The Good, The Bad, and The Orals for Optometry
COPE#31815-PO
Walter O. Whitley, OD, MBA, FAAO
Director of Optometric Services
Virginia Eye Consultants

Ocular ER: Big 5 Do Not Miss
• Herpes simplex keratitis
• Intra-ocular foreign bodies
• Orbital blow-out fracture
• Endophthalmitis
• Temporal arteritis

Sample Rx Pad
Prescribing Considerations

- Coverage / Indications
- Does the insurance cover prescriptions?
- Costs of medications
- Compliance

Patient Assistance Programs

- Alcon (800)222-8103
- Allergan (800)553-6783
- Merck (800)727-5400
- Pfizer (866)776-3700
- Vistakon (866)815-6874
- www.RxOutreach.org
- www.NeedyMeds.org
- www.pparx.org

Barriers to Compliance

- Cost
- Doctor
- Forgetfulness
- Polypharmacy
- Side effects
- Inability / no one to administer
Patient Compliance and Dosing

- Literature review of 76 studies show
  - Compliance increases with decreased dosage regimen and complexity
  - 79% compliance with QD regimen vs 51% for QID regimens (p=0.001)
  - Simpler, less-frequent dosing results in better compliance in a variety of therapeutic classes

Prescription Considerations

- Review medical history
- Review current medications
- Any allergies?
- Pregnant or nursing?
- Children’s Dosage

What About Allergic Reactions?

Prescribing for Women

- Certain medications are OK in pregnancy
- Breast feeding
- Consult OB-GYN if necessary
- Review pregnancy categories

Prescribing for Children

- Children 12 years old and older can be dosed as adults unless otherwise noted
- Look up dosage for child (mg/kg/day)
- Determine how many kg child weighs
  - 1 kg = 2.2 lbs

Prescribing for Children

- Augmentin 20-40 mg/kg/day po in 3 doses
- Convert pounds to kg
  - 50 lbs / 2.2 lbs = 23kg
- Multiply kg by dosage to get DAILY dose mg
  - 23kg * 20 mg/kg = 460 mg
- Daily dose divided by number of doses per day
  - 460 mg / 3 = 150 mg po tid
Prescribing for Children

• Clarks rule
  – Adult Dose X (Weight ÷ 150) = Child's Dose

• Example
  – 9 year old girl 50 Lbs
  – 500mg X (50 ÷ 150) = Child's Dose
  – 500mg X .33 = 165mg
  – Child's Dose = 165mg
  – Rx: 175 mg po tid or 200mg/5mL/15mL

Case #1

• 42 year old, AA, female presents with swelling OS
• Started 3 days prior
• Hx of allergies and sinus problems but this episode different than normal symptoms
  – Redness, tenderness, and warmth of LLL
• VAsc OD 20/20 OD 20/30
• All entrance tests normal
• Dx?????

What is Our Likely Diagnosis?

1) Chalazion/hordeolum
2) Dacryocystitis
3) Posterior blepharitis / MGD
4) Preseptal cellulitis
5) This question is too easy
Augmentin
(amoxicillin / clavulanate)

- Penicillinase-resistant penicillin
- Disrupts the synthesis of peptidoglycan in bacterial cells walls
- Bactericidal
- 500 mg TID for one week
- 875 mg, 1000mg BID for one week
- Can be used in kids and pregnancy category B
- Side Effects/Contraindications:
  - Cannot be taken if penicillin allergy
  - GI upset
  - Liver injury

Diflucan
(fluconazole)

- Effective against candidiasis, cryptococcal meningitis
- Interferes with fungal cytochrome P450 activity (lanosterol14-α-demethylase) decreasing ergosterol synthesis
- Pregnancy Category C
- 150 mg as a single oral dose
- Side effect
  - Headache

Case #2 My Eyes Are Blurry

- 44yo Asian American c/o blurred VA, redness, tearing, peri-orbital edema starting 2-3 days prior
- Med Hx: Uncontrolled DM (Dx in 1998)
- Vasc: OD 20/60 PH 20/30
  - OS 20/80 PH 20/40
- IOP: 21 / 18
Case #2

- Acute, non-granulomatous, anterior uveitis OS
- Cause???

