AMERICAN ACADEMY of OPTOMETRY

Practical Pharmacology: Our Favorite Medications

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Disclosure Statement
- Allergan Speaker's Bureau

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DrugNews UPDATE

www.PDR.net

http://www.epocrates.com

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FDA Pregnancy Categories

- The FDA-assigned pregnancy categories as used in the Drug Formulary are as follows:
- **Category A**
  - Human studies show no risk to fetus in the first trimester of pregnancy
  - no evidence of risk in later trimesters
- **Category B**
  - Animal studies failed to demonstrate a risk to the fetus
  - no well-controlled studies in pregnant women.

x

FDA Pregnancy Categories

- **Category C**
  - Animal studies show an adverse effect on the fetus
  - No studies in humans
  - Potential benefits may warrant use despite risks.
- **Category D**
  - Positive evidence of human fetal risk
  - Potential benefits may warrant use despite risks

x

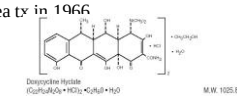
FDA Pregnancy Categories

- **Category X**
  - Studies in animals or humans have demonstrated **fetal abnormalities** and/or there is positive evidence of human fetal risk based on adverse reaction data from investigational or marketing experience, and the
  - risks involved in pregnant women clearly outweigh potential benefits

x

Periostat (20mg doxycycline)

- 20 mg low dose doxycycline
  - Tetracycline family
    - First proposed for Rosacea tx in 1966
  - Bacteriostatic
    - Inhibit protein synthesis
  - Good Gram positive and Gram negative coverage
  - Mainly used for anti-inflammatory and lipid regulating properties
  - Hypothesized that lipophilicity facilitates entry of DCN into the CNS and influences its delivery to ocular structures and lid tissues



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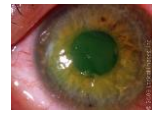
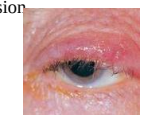
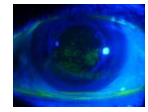
Periostat (20mg doxycycline)

- Indications
  - Meibomian Gland Dysfunction
  - Ocular Rosacea
  - Blepharitis
  - Recurrent Corneal Erosion
  - Corneal Angiogenesis
  - Dry eye





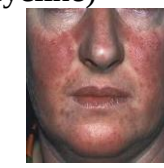


- Dosage
  - 40 mg day Tx for Rosacea (one tab BID PO)
  - Given one hour before or two hours after mealtime
    - DCN absorption less affected by food than TCN
    - Antacids also diminish absorption

x

Periostat (20mg doxycycline)

- Potential Side Effects
  - Diarrhea
  - Nausea
  - Heartburn
  - Headache
  - Photosensitization (sunburn)
  - Vaginal or oral candidosis
  - Blood dyscrasias
  - PTC
  - Potentiate the effects of Coumadin
- Contraindications
  - Children under 8
    - Depress bone growth
    - Permanent tooth discoloration



Periostat® (doxycycline hyclate)

Pregnancy Category D

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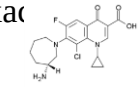
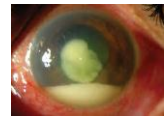
Besivance (0.6 % besifloxac



- FDA approved in Dec 2008
- Not considered a 5th Gen med
- First Chlorinated fluoroquinolone
  - Has a Chlorine atom at the C8 position
  - 4th generations have a methoxy group which diminishes the know photosensitivity in systemic use
- Developed specifically for topical ophthalmic use
  - No widespread systemic, agriculture or animal feed usage
  - Greatly reducing chance for resistance
- Formulated in the DuraSite mucoadhesive vehicle.
  - provides enhanced ocular surface contact time, potentially allowing greater concentration of the active drug on the ocular surface.



