - Sickle cell disease
 - Sturge-Weber syndrome
 - Neurofibromatosis
- Protozoa/Fungal
 - Toxoplasmosis
 - Chlamydial
- Anemia
- Crohn's, UC
- Neurological findings
 - Tumors
 - Occipital lobe stroke
 - Aneurysms
 - Increased intracranial pressure
- Skin conditions
 - Acne Rosacea
 - Seasonal allergies
 - Dermatitis



Ocular Anatomy



Diabetes and Ocular Complications



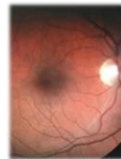
Prevalence

- Diabetic retinopathy
 - 28.5% (4.2 million Americans) of diabetics older than 40 have ocular manifestations
 - If the rate of diabetes continues to rise at current trajectory, by 2020 6 million will have diabetic retinopathy with 1.34 million having sight threatening disease



Yearly Eye Exams

- All diabetics should have a dilated eye exam yearly
 - DILATED exams are a MUST
 - Only 50% of eyes correctly classified thru undilated pupil
 - Retinopathy detected in 20% - 39% of patients at initial diagnosis
 - 3% have macular edema
 - Follow up exams determined by severity of retinopathy seen
 - 5-10% of those without retinopathy will develop it within 1 yr



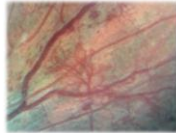
Yearly Eye Exams

- Eye care provider should correspond exam findings to PCP/endocrinologist
 - Findings on a routine eye exam can lead to OD/MD ordering blood work and making diabetes diagnosis
- Patient education is key!
 - Pt must understand potential complications including vision loss
 - Importance of blood sugar control
 - Know to return for evaluation if any changes in vision before next exam



Progression

- No retinopathy
- Non proliferative diabetic retinopathy
 - Vascular changes, intraretinal bleeding, focal ischemia
 - Classified as mild, moderate, or severe
- Proliferative diabetic retinopathy
 - Presence of neovascularization (neo) - new blood vessel growth from progressive ischemia
- Pt can have macular edema at any stage of retinopathy
 - More at risk as retinopathy progresses



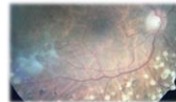
Treatment

- Nonproliferative retinopathy
 - Monitored closely with dilated exams and appropriate testing
- Macular edema
 - Anti VEGF injection
 - Lucentis (ranibizumab)
 - Eylea (aflibercept)
 - Avastin (bevacizumab) - used commonly but off label
 - Corticosteroid injection
 - Triamcinolone, Ozurdex, Iluvien



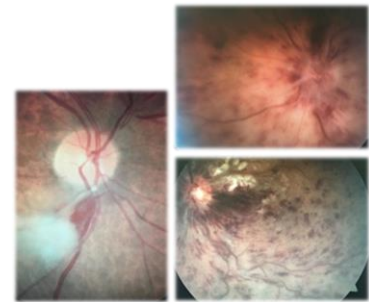
Treatment

- Proliferative retinopathy
 - Focal or grid laser
 - Mild burns to macula to reduce swelling
 - PRP laser (panretinal photocoagulation)
 - Use thousands of laser burns to destroy periphery of retina
 - Vitrectomy
 - Vitreous is removed surgically and replaced with saline
 - Recurrent vitreous hemes and risk of tractional RD from neo



Risk

- Duration of disease
- Glycemic control
- Comorbid diseases
 - Htn
 - High cholesterol
- Smoking



Risk

- Duration of disease
 - Patients with Type 1 and retinopathy
 - 5 yrs after diagnosis - 25% have retinopathy
 - 10 yrs after diagnosis - 60% have retinopathy
 - After 15 yrs - more than 80% have retinopathy
 - Proliferative diabetic retinopathy (severe disease)
 - Found in 2% of Type 2 diagnosed less than 5 yrs
 - Found in 25% of Type 2 diagnosed for more than 25 yrs



Risk

- Pregnancy
 - Diabetic retinopathy can worsen during pregnancy
 - Complete dilated exam prior to pregnancy
 - With emphasis on pt educated about progression of ocular manifestations
 - Follow up during pregnancy as recommended by degree of retinal findings
 - Women with gestational diabetes are not at risk of developing retinopathy during pregnancy



Associated Vision Changes

- Any Diabetic with changes in vision or symptoms needs to be seen by an eye care provider for a dilated exam to rule out any of the possible complications from diabetes
 - If any complications diagnosed they will they be send to appropriate provider for treatment/monitoring



Main Points

- Imperative that appropriate and timely treatment received to preserve vision
 - Patient education
 - Importance of good blood sugar control - 1 point decrease in A1c reduced risk of retinopathy progression about 30%
 - Possible progression with duration of disease despite low A1c
 - Visual consequences including some degree of vision loss and even blindness



Main Points

- If no treatment needed - optimize patient's general health
 - Emphasis on tight glucose control
 - Stop smoking
 - Letter to PCP regarding retinal findings to help in management of overall diabetic state
- Educating patient about condition, complications, and possible progression is imperative!