Treatment
- Ordered labs – CBC w/diff, ESR, SMA-12, HLA-B27, Urinalysis, FTA-ABS, RPR, Lyme Western Blot
- Durezol q2h OS
- Homatropine 0.5% TID OS
- Doxycycline 100 mg BID po

Pulse Therapy

- QID to Q 1 Hour for 7 to 10 Days
- Zero Tolerance for AC Cells
- Avoids Surface Toxicity
- Quick & Dirty
- Hit It Hard and Fast: Aggressive

Adoxa (Doxycycline)

- Inhibits bacterial protein synthesis
- Cannot be used for kids <8 and pregnancy/nursing
  - Category D
- Anti-infective dose: 100 mg BID for 10 days
- Anti-inflammatory dose: 50 mg BID for one month then qd 1-3 months

Side effects/Contraindications:
- GI upset: caution patient to take this with food
- Photosensitivity
- Pseudotumor cerebri
Recurrent Corneal Erosion

• Treat abrasion first
• Lotemax with taper X 2 mos
• Muro 128 ung X 2 mos
• Freshkote TID X 2 mos
• Doxy BID X 2 mos
• Restasis
• Superficial Keratectomy

Rx Example

Ocular Uses for Antibiotics

• Bacterial keratitis
• Canaliculitis
• Chalazion/Hordeolum
• Chlamydia
• Dacryocystitis
• Dacryoadenitis
• Lyme disease
• Eyelid lacerations
• Ocular surface disease
• Orbital blow-out fracture
• Preseptal cellulitis

http://www.eyecareeducators.com/site/pearls_management_of_recurrent_corneal_erosion.htm
Oral Antibiotics

• Is an oral antibiotic truly needed?
• Coverage
• Check allergy information
• Consider generics
• Take full course of therapy

Keflex
(Cephalexin)

• First generation cephalosporin
• Caution in those with PCN allergy
• Disrupts the synthesis of peptidoglycan in bacterial cell walls
• Bactericidal but less susceptible to penicillinase
• Pregnancy Category B
• 500 mg BID for one week
• 5-10% cross-sensitivity with PCN
• Side Effects/Contraindications:
  – Renal dysfunction
  – GI disease

Zithromax
(Azithromycin)

• Inhibit bacterial protein synthesis
• Alternative for patients with PCN allergy
• Z pak: 500 mg Day 1, 250 mg Day 2-5
• Chlamydia: 1 g dose
• Less GI effects and drug interactions that others in class
• Pregnancy Category B
• Side Effects/Contraindications:
  – GI upset
  – Headache
  – Rash
  – May worsen myasthenia gravis symptoms
  – Kidney or liver dysfunction
Weekend Call

- 64 yowm c/o decreased VA OS, watery eye, no pain
- Hit head on corner of the bed last night
- Went to sleep hoping it gets better
- Used ATs for relief
- Ocular Hx: Cataract surgery OU, PKP OS 2005

Levaquin
(levofloxacin)

- Broad spectrum antibiotic
- Can be used in patients with PCN allergy
- Not to be used in children, pregnancy, nursing
- Dosage: 500 mg qd for one week

Case #4

- 51 YOWF, CL wearer Referred by OD
- 3 weeks ago, OD became red and irritated
- Dx – Marginal Keratitis OD
- Tx - ???????
Case #4

- Two week f/u – Finished Zylet with No Improvement
- K – Microcysts in affected area, (-) stain
- IOP – 40 mmHg
- Referred for second opinion

Differentials

- Marginal infiltrates
- Contact lens related red eye
- Acute angle closure glaucoma
- HSV Keratouveitis