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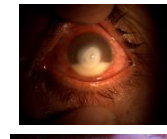
Besivance

- MIC 2-4x lower than other Ab's tested including other Fluoroquinolones.
- Potent broad spectrum activity
  - Esp against gram + and – organisms showing resistance to other Ab's (including moxi, levo and cipro)
  - Effective against MRSA, MRSE
  - C7 addition of aminoazepinyl
- Research has pointed to potential anti-inflammatory properties
  - May be why so well tolerated by patients
- Suspension rather than a solution
- Dosed three times a day, 4-12 hours apart, for 7 days
- Safe to use in patients over 12 months of age.
- Pregnancy Category C

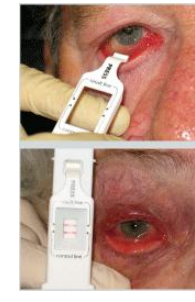


Betadine (povidone iodine)

- Topical Antimicrobial
- OTC
- Used to apply and clean wound or prep for Sx
- MOA
  - Oxidizes cell constituents
  - Iodinates proteins and inactivates them
- Side Effects
  - Severe pain on application
  - Irritation
  - Pruritic
  - Erythema
  - Edematous erythema

Betadine (povidone idoine)

- Helpful to Tx EKC
- There are no FDA-approved medicines to kill adenoviruses
- But, an excellent off-label application of an FDA-approved drug is readily and inexpensively available:
  - 5% Betadine Sterile Ophthalmic Prep Solution
- Decreases the viral load
  - Pv entry into the anterior stroma stopping SEI



Betadine

- Melton-Thomas EKC Betadine Protocol"
  1. By history, rule out any allergy or sensitivity to iodine
  2. Instill a drop of 0.5% proparacaine
  3. Instill a drop or two of a topical NSAID.
  4. Instill four to five drops of Betadine onto the eye.
  5. Ask the patient to gently close the eyes and roll them around to ensure thorough distribution of the Betadine across the ocular surfaces.
  6. After one minute, lavage out the Betadine
  7. Instill another drop or two of the NSAID (or even proparacaine if the patient has any discomfort).

Pregnancy Category B

Ultram

- Indications
  - Management of moderate to moderately severe pain
- Contraindications
  - Acute intoxication with any of the following: alcohol, hypnotics, narcotics, centrally-acting analgesics, opioids or psychotropic drugs
- Useful in corneal abrasions, pain management

Ultram

- Ultram tablets
  - 50 mg Tramadol HCl
  - 1-2 tablets every 4-6 hours
  - Do not exceed 400 mg/day
  - Safe for geriatric patients

Ultram

- Ultram ER
  - Indicated for the use of chronic pain in patients who need round-the-clock treatment or for extended period of time
- Supplied as 100 mg, 200 mg, 300 mg tablets
- Pregnancy Category C

Lastacaft (Alcaftadine) 0.25%

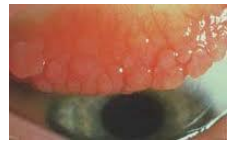
- 1/3 of world's population is affected by allergies
  - 40-80% of them have assoc ocular symptoms
  - 20% of general population has allergic conjunctivitis
- Seasonal allergic conjunctivitis (SAC) and perennial allergic conjunctivitis (PAC) are caused by:
  - (IgE)-mediated environmental airborne allergens, such as:
    - grass and tree pollens, mites, molds, and animal dander.
- Goal of tx is to reduce inflammation early to pv complications which threaten vision and cause dry eye

Lastacaft (Alcaftadine) 0.25%

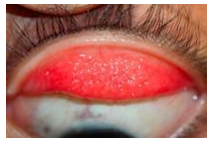
- Allergan Pharmaceuticals
  - FDA approval July 2010 >2yo
  - Once a day dosing
  - H1 histamine receptor antagonist indicated for the prevention of itching assoc w allergic conjunctivitis
    - also inhibits the release of histamine from mast cells.
    - Decreased chemotaxis and inhibition of eosinophil activation
- 3 randomized controlled trials
  - Significantly reduces itching in as early as 3 minutes post CAC
  - Maintains efficacy for up to 16 hours

Lastacaft (Alcaftadine) 0.25%

- Ocular Adverse Events
  - Eye irritation
  - Burning and stinging upon instillation
  - Eye redness
  - Pruritus



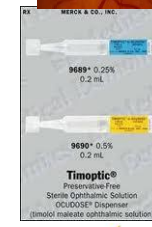
Can use in patients 2 yo and greater



Pregnancy Category B

Zioptan / Timoptic OcuDose

- Non preserved Glaucoma medications
- Timoptic Ocudose (timolol maleate 0.25% and 0.5%) from Valeant Pharmaceuticals
  - Approved Dec 2003
- Zioptan (tafluprost ophthalmic sol 0.0015%) from Merck
  - Approved Feb 2012