Quick Facts

Stye

- Clogged meibomian gland in eyelid (upper or lower)
 - Not infected - chalazion
 - Warm compresses QID for 10-15 mins
 - Infected - hordeolum
 - Continue warm compresses
 - May need oral antibiotic treatment
 - If untreated infection can spread to lid
 - Preseptal cellulitis to orbital cellulitis



Herpes Virus and Ocular Complications

Herpes Simplex Virus (HSV) & Herpes Zoster Ophthalmicus (HZV)



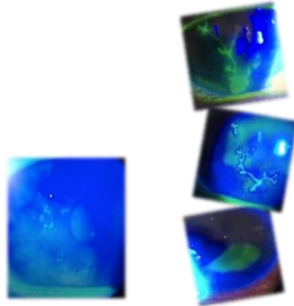
Signs/Symptoms

- Herpes Simplex Virus (HSV)
 - Overall mild ocular symptoms
 - Foreign body sensation, mild blur, tearing, red eye
 - Similar symptoms to dry eye or conjunctivitis
 - Sometimes vesicular rash, fever blisters, hx of previous episode
 - Diagnosis made with careful slit lamp exam by eye care provider



Signs/Symptoms

- HSV ocular involvement
 - Conjunctivitis
 - Corneal epithelial disease
 - Dendrite (branching lesion)
 - Stains bright with fluorescein dye
 - Corneal edema
 - Neurotrophic ulcer



Signs/Symptoms

- HZV
 - Severe skin involvement
 - Dermatomal pain, characteristic zoster rash affecting scalp and face
 - Vesicles on scalp
 - Typically involving area on face of CN V1 on forehead and upper lid (rarely V2)
 - Respects midline



Signs/Symptoms

- HZV ocular involvement
 - Usually does not affect eye unless tip of nose involved (hutchinson's sign)
 - Conjunctivitis
 - Corneal epithelial disease
 - Pseudodendrite
 - Corneal edema



Treatment

- HSV
 - Usually only topicals necessary
 - Topical Antivirals
 - Topical Corticosteroids
- HZV
 - Oral antiviral covers systemic outbreak and also ocular involvement
 - Can start topical antiviral treatment but at discretion of provider



Topical Antivirals

- Topical Antivirals used to treat herpetic conjunctivitis and corneal epithelial disease
- Topical dosing is same with HSV and HZV
- Initial dose given with pt education and close follow up needed
 - At follow up once epithelium is healed topical dose is decreased
 - Once epithelium is healed can add steroid drop to aid in secondary corneal edema



Topical Antivirals

- Ziran (gancyclovir 0.15% gel)
 - Dosage
 - Apply 5 x per day until epithelium healed (about 5 days)
 - Then decreased to TID until told to discontinue
 - Approved age 2 and older
 - Insurances approval is a problem
 - Side effects: blurred vision, ocular irritation, superficial punctate keratitis, conjunctival hyperemia
 - Contraindications: hypersensitivity to component
 - Pregnancy: no human data, but minimal systemic absorption



Topical Antivirals

- Viroptic (trifluridine 1% sol)
 - Increased dosing schedule
 - Initial dose of 1gtt 9 x per day
 - After epithelium healed dose decreased to 1 gtt 5 x per day until discontinued
 - Approved for age 6 and older
 - Adverse reaction = epithelial keratopathy
 - Can be toxic to cornea
 - Other side effects: burning, palpebral edema, SPK, stromal edema, irritation, hyperemia, IOP increase
 - Contraindications: sensitivity to component
 - Pregnancy: no human data, but no systemic absorption



Topical Steroids

- Ophthalmic steroids only added once epithelial defect (dendrite) healed
 - If started too soon will exacerbate dendrite
 - Should only be prescribed by ophthalmologist or optometrist
- Used to treat inflammatory aspects of condition
 - Corneal edema (stromal keratitis)
 - Concurrent iritis



Topical Steroids

- Potent steroids
 - Prednisolone acetate 1% susp
 - Pred Forte 1% susp
 - Pred Mild 0.12% susp
 - Prednisolone sodium phosphate 0.125% or 1% sol
 - With HSV or HZV pred dosed QID once epithelium is healed to treat corneal inflammation
 - Slow taper
 - May be prescribed QD long term to prevent recurrence after repeat episodes



Topical Steroids

- Mild topical corticosteroids
 - Loteprednol etabonate
 - Lotemax 0.5%
 - Lotemax gel
 - Alrex 0.2%
 - Fluorometholone
 - FML susp
 - FML ointment
 - Can be used to treat mild ocular inflammation from conditions such as dry eye disease or allergic conjunctivitis