Case #4

- Referred for second opinion
- No change in SLE
- IOP improved to 32 mm Hg
- Dx: HSV Iridocyclitis OD
- Tx:
  - Valtrex 500 mg tid
  - Lotemax qid
  - Betimol bid
Oral Antivirals

- Inhibit viral DNA polymerase without inhibiting normal cellular activity
- Works best if treatment initiated within 72 hours
- Pregnancy category B
- Caution in patients with renal disease

<table>
<thead>
<tr>
<th>Antiviral Drug</th>
<th>HSV</th>
<th>HZO</th>
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</thead>
<tbody>
<tr>
<td>Acyclovir</td>
<td>400 mg 5x/day for 1 week</td>
<td>800 mg 5x/day for 1 week</td>
</tr>
<tr>
<td>Valacyclovir</td>
<td>500 mg TID for 1 week</td>
<td>1000 mg TID for 1 week</td>
</tr>
<tr>
<td>Famciclovir</td>
<td>250 mg TID for 1 week</td>
<td>500 mg TID for 1 week</td>
</tr>
</tbody>
</table>

Herpetic Eye Disease Study I

- Herpes Stromal Keratitis, Not on Steroid Trial
  - Pred Phosphate faster resolution and fewer treatment failures
  - Delaying treatment did not affect outcome
- Herpes Stromal Keratitis, on Steroid Treatment
  - No apparent benefit in the addition of oral acyclovir to the treatment of topical corticosteroid and topical antiviral
- HSV Iridocyclitis, Receiving Topical Steroids
  - Trend in the results suggests benefit in adding oral acyclovir

Herpetic Eye Disease Study II

- HSV Epithelial Keratitis Trial
  - No benefit from oral ACV with topical trifluridine in preventing the development of stromal keratitis / iritis
- Acyclovir Prevention Trial
  - Reduced by 41% the probability of recurrence
  - 50% reduction in the rate of return of the more severe form
- Ocular HSV Recurrence Factor Study
  - No results available
The 1999 Gallup Study of Allergies and Allergic Symptoms Affecting the Nose, Throat, Eyes, and Skin

6 out of 10 allergy patients suffer ocular allergy symptoms

Eye Symptoms Are the Second Most Common Allergy Presentation

6 out of 10 allergy patients suffer ocular allergy symptoms

Oral Antihistamines

- Central acting antihistamines
  - Benadryl (diphenhydramine)
  - Chlor-trimeton
- Peripherally acting antihistamines
  - Selective peripheral histamine H1 receptor blockade
  - Less CNS and anticholinergic effects
  - Less sedating but also less effective
  - With / without a decongestant
Common OTC Allergy Meds

- Inhibits action of histamine by blocking H1 receptors preventing symptoms of allergy
  - Cetirizine (Zyrtec) 5 or 10mg qd
  - Desloratadine ( Clarinex) 5mg qd
  - Fexofenadine (Allegra) 60mg bid; 180mg qd
  - Loratidine (Claritin) 10 mg qd
- Pregnancy category C
- Side Effects/Contraindications:
  - Hypersensitivity reactions
  - Dry mouth
  - Headache
  - Nervousness

Benadryl (diphenhydramine)

- Temporarily relieves these symptoms due to hay fever or other upper respiratory allergies
  - runny nose
  - sneezing
  - itchy, watery eyes
  - itching of the nose or throat
- Pregnancy Category B
- 25-50 mg q6-8 hours
- Side effects
  - Blurred VA, Diplopia
  - CNS depression / somnolence

What About Products with Pseudoephedrine?