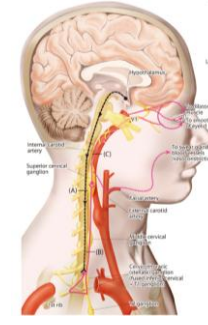
- Both Pregnancy Category C

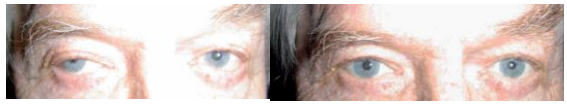
Iopidine (0.5% apraclonidine hydrochloride)

- Indicated for the short term adjunctive therapy in patients on maximally tolerated medical therapy who require additional IOP reduction
- IOP lowering effect diminishes over time (tachyphylaxis)
  - Benefit for most patients is 1 mo
- Selective alpha-s adrenergic agonist
  - weak 1-agonist
  - strong 2-agonist
- Also useful in helping confirm the diagnosis of a Horner's Syndrome

Oculosympathetic Palsy

- Central or first-order
  - Hypothalamus to ciliospinal center of Budge–Waller
- Preganglionic or second-order
  - Spinal cord T1 to superior cervical ganglion
- Postganglionic or third-order
  - Superior cervical ganglion to the dilator muscle of the pupil, the accessory levator muscle of the upper eyelid (Müller's muscle) and its analog in the lower eyelid, and the lacrimal gland





- Following Horner's syndrome there is up-regulation of a1-receptors that increases Iopidine sensitivity.
- In response to Iopidine, the denervation supersensitivity results in pupillary dilation and lid elevation on the abnormal side but no response or slight miosis on the normal side from α2-activity
- Denervation may take 36hr to 7days.
- Iopidine is most evident 30 -60minutes after instillation when the result should be interpreted
- Adequately sensitive - 87%
- Case reports show effective for 1st , 2nd and 3rd order pathways

Durezol (0.05% difluprednate)

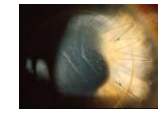
- 2008 Approved for the treatment of inflammation and **PAIN** associated with ocular surgery
  - First steroid to receive a specific indication that includes pain along with inflammation
- First potent steroid approved in more than 3 decades
  - originally developed for dermatology
- Original research was conducted in Japan and was compared to betamethasone
  - 6x more potent as an anti-inflammatory to PF
  - Found to be as potent, particularly when tx uveitis.

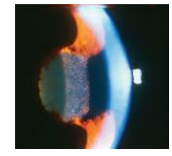
Durezol (0.05% difluprednate)

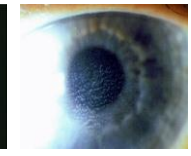
- Difluorinated derivate of prednisolone purposefully engineered to achieve max efficacy
  - 2 fluorine groups make more potent --- other modifications
  - Increase drug penetration
  - Enhance anti-inflammatory activity
- Formulated as an emulsion for greater bioavailibilty
  - Provides consistent dosing, esp compared to PF
- No BAK, preserved in Sorbic Acid
- Dosed at half of PF
  - QID as effective as Q2h PF

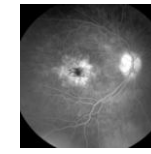
Durezol (0.05% difluprednate)

- Has potential to inc IOP 5-6%, same as PF
- Secondary Cataracts
- Cost prohibitive / accessibility
- Not for every patient but good for:









- Pregnancy Category C

Lotemax Ointment

- Lotemax Ointment
  - The first new prescription ophthalmic single-agent steroid ointment in more than 20 years

  Indications
    - corticosteroid indicated for the treatment of post-operative inflammation and pain following ocular surgery
  - Dosage and Administration
    - Apply a small amount (approximately ½ inch ribbon) into the conjunctival sac(s) four times daily beginning 24 hours after surgery and continuing throughout the first 2 weeks of the post-operative period
  - 100% preservative free

Topical Steroids

- Lotemax Ointment
  - Contraindications
    - contraindicated in most viral diseases of the cornea and conjunctiva including epithelial herpes simplex keratitis (dendritic keratitis), vaccinia, and varicella, and also in mycobacterial infection of the eye and fungal diseases of ocular structures