Topical Steroids

- Most potent ophthalmic steroid
 - Durezol (difluprednate 0.5% sol)
 - Higher chance of steroid response
 - Reserved for cases of severe or increased inflammation despite treatment - anterior uveitis, post op etc
 - If pt not improving on Prednisolone can switch to durezol (less dosing needed, i.e. Pred Q2hrs to Durezol QID)
 - Likely not used for HSV or HZV



Quick Facts

- Topical steroids
 - Steroid prescribed depends on ocular condition being treated
 - Would never rx mild steroid for post op. Prednisolone can be too strong for Dry eye/allergy
 - Dosing depends on severity of condition
 - Pred: post op QID, severe uveitis/iritis Q2hrs
 - Some providers will request brand name as penetration/efficiency may be greater than generic



Quick Facts

Topical steroids

- Steroid response
 - Increase in intraocular pressure secondary to topical steroid
 - If prolonged response can cause glaucoma
 - Symptoms include: blur, red eye, soreness, or none at all
 - If steroid discontinued eye pressure returns to normal
 - Patients on topical steroids need close f/u with eye care provider to check pressure and ensure improvement in condition
 - Steroids should NOT be prescribed by PCP



Quick Facts

Topical steroids

- Lotemax is an ester
 - Decreased corneal penetration
 - Less likely to cause steroid response
 - Great choice for treatment of surface disease
 - Dry eye pulse dosing
 - QID x 2 weeks then BID x 2 weeks



Oral Antiviral

- Oral dosing varies depending on HSV vs HZV
 - HSV is half the dose given for HZV
 - Treat with orals for 7-10 days

	HSV dose	HZV dose
Valacyclovir	500 mg TID	1000 mg TID
Acyclovir	400 mg 5x/day	800 mg 5x/day
Famciclovir	250 mg TID	500 mg TID



Main Points

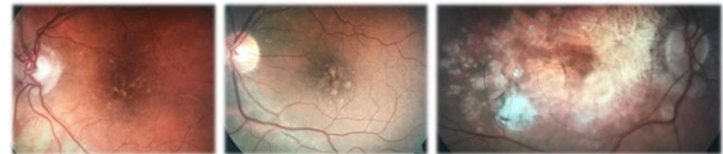
- All patients with ocular symptoms should seek treatment by an eye care provider either optometrist or ophthalmologist
 - PCP does not have slit lamp (use to examine eye under very high magnification) to assess eye conditions
 - PCP should never be prescribing steroids or steroid/antibiotic combos
- Topical steroids can worsen corneal involvement of HSV/HZV
- Patients with HSV need to be made aware that recurrence is possible



Eye Vitamins

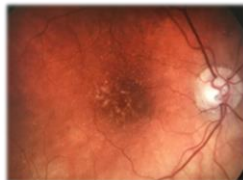
Benefit

- Only shown to slow down progression of moderate/severe dry age-related macular degeneration



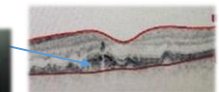
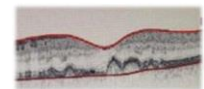
Macular Degeneration

- Age related macular degeneration (AMD)
 - Most common in those over age 60
 - Usually bilateral
 - Risk factors: family history, female, caucasian, smoking, high-fat diet
 - Affects central vision needed to see detail and read
 - Effects on vision can be devastating



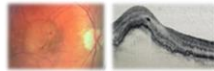
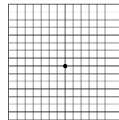
Macular Degeneration

- Age related macular degeneration
 - 2 categories
 - Dry
 - Drusen and retinal pigment epithelium changes
 - Geographic atrophy
 - Wet (10% of AMD)
 - Neovascular membrane deep under retina causes leaking of fluid in macula and macular thickening
 - Disease progresses from dry to wet



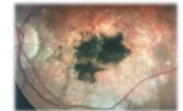
Macular Degeneration

- Treatment
 - Dry
 - Close monitoring and patient education
 - Ocular vitamins
 - Will not help resolve/reverse macular changes that are already present
 - Daily monitoring with amsler grid
 - Wet
 - Will receive intraocular injections of anti-VEGF
 - Treats macular edema from neovascularization
 - Likely long term injections needed
 - Eylea, Lucentis, Avastin



Macular Degeneration

- Yearly dilated eye exam (especially after age 55)
 - Fundus photo
 - OCT to look for neovascularization/swelling in macula
 - Close follow up with eye care provider to monitor progression
- Patient education is key!
 - Disease basics
 - Possible progression
 - Long term monitoring
 - Vision expectations - vision loss from dry is not reversible