- LEADER
  - Pseudoephedrine Hydrochloride
  - BANNED For Patents
Most Prescription Treatment Options Have a Limited Effect on the Inflammatory Cascade

Singularair (montelukast sodium)

- Leukotriene receptor antagonist
- Indications:
  - Prophylaxis and chronic treatment for asthma
  - Acute prevention of exercise-induced bronchoconstriction
  - Relief of symptoms of allergic rhinitis
- 10 mg tablet qd
- Side effects:
  - Behavior or mood changes, URI, Fever, Headache, Sore throat, cough, stomach pain, diarrhea, ear ache or ear infection, flu, runny nose, and sinus infection

Symptoms of Dry Eye

<table>
<thead>
<tr>
<th>Dry Eye Severity Level</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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</thead>
<tbody>
<tr>
<td>General Symptoms</td>
<td>Mild Symptoms</td>
<td>Moderate Symptoms</td>
<td>Severe Symptoms</td>
<td>Severe Symptoms</td>
</tr>
<tr>
<td>Symptoms: Itchy, Sandy, Gritty, Dry</td>
<td>Never to Seldom</td>
<td>Sometimes</td>
<td>Frequent</td>
<td>Always</td>
</tr>
<tr>
<td>Discomfort: Stinging, Burning, Pain</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Vision: Blurring, Interrupted</td>
<td>No</td>
<td>No</td>
<td>Sometimes</td>
<td>Usually</td>
</tr>
<tr>
<td>Use of Artificial Tears</td>
<td>Less than 2X per day</td>
<td>Several times per day</td>
<td>Several times per day</td>
<td>Several times per day</td>
</tr>
</tbody>
</table>
### Signs of Dry Eye

<table>
<thead>
<tr>
<th>Dry Eye Severity Level</th>
<th>1</th>
<th>2</th>
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<th>4</th>
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<td>Moderate Symptoms</td>
<td>Severe Symptoms</td>
<td>Severe Symptoms</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>Conjunctival Staining</td>
<td>Mild</td>
<td>Moderate</td>
<td>Marked</td>
</tr>
<tr>
<td>Corneal Staining</td>
<td>Mild punctate</td>
<td>Marked punctate</td>
<td>central</td>
<td>Severe punctate erosions</td>
</tr>
<tr>
<td>Tear Film</td>
<td>Visual signs</td>
<td>Filamentary keratitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example Staining</td>
<td>Tear Film Breakup Time</td>
<td>&lt; 12</td>
<td>&gt; 2 &lt; 7</td>
<td>&lt; 3</td>
</tr>
<tr>
<td></td>
<td>Schirmer Score</td>
<td>&gt; 10</td>
<td>&gt; 5 &lt; 10</td>
<td>&lt; 5</td>
</tr>
</tbody>
</table>

### Dry Eye International Task Force: Therapeutic Recommendations

**Level 1**
- Patient education
- Environmental modifications
- Control systemic medications
- Preserved tears
- Allergy control
  - If no improvement, add level 2 treatments

**Level 2**
- Unpreserved tears
- Gel/nighttime ointments
- Topical corticosteroids
- Cyclosporine
- Secretagogues
  - If no improvement, add level 3 treatments

**Level 3**
- Preservation
- Punctal plugs (once inflammation is controlled)
  - If no improvement, add level 4 treatments

**Level 4**
- Systemic antiinflammatory therapy
- Acetylcysteine
- Moisture goggles
- Surgery (punctal cautery)

### Oral Medications for Dry Eye

- **Nutritional supplements**
  - 1,000 mg BID of Omega-3 Fish Oil

- **Lovaza** (Rx fish oils)
  - 4g per day po
  - Indicated as an adjunct to diet to reduce triglyceride levels in adult patients with severe hypertriglyceridemia

- **Oral pilocarpine**
  - Salagen*: 5 mg qid for dry mouth
  - Evoxac*: 30 mg tid for dry mouth

*Adapted with permission from O'Brien TP. Refract Eyecare. 2005;9(suppl):7-11.*
Case #5

- 38 year old, African American, Female presents with red, painful, and photophobic OS
- Started 3 weeks ago
- Her husband is a physician who Rx'd dexamethasone 0.1% but no relief
- Had similar episode 10 years ago
- BCVA OD 20/25 OS 20/20
- IOP: 17 mmHg

Differentials

- Conjunctivitis
- Episcleritis
- Scleritis
- Uveitis

What Would You Prescribe?