Topical Steroids

- Topical corticosteroids are approved by the FDA and prescribed for corticosteroid-responsive inflammatory conditions of the conjunctiva, cornea and anterior globe—including dry eye disease

- Several randomized trials have demonstrated that short-term topical corticosteroid use improves signs and symptoms of dry eye disease

Topical Steroids

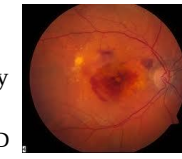
- Induction therapy for DES
  - Use at bedtime
  - Preservative free, greater contact time
  - Restasis throughout day

  - Cyclosporine and loteprednol act on different steps in the inflammation cascade
  - Combined effect should work faster and more effectively than use of the drugs separately as monotherapy

- Pflugfelder SC, Maskin SL, Anderson B, et al. A randomized, double-masked, placebo-controlled, multicenter comparison of loteprednol etabonate ophthalmic suspension, 0.5%, and placebo for treatment of keratoconjunctivitis sicca in patients with delayed tear clearance. Am J Ophthalmol. 2004 Sep;138(3):444-57

- Avunduk AM, Avunduk MC, Varnell ED, Kaufman HE . The comparison of efficacies of topical corticosteroids and nonsteroidal antiinflammatory drops on dry eye patients: A clinical and immunocytochemical study. *Am J Ophthalmol* 2003;136:593-602 (CS1)

Eylea (aflibercept) 2mg

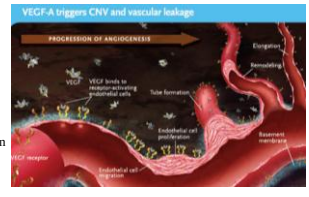


- Regeneron Pharmaceuticals
  - Bayer AG (Europe)
- In 4/2011 Received FDA Priority review status
  - 6 mo accelerated review Wet AMD
  - Approval expected in August 2011
    - 8/24/11 FDA delayed decision until Nov 2011
- Also in phase III for DME
- Compared Efficacy to Lucentis w similar effects
  - Potential for Less dosing
  - Approved for mo dose x 3, than q2mo

Eylea (aflibercept) 2mg

When VEGF is stimulated it will essentially create 3 actions:

1. Angiogenesis
2. Vascular Leakage
3. Inflammation

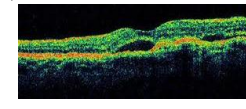


- The angiogenesis starts the cascade because VEGF binds to blood vessel endothelial cell receptors. Which in turn activates enzymes that cause cell proliferation and migration, promoting new blood vessel growth, ie, Neo.
- Edema and leakage then ensue from the endothelial cell damage due to dissolving tight junctions between the cells.
- Finally, VEGF will also bind to leukocytes (pro-inflammatory cells) to introduce inflammation into the mix to help break down the blood-retinal barrier and allow Neo to further evolve.

VEGF Trap is an antibody that specifically targets VEGF and binds to it via a lock and key mechanism preventing VEGF to interact with the endothelial cell wall proliferation, thereby preventing the cascade altogether.

Eylea (aflibercept) 2mg

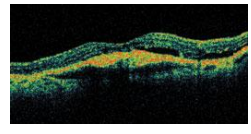
- The VEGF subfamily collectively includes:
  - VEGF-A
    - 121,145,**165**,183,189 and 206
  - VEGF-B
  - VEGF-C
  - VEGF-D
  - VEGF-E

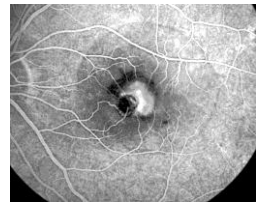


- VEGF Trap-Eye binds to VEGF A, B, C, D and placental growth factors 1 and 2
  - Reducing endothelial cell proliferation, vascular leakage and new blood vessel formation

Eylea (aflibercept) 2mg

- MARINA, SAILOR, FOCUS, ANCHOR, PIER, PRONTO SUSTAIN, EXCITE trials
- Reduced the percentage of pts with severe loss of vision over the course of a year from 38% to 5%
- Improved vision in pts from 4.6% to 34%



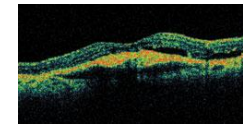


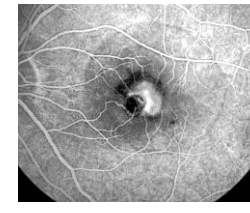
Eylea (aflibercept) 2mg

- CLEAR-IT 1 and 2 studies

Clinical Evaluation of Anti-angiogenesis in the Retina – Intravitreal Trial

- Well tolerated and demonstrates a dose response
- Phase 3 clinical trials, VIEW 1 and VIEW 2.
- The visual gains reported in the fixed-dosing phase were maintained at 52 weeks.