Ocular Vitamins

- Age Related Eye Disease Study (AREDS) 2001
 - Nutritional supplements can reduce the risk of developing AMD
 - Formula contained vitamin C, vitamin E, beta-carotene, zinc, copper
- AREDS 2
 - Beta-carotene removed from formula
 - Increased risk of lung cancer in those with history of smoking
 - Lutein and zeaxanthin are beneficial
 - Omega-3s have little effect
 - Looked at reduced level of zinc



Ocular Vitamins

- AREDS 2 recommended formula
 - Vitamin C 500 mg
 - Vitamin E 400 iu
 - Lutein 10 mg
 - Zeaxanthin 2 mg
 - Zinc 80 mg
 - Copper 2 mg



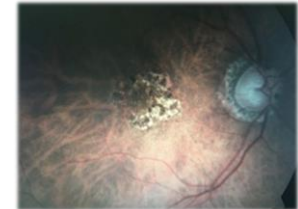
Ocular Vitamins

- Ocular nutritional supplements
 - Preservision
 - Ocuvite
 - I Caps
 - Eye Science
- Study by American Academy of Ophthalmology showed that only 4/11 of the most common vitamins actually contained the dosages recommended by the AREDS 2 study (<http://www.aao.org/assets/d516d827-4aeb-42e5-9ab0-31d462abd30/635579806229800000/table-1-ocular-nutritional-supplements-inpress.pdf?inline=1>)
 - Preservisions



Ocular Vitamins

- I recommend AREDS 2 vitamins to all my mild/moderate AMD patients
 - Long term use
- No adverse effects from vitamins
 - Mild AMD
 - Those with strong family history
 - No effect on other eye conditions



Cap colors correspond to drop category

- | | |
|--|--|
| • Antibiotic – tan | • Glaucoma drops |
| • Steroid – pink or white | • Beta blocker – yellow |
| • NSAID – gray | • Beta blockers combos – dark blue |
| • Mydriatic & cycloplegic – red | • Prostaglandin analog – turquoise |
| • Miotic – dark green | • Adrenergic agonist – purple |
| • Analgesic – white | • Carbonic anhydrase inhibitor – orange |



Quick Facts

- Avoid all drops that say “get the red out”
 - Visine / Clear Eyes
 - These drops are vasoconstrictors that do not treat dry eye but just make eyes look better
 - Rebound redness
- Wait 10 minutes in between instillation of different eye drops
- Burning is a potential side effect of all eye drops



Quick Facts

- NEVER give a patient a numbing drop to use themselves
 - Proparacaine (Alcaine)
 - Tetracaine
 - These drops can cause corneal melt if overused
 - Should only be administered in office during exam
 - Should not be used for pain control
- Patients on Plaquenil (hydroxychloroquine) require yearly eye exams with specialized testing to monitor for irreversible macular changes that affect vision



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Questions?



Exam Questions:

1. How often should diabetics have a routine dilated eye exam?
 - a. 6 months
 - b. 1 year - correct
 - c. 2 years
 - d. 5 years

2. What are 2 greatest risks factors for diabetic retinopathy?
 - a. Gender, age
 - b. Age, duration of disease
 - c. Duration of disease, glucose control - correct
 - d. Glucose control, comorbid disease

3. Which would be an accurate counseling point for a diabetic patient with new blurry vision?
 - a. Artificial tears QID
 - b. Eye Vitamins
 - c. Make an appointment with an eye care provider for glasses
 - d. Make an appointment with an eye care provider for a dilated exam - correct

4. Which is NOT a possible ocular complication from diabetic retinopathy?
 - a. Retinal detachment
 - b. Irreversible vision loss
 - c. Macular edema
 - d. Macular degeneration

5. Which is NOT a symptom that a patient with diabetic retinopathy might experience?

- a. Tearing - correct
- b. Blur
- c. Increased floaters
- d. Dark spot in vision

6. Which ocular vitamin contains the dosages recommended by the AREDS 2 study?

- a. Preservision - correct
- b. Ocuvite
- c. Eye Caps
- d. Eye Scienec

7. Which topical medication is safe to be prescribed by a primary care doctor?

- a. Proparacaine
- b. Pataday - correct
- c. Tobradex
- d. Prednisolone acetate

8. Which eye drop has the least frequent dosing schedule and is used to treat corneal involvement in HSV?

- a. Viroptic
- b. Zirgan - correct
- c. Prednisolone acetate
- d. Fortified acyclovir

9. If a patient calls they are out of the eye drop with the yellow cap, which drop could they be talking about?

- a. Travatan Z
- b. Restasis
- c. Timolol - correct
- d. Alphagan

10. What sign would lead us to believe that Herpes Zoster might be affecting the eye?

- a. Vesicles on tip of nose - correct
- b. Vesicles on upper eyelid
- c. Vesicles on forehead
- d. Vesicles on cheek