1) Topical steroids
2) Topical NSAIDs
3) Oral NSAIDs
4) Oral Steroids
When Should Lab Tests Be Ordered?

- Bilateral cases
- Atypical age group
- Recurrent uveitis
- Scleritis
- Recalcitrant cases
- Hyperacute cases
- Worsens with tapering
- VA worsens
- Immunosuppressed

Advil (Ibuprofen)

- Analgesic, antipyretic, anti-inflammatory properties
- Suppresses inflammatory cascade by inhibiting COX pathway
- Pregnancy Category
  - C – Prior to 30 weeks gestation
  - D – After 30 weeks gestation
- OTC 200 mg tablets/capsules
- Optimal dosage 1,600 mg / day
- Generics available

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- Suppresses inflammatory cascade by inhibiting COX pathway
- Pregnancy Category
  - C – Prior to 30 weeks gestation
  - D – After 30 weeks gestation
- OTC 200 mg tablets/capsules
- Optimal dosage 1,600 mg / day
- Generics available

*ADVIL* (Ibuprofen)
Case #6 Broken Glasses

- 74 yowm with blurred VA OS>OD X 1 month
- Headache
- Oc Hx: NPDR OU / AMD – dry OU
- Med Hx: DM x 10 yrs, Back Pain, Coronary Artery Disease, Chronic Kidney Disease, Anemia, Sensorineural hearing loss, Cardiomyopathy - Ischemic, Cardiomyopathy - Congestive
- BCVA
  - OD: 20/40-2 PH 30-2
  - OS: 20/60-1 PH 40-2
- (-) APD

Prednisone

- Suppresses inflammatory cascade and immune response
- Optic neuritis
  - Methylprednisolone 1g/day i.v. for 3 days
  - 60-100mg qd p.o. for 11 days
  - Only after initial IV steroid treatment per ONTT to decrease risk of recurrence
- AION: 60-100mg qd
- Scleritis/Uveitis
  - Not responding to topical treatment
  - 40-80 mg as an initial dose with taper

Prednisone

- Side Effects/Contraindications:
  - Increased IOP
  - Cataract formation
  - Fluid retention (moon face, buffalo hump)
  - Increase blood sugar levels in diabetics
  - Gastric ulcers
  - Not to be used if pregnant
  - Mood changes
- Advantages:
  - Widely available
  - Inexpensive
**Oral Corticosteroid Considerations**

- Accurate diagnosis is essential
- Indicated for acute inflammatory eye, orbital and eyelid conditions
- Pregnancy category C
- Dosepaks available
  - 24 mg, 30 mg, 60 mg with taper
- Best taken with meals
- Short term rarely has ocular side effects

**Rx Example**

![](image)

**Case #7**

- 73 yowf presents with eye pain OD
- Tearing, photophobic, hard to keep eye open
- Previously Dx with DES
- Cataract Sx OD one month prior
- Uses ATs PRN
- BCVA OD 20/70 OS 20/25+
Differentials

- Corneal abrasion
- Dry eye syndrome
- Recurrent corneal erosion
- Rebound iritis

Oral Analgesics

- Hydrocodone/acetaminophen is the most frequently prescribed oral medication in the U.S.
- Indicated for:
  - Corneal abrasions
  - Recurrent corneal erosions
  - Severe keratitis
  - Severe iritis
  - Refractive surgery

Oral Narcotic Analgesics

- Centrally acting opioid receptor blockers
- Safe and effective for acute, short-term pain
- Clinically used in combination with acetaminophen
- Generally prescribed as one tab po q4-6hours prn
- Onset 20 minutes, peak 1 hour, duration 4-6 hours
Ecotrin
(Aspirin)
• Mild to moderate pain, inflammation, fever, platelet
• Pregnancy Category D
• OTC 325-650mg every 4-6 hours
• Avoid aspirin 1-2 weeks prior to surgery
• Consider in patients with CRVO, retinal emboli
• Side effects
  – Hypersensitivity
  – Rhinitis
  – Bleeding disorders
  – Reye’s syndrome
  – Pregnancy