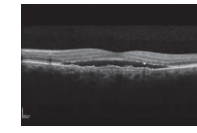


Eylea (aflibercept) 2mg

- (June 2012) anti-platelet-derived growth factor (A-PDGF) therapy in concert with ranibizumab resulted in a statistically significant improvement in visual outcome vs. ranibizumab monotherapy for the treatment of wet age-related macular degeneration, according to a press release from Ophthotech.
- Patients in a phase 2b clinical trial who received a combination of 1.5 mg of Ophthotech's anti-PDGF aptamer Fovista, formerly known as E10030, along with 0.5 mg of Lucentis (ranibizumab, Genentech) gained a mean of 10.6 letters of vision on the ETDRS standardized chart at 24 weeks, a 62% improvement over the 6.5-letter gain from ranibizumab monotherapy (*P* = .019).

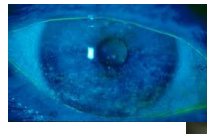
Eylea (aflibercept) 2mg

- Possible Side Effects
  - Endophthalmitis
  - Retinal Detachment
  - Increased IOP
  - Thromboembolic Event (?.5mg)
    - No inc risk of mortality, MI, CVA or bleeding
      Arch Ophthalmol 2010;128(10):1273-1279
  - Blepharitis
  - Cataract
  - Conj Heme (up to 77%)
  - Dry eye
  - FB sensation
  - Intraocular Inflammation (18%)
  - Retinal Hemorrhage (26%)
  - Probable Cost Prohibitive ($1950 / 1850 vs. $30)

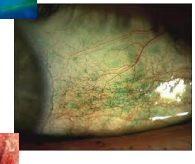


Pregnancy Category C

- Fluorescein



- Lissamine Green



- Rose Bengal

Fluramene

- Lissamine Green B and Fluorescein Sodium
  - provides the clinician with a tool to simultaneously evaluate the conjunctiva and the cornea for ocular surface disorders, without requiring additional drops or dye strips

- Concerns?

Defining Dry Eye

- Dry eye is a disorder of the tear film due to tear deficiency or excessive evaporation, which causes damage to the inter-palpebral ocular surface and is associated with symptoms of ocular discomfort
  - NEI, 1995

Defining Dry Eye

- Dry eye is a multi-factorial disease of the tears and ocular surface that results in symptoms of discomfort, visual disturbance, and tear film instability with potential damage to the ocular surface. It is accompanied by increased osmolarity of the tear film and inflammation of the ocular surface
  - Tear Film and Ocular Surface Society, 2007

FreshKote

- Focus Laboratories

- 2.0% Polyvinyl pyrrodilone
- 0.9% Polyvinyl alcohol (87% hydrolyzed)
- 1.8% Polyvinyl alcohol (99% hydrolyzed)

FreshKote

- Treats all 3 tear film layers
  - Lipid layer: Amisol
    - Restore and replenish
  - Aqueous layer
  - Mucin layer

FreshKote

- Indications:
  - a lubricant indicated for the treatment of moderate to severe dry eye
- Contraindications:
  - in patients with known severe hypersensitivity to any of the ingredients in the formulation
- Prescription only
- Supplied in 15 ml bottles
- Dosage
  - 1 or 2 drops in affected eye(s) as needed
- Safe for CL wearers

FreshKote

- Oncotic pressure
  - 65 mm Hg
  - Compresses epithelium
  - Removes excess water
  - Prevents recurrent damage

- Osmolarity
  - Helps to restore proper osmolarity

Restasis (.05% cyclosporine emulsion)

- 60 million dry eye sufferers worldwide
  - 1-2 million suffer from most severe form
- Moderate to severe dry eye can be associated with or can lead to inflammation and may result in serious damage to the ocular surface
- Evidence indicates that inflammation of both the lacrimal gland and ocular surface is at the root of keratoconjunctivitis sicca
- First Drug approved for Dry Eye patients
  - FDA approval Dec 24, 2002
  - August 1999 approvable letter but needed additional analysis of data
- Topical immunomodulator with anti-inflammatory effects.
  - Cyclosporine, a fine white powder, is an immunosuppressive agent when administered systemically.
  - Cyclosporine emulsion is thought to act as a partial immunomodulator.

Restasis

- Many off-label uses of Restasis
- Not FDA approved in this capacity
  - Consider “Off-label” documentation
- Allow us to reduce inflammation without side effects of steroids

Restasis

- Allergic type conditions
  - Eczema
  - Atopic dermatitis
- AKC / VKC
  - CsA 0.05% vs placebo
  - 6x/day for 2 weeks, then 4x/day for 2 weeks
    - Some effect in reducing signs/symptoms of severe AKC
  - Might require long-term steroid drops
  - Restasis has better safety profile

Akpek EK, Dart JK, Watson S, et al. A randomized trial of topical cyclosporine 0.05% in topical steroid-resistant atopic keratoconjunctivitis. Ophthalmology 2004;111:476-482

Restasis

- Prevention of corneal transplant rejection
  - Transplant rejection mediated by T-lymphocytes
  - CsA inhibits T-lymphocytes and prevents activation
  - Can be used as steroid sparing agent or in conjunction with steroids
- Managing post-corneal transplant glaucoma
  - GLC usually induced by corticosteroids
  - Mean IOP reduction of >8 mm Hg
  - Perry HD, Donnenfeld ED, Kanellopoulos AJ, Grossman GA. Topical cyclosporine A in the management of post-keratoplasty glaucoma. Cornea 1997;16:284-288

Restasis

- Treatment of fungal infections in keratoplasty patients
  - Steroids may cause fungal overgrowth
  - Enhance likelihood of recurrence
- Perry HD, Donnenfeld ED, Kornstein H, Kanellopoulos AJ. Topical cyclosporine A in the management of therapeutic keratoplasty for mycotic keratitis
  - Presented at American Academy of Ophthalmology, 1999

Restasis

- Treatment of Meibomian Gland Dysfunction
  - 33 symptomatic patients
  - CsA 0.05% BID vs. placebo BID
  - Evaluated at baseline and 1,2,3 months for:
    - meibomian gland inclusions, lid margin vascular injection, tarsal telangiectasis, fluorescein staining, tear breakup time, and Schirmer scores
  - 26 patients completed study
  - Topical CsA did not induce an improvement in the symptoms, but it did decrease the number of meibomian gland inclusions in patients with meibomian gland dysfunction

Restasis

- Recurrent Erosion
  - Correlation with
    - MMP
    - Meibomian gland dysfunction
    - Dry eye
  - Consider Restasis to decrease inflammation

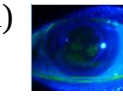
Off-label Restasis

- Inhibits T-lymphocytes
- Does not increase IOP
- Does not cause decrease in wound healing
- Does not inhibit phagocytic system
- Does not cause cataracts
- Has no effect on viral replication
- Improves tear function
- Bottom line: Low risk, high reward

Evoxac (cevimeline HCl)

- Cholinergic agonist
  - Stimulates secretion from salivary and lacrimal glands
- Indications
  - For the treatment of dry mouth symptoms of Sjögren's syndrome
- Contraindications
  - patients with uncontrolled asthma, known hypersensitivity to cevimeline, and when miosis is undesirable, e.g., in acute iritis and in narrow-angle(angle-closure) glaucoma.