Extra Strength Tylenol
(Acetaminophen)
• Analgesics and antipyretic
• Indications:
  – Pain relief associated with corneal abrasions, chemical burns, headaches associated with eye pain, scleritis
• Pregnancy Category B
• Side Effects/Contraindications:
  – Rash, Hives
  – Itching
  – Difficulty swallowing/breathing
  – Overdose may damage liver
  – Do not take with alcohol

Vicodin
(hydrocodone/acetaminophen)
• Dosage:
  – Vicodin contains 5mg hydrocodone with 500 mg APAP
  – Vicodin ES contains 7.5mg hydrocodone with 750mg APAP
  – Vicoprofen contains 7.5mg hydrocodone with 200 mg ibuprofen
• Pregnancy Category C
• 1 tablet po q4-6 hours
• Indicate how many in writing
• Generics available
Case #8

- 52 yowf, Saturday call, extreme pain and laid up like a ball
- Seen earlier this week 3 times for K ulcer
- Lives 3 hours away
- Vigamox q1h OS

Controlled Drug Act

- **Schedule I - drugs with a high abuse risk.** These drugs have NO safe, accepted medical use in the United States. Some examples are heroin, marijuana, LSD, PCP, and crack cocaine.

- **Schedule II - drugs with a high abuse risk, but also have safe and accepted medical uses in the United States.** These drugs can cause severe psychological or physical dependence. Schedule II drugs include certain narcotic, stimulant, and depressant drugs.

- **Schedule III, IV, V - drugs with an abuse risk less than Schedule II.** These drugs also have safe and accepted medical uses in the United States. Schedule III, IV, or V drugs include those containing smaller amounts of certain narcotic and non-narcotic drugs, anti-anxiety drugs, tranquilizers, sedatives, stimulants, and non-narcotic analgesics.


Ultram (tramadol hydrochloride)

- Moderate to severe pain
- Non-narcotic opioid receptor agonist
- Pregnancy Category C
- 50-100mg q4-6 hours
- Side effects
  - Hallucinations
  - Fever
  - Nausea and vomiting
  - Seizure
  - Skin rash
  - Shallow breathing, weak pulse
Side Effects of Pain Meds

- Constipation
- Nausea and vomiting
- Sedation
- Dizziness
- Itching
- Respiratory depression
- Addiction

Rx Example

[Image]

Angle Closure Glaucoma

- Fewer than 10% of US glaucoma cases
- Anatomically narrow angle
- Sex
  - 3 X higher in caucasian women
  - In blacks, men + women equally affected
- Incidence increases with age
ACG Treatment Options

- Surgical Care
  - Laser iridotomy
  - Laser gonioplasty
- Medication
  - Alpha-adrenergic agonist
  - Beta-blockers
  - Miotic agents
  - Prostaglandins
  - Carbonic anhydrase inhibitors

Diamox (Acetazolamide)

- Carbonic Anyhydrase Inhibitor
- Diuretic, interfering with conversion of bicarbonate and reducing aqueous formation
- Contraindicated in renal, hepatic, and respiratory disease
- Pregnancy Category C
- Decreases IOP by 40-60%
- Works within an hour, peak effect at 4 hours
- 125 mg, 250 mg, 500 mg sequels

Diamox (Acetazolamide)

- Angle closure
  - 250mg X 2 plus topical glaucoma meds
  - Urgent LPI
- Chronic open angle glaucoma
  - Diamox sequels 500mg BID
- Pseudotumor cerebri
  - Must have labs performed prior to treatment
  - MRI
  - Spinal tap??
  - Diamox Sequels 500 mg BID
Diamox (Acetazolamide)

- Side Effects/Contraindications:
  - Not for those with sulfa allergy
  - Kidney dysfunction
  - Metallic taste
  - Tingling and burning in hands/feet
  - Aplastic anemia