Evoxac (cevimeline HCl)



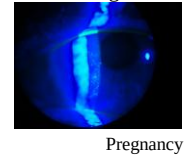
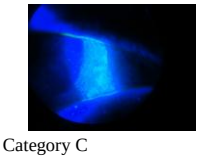
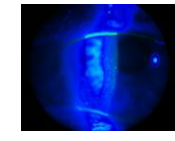
- Warnings
  - Cardiovascular Disease:
    - May alter cardiac conduction and/or heart rate. Patients with significant cardiovascular disease may potentially be unable to compensate for transient changes in hemodynamics or rhythm induced by EVOXAC
  - Pulmonary Disease:
    - May increase airway resistance, bronchial smooth muscle tone, and bronchial secretions
  - Ocular:
    - Ophthalmic formulations of muscarinic agonists have been reported to cause visual blurring which may result in decreased visual acuity, especially at night and in patients with central lens changes, and to cause impairment of depth perception. Caution should be advised while driving at night or performing hazardous activities in reduced lighting

Evoxac (cevimeline HCl)

- Potential ophthalmic concerns (<1%)
  - blepharitis
  - cataract
  - corneal opacity
  - corneal ulceration
  - diplopia
  - glaucoma
  - anterior chamber eye hemorrhage
  - keratitis
  - keratoconjunctivitis
  - mydriasis
  - myopia
  - photopsia
  - retinal deposits
  - retinal disorder
  - scleritis
  - vitreous detachment

Evoxac (cevimeline HCl)

- Evoxac and dry eyes/Sjogren's
  - Arthritis Rheum. 2002 Mar;46(3):748-54 Petrone D, Condemi JJ, Fife R, Gluck O, Cohen S, Dalgin P.
  - Am J Ophthalmol. 2004 Jul;138(1):6-17. Ono M, Takamura E, Shinozaki K, Tsumura T, Hamano T, Yagi Y, Tsubota K.

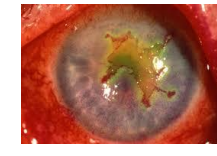
Pregnancy Category C

Zirgan (0.15% ganciclovir ophthalmic gel)

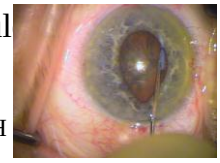
- Approved 2009 for treatment of acute HSK or dendritic epitheliopathy
  - Has been avail in Europe since 1995
- First FDA approval for this class in 3 decades to help treat one of the 60k (29k pts) new cases of HSK each yr
- 1 drop 5x/d (Q3H) until ulcer heals then TID for 7 d
- no toxicity, very quick resolution, very comfortable


Zirgan

- Selectively inhibits synthesis of viral DNA
  - Competitive inhibition of viral DNA polymerase
  - direct incorporation into DNA primer strand
- SE's
  - Blurred Vision (60%)
  - Irritation (20%)
  - SPK (5%)
  - Conj Hyperemia (5%)
- Off label Tx of EKC
  - Safety not established below age of 2
- Pregnancy Category C

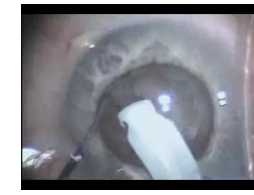


Flomax (Tamsul



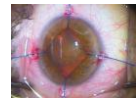
- Most widely prescribed treatment worldwide for BPH
  - 1.9 billion 2009
    - Urinary Retention and Hesitancy in females
- Systemic Alpha1 antagonist
  - Highly selective for A1a receptor
- Relaxes smooth muscles
  - bladder neck and prostate
    - permitting more complete emptying
  - iris dilator smooth muscle

Flomax (Tamsulosin)



- Strong association with IFIS first reported in 2005
  - Iris billowing and floppiness
  - Iris prolapse to main and side incisions
  - Progressive miosis
- Classified:
  - Mild (17%)
  - Moderate (30%)
  - Severe (43%)
- Canadian study
  - Doubling rate of serious postoperative complications following Cat Sx
    - RD, retained fragments, severe inflamm, endophthalmitis

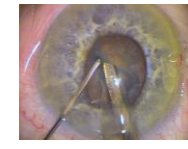
Flomax (Tamsulosin)



- IFIS can occur more than 1 year after tamsulosin has been discontinued
  - Eventually produce a permanent atrophic change in the iris dilator muscle that is not reversed by discontinuation
  - IFIS has occurred within 3 – 7 days of initiating tx
  - Stopping pre-operatively is of unpredictable and questionable value
  - Iris dilator muscle tissue found to be 23% thinner when on Flomax
- Important to make surgeon and pt aware
- Pregnancy Category B

Other Causes of IFIS

- Rapaflo (Dilodosin) - A1a receptor specific
- Cardura (Doxazosin) - Alpha antagonists
- Hytrin (Terazosin)
- Uroxatral (alfuzosin)