Rx Example

Age Related Eye Disease Study

- Vitamin Supplement used for the prevention of advanced or exudative forms of AMD
- Dosage: 500 mg vitamin C, 400 IU vitamin E, 15 mg beta-carotene, 80 mg zinc, 2 mg copper qd
- SE: GI upset, genitourinary complications, yellowing of skin
- Avoid beta-carotene in smokers or former smokers
Ocular Side Effects of Systemic Medications

<table>
<thead>
<tr>
<th>Drug</th>
<th>Use</th>
<th>Ocular Effect</th>
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<tbody>
<tr>
<td>Alendronate</td>
<td>Osteoporosis</td>
<td>Episcleritis/scleritis/uveitis</td>
</tr>
<tr>
<td>Amiodorone</td>
<td>Ventricular arrhythmia</td>
<td>Optic Neuropathy</td>
</tr>
<tr>
<td>Antihistamines</td>
<td>Allergies</td>
<td>Decreased tear secretion</td>
</tr>
<tr>
<td>Chloroquine</td>
<td>Arthritis / Lupus</td>
<td>Burul's Eye Maculopathy</td>
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<tr>
<td>Contraceptives</td>
<td>You know</td>
<td>Decrease lacrimation</td>
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<tr>
<td>Corticosteroids</td>
<td>Anti-inflammatory</td>
<td>Increased IOP / PSC</td>
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<tr>
<td>Coumadin</td>
<td>Anticoagulant</td>
<td>Retinal Heme / SCH</td>
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<td>Digoxin</td>
<td>Congestive Heart Failure</td>
<td>Yellow vision</td>
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<tr>
<td>Isotretinoin</td>
<td>Recalcitrant acne</td>
<td>Dry eye / MGD</td>
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<tr>
<td>Gold Salts</td>
<td>Arthritis</td>
<td>Deposits on K / Lens</td>
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<tr>
<td>Sildenafil citrate</td>
<td>ED</td>
<td>NAION</td>
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<tr>
<td>Tamoxifen</td>
<td>Anti-cancer</td>
<td>Crystalline retinopathy</td>
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<td>Tamsulosin</td>
<td>BPH</td>
<td>IHS</td>
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<td>Tetracycline</td>
<td>Antibacterial</td>
<td>Pseudotumor</td>
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<td>Thioridazine</td>
<td>Anti-psychotic</td>
<td>Pigmentary retinopathy</td>
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<td>Thorazine</td>
<td>Anti-psychotic</td>
<td>Stellate ASC</td>
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<tr>
<td>Topiramate</td>
<td>Migraines</td>
<td>Acute myopia / ACG</td>
</tr>
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</table>

Sudden Decrease in VA

- 24 YOWF, decrease VA 5 minutes ago, OD temp VF
- Bitten by a spider 3 days prior
- Ohx: LASIK 3 months prior
- Mhx: Unremarkable
- Shx: PT smoker
- VA ODsc: 20/25     OSsc: 20/20
- (-) APD
- GAT: 7/10
Baseline VF 06/01/11

OD Visual Field

06/03/11 OD

06/08/11 OD

Oral Contraceptives

- Indications to prevent pregnancy
- Optic neuritis
- Pseudotumor
- Dry eye
- Increase risk with smoking
  - Heart attack
  - Blood clots
  - Stroke
  - HTN
  - Migraines
Which Meds Exacerbate Ocular Surface Disease?