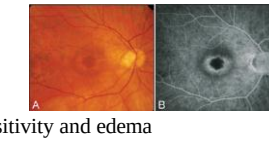


- Saw Palmetto – herb extract
- All One Powder - Antioxidant
- Requip (Ropinirole) – Parkinson, Restless leg syn
- Labetalol HCL – Systemic HTN
- Mianserin (Boluidion) - Depression

Hydroxychloroquine Sulfate

- Quinine derivative
  - Indicated for :
    - Lupus Erythematosus
    - Malaria
    - Rheumatoid Arthritis
- Initial dosage usually higher 400-600mg/d
- Dosage reduced after 12 wks by half
- Maintenance dose 200-400mg/d
- Systemic SE's
  - Cardiomyopathy, CNS, Dermatologic, GI, Hematologic, Musculoskeletal

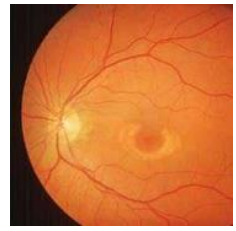
Hydroxychloroquine Sulfate



- Ocular effects
  Mainly dose related
  - Enhanced H-S line
  - Cornea verticillata
  - Decreased corneal sensitivity and edema
  - Retinal parafoveal granularity of RPE (early)
  - Bull's Eye Maculopathy (late)
    - Frequency <5% when dose is under 400 mg/day
  - Attenuation of vascular tree
  - Peripheral fine granular pigmentary changes
  - Prominent choroidal filling defects in late phase

Hydroxychloroquine Sulfate

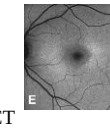
- Risk factors
  - daily dose greater
    - >400 mg/day
    - prev 6.5 mg/kg
  - greater than 7 years of use
    - Cumulative dose >1000g
  - liver problems
  - kidney problems
  - age over 60

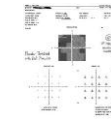


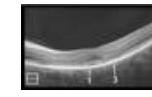
Hydroxychloroquine Sulfate

- Annual F/U after 5 years
  - Dilated fundus exam
  - Baseline fundus photos
  - HVF 10-2 (white target)
  - Baseline Spectral Domain OCT
    - loss of inner segment-outer segment
  - FAF and mfERG
  - No longer recommended
    - Color vision
    - Home amsler
    - Yearly fundus photographs
    - Red target VF
    - TD OCT, FA, ERG

Pregnancy Category C





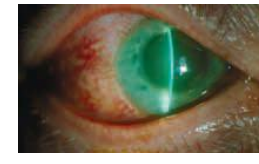


Topamax (topiramate)

- Anticonvulsant Indicated for:
  - Epilepsy (400mg/d)
  - Migraine (200mg/d)
  - Alcohol dependence
  - Binge eating disorder
  - Bipolar disorder
  - Cluster HA
  - Essential tremor
  - Smoking cessation
  - Pseudotumor
- Tx begins with slow ascension – dosage titration
  - Bet wk 1 – 6
  - 25mg – 200mg BID
- MOA unknown
  - Blocks sodium channels
  - Augments neurotransmitters
  - Partial CAI
    - Found to dec HA's and SE of wt loss, therefore good PTC TX

Topamax (topiramate)

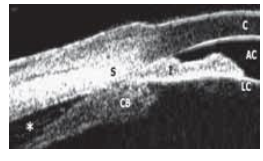
- Systemic Side effects
  - Metabolic acidosis
  - Decreased sweating
  - CNS effects
  - Psychiatric disturbances
  - Kidney stones
  - Paresthesia
- Serious Ocular effects
  - Acute Myopia and Secondary Angle Closure (kids & adults)
  - Ocular hyperemia
  - With or without mydriasis



- Usu 1 mo of initiating therapy
- Bilateral sudden loss of vision with eye pain / HA
- Acute Myopia >6D
- Extremely shallow AC
- Microcystic corneal edema
- Inc IOP >40mmHg

Topamax (topiramate)

- Due to drug induced ciliochoroidal effusion
- Results in anterior displacement of lens and iris
- This syn can develop even in pts with deep anterior chamber angles prior to attack



- TX D/C med and medically manage IOP inc. Since it's not pupillary block ACG a laser PI is not indicated
- Pregnancy Category C

Thank You.

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