- Anti-hypertensive agents
- Antihistamine / Decongestants
- Hormonal Replacement Therapy
- Antidepressants
- Pain Relievers
- GI medications
- Chemotherapy
- Antipsychotics

Plaquenil (hydroxychloroquine sulfate)

- Indicated for the treatment of discoid and systemic lupus erythematosus, rheumatoid arthritis, and malaria
- Primary risk factors
  - Duration > 5 years
  - Cumulative dose >1000g
  - Age
  - Systemic – High BMI, liver, kidney dysfunction
  - Ocular – retina or macular changes

Plaquenil Examinations

- Complete dilated examination
- Color vision / Amsler??
- Central visual field testing 10-2
- Fundus photography for co-existing retinal disease
- Spectral domain OCT, FAF, mfERG (if available)
### Prozac (fluoxetine)

- **Antidepressant**
- **Ocular side effects**
  - Dry eye
  - Blurred VA
  - Mydriasis
  - Photophobia
  - Diplopia
  - Conjunctivitis
  - Ptosis

Accessed from [http://www.bored.com/photos/prozaccrystalshones.html](http://www.bored.com/photos/prozaccrystalshones.html) on 8/19/11

### Thorazine (Phenothiazines)

- **Indicated for depression and anxiety**
- **Ocular side effects**
  - Night blindness
  - Anterior subcapsular cataracts
  - Salt and pepper fundus


Accessed from [http://www.opt.indiana.edu/ce/syspharm/part2.htm](http://www.opt.indiana.edu/ce/syspharm/part2.htm) on 9/10/11

### Synthroid (levothyroxine)

- **Indicated for hypothyroidism**
- **Ocular side effects**
  - Diplopia
  - Ptosis
  - EOM paralysis
- **Graves Diseases**
  - 5X W>M
- **NOSPECS**
Lanoxin (digoxin)

- Indicated for congestive heart failure
- Ocular side effects
  - R-G color defects
  - Flashing lights
  - Dimming of VA
  - Xanthopsia

Myambutol (ethambutol)

- Indicated for tuberculosis
- Ocular side effects
  - Optic neuropathy

Accessed from [http://www.drendo.com/ocular_side_effects.htm](http://www.drendo.com/ocular_side_effects.htm) on 8/19/11

Viagra (sildenafil citrate)

- Selective inhibitor of phosphodiesterase type 5
- Impairment of color discrimination (B/G)
- Non-arteritic ischemic optic neuropathy

Accessed from [www.thisisthelast.net/cartoons/images/viagra.jpg](http://www.thisisthelast.net/cartoons/images/viagra.jpg) on 4/8/11
Flomax (tamsulosin)

- Indication for the treatment of benign prostatic hyperplasia
- Alpha-1 blocker
- Intraoperative floppy iris syndrome
- Importance to communicate prior to cataract surgery

Cordarone (amiodorone)

- Indicated for the treatment of life-threatening recurrent ventricular arrhythmia
- Halos
- Photosensitivity
- Optic neuropathy
- Optic neuritis
- Disc swelling

Fosamax (alendronate)

- Osteoporosis in post-menopausal women, Paget’s disease
- Inhibitor of osteoclastic-mediated bone resorption
- Episcleritis, scleritis, uveitis
Accutane (Isotretinoin)

- Used in the treatment of recalcitrant nodular acne
- Dry eyes
- Keratitis
- Conjunctivitis
- Decreased night VA
- Cataracts
- Optic Neuritis
- Pseudotumor cerebri

Topamax (topiramate)

- Indicated for the prophylaxis of migraine headaches
- Choroidal effusions
- Acute myopia
- Acute angle closure
- Treatment cessation of drug, cycloplegics, and topical hypotensives

Nolvadex (tamoxifen)

- Anti-estrogen used as adjunctive therapy for the treatment or prophylactics of breast cancer
- Maculopathy with crystalline deposits and macula edema
Home Remedies, Herbal Supplements and Whatever MOM Told Me to Take

Herbal Medicine and Nutritional Supplements

- Vitamin A
- Bilberry
- Ginkgo biloba
- Niacin
- Chamomile
- Echinacea
- Marijuana
- Datura
- Canthaxanthine
- Licorice


Conclusions

- Many prescription options available to treat a variety of ocular condition
- Consider patient age, history, drug interactions, compliance, cost
- Important to treat and monitor
- Practice to the fullest extent of our education!