

Oral Medications in Optometric Practice

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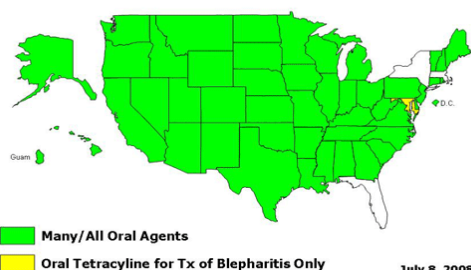
Americans are comfortable with prescription drugs

- Over the last 10 yrs, the %age of Americans who took at least one prescription drug in the past month increased from 44% to 48%. The use of 2 or more drugs increased from 25% to 31%. The use of **five** or more drugs/month increased from 6% to 11%.
- In 2007-2008, 9 out of 10 Americans >60 yoa reported using at least one prescription drug in the past month
- Spending on prescription drugs in the US in 2008: **>\$241 Billion !**
 - Doubled in 10 years !

Gu Q, Dillion CF, Burt VL. Prescription drug use continues to increase: US prescription drug data for 2007-2008. NCHS Data Brief #42; Sept 2010

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The Prescription Of Oral Medications By Optometrists To Treat Eye Disease



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Oral Agents for Eyecare

- Antibiotics
- Antivirals
- Anti-inflammatories
- Analgesics
- Anti-Allergy (Systemic antihistamines)
- Anti-glaucoma agents
- ARMD prophylaxis

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Some General Caveats re: Oral Medications ¹

- No patients will take pills more than 3 times daily
- No patient will take a medication as prescribed for more than 5 days in a row
- No patient takes a medication that makes them feel worse !
- No patients pay more than \$ 15 OF THEIR OWN MONEY for a Rx

1. Sanson-Fisher RW, Clover K. *Am J Hypertens* 1995; 8: 82S-88S

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Precautions for Prescribing Oral Agents

- Review previous drug allergies
- Review kidney & liver function
- When in doubt, call the patients PCP or your pharmacist buddy
- Don't have a pharmacist buddy? I highly recommend you get one!

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Systemic Antibiotics

- Augmentin (Amoxicillin/Clavulanic Acid)
- Dicloxacillin
- Cephalexin (Keflex) & cefaclor
- Trimethoprim/sulfamethoxazole
- Doxycycline
- Erythromycin
- Azithromycin
- Ciprofloxacin & Oral Fluoroquinolones
- Telithromycin (Ketex)

Amoxicillin/Clavulanic Acid (Augmentin)

- Clavulanic acid enables amoxicillin to be bactericidal vs. gram (+) organisms
- Useful in treating soft tissue infections
- Cannot use if patient is allergic to penicillin
- Tx: adults 500/125 tablet tid x 7 – 10 days
 - Children: 25 mg/kg/day x 10 – 14 d
- Can be taken with meals
- More expensive vs. generic dicloxacillin or cephalexin
- Side effects: Diarrhea



Pediatric Dosage Calculations

- mg of drug/kg of body weight/day in children
- Example: 1 yo child with preseptal cellulitis requires 25mg/kg/D of augmentin. Child weighs 22 pounds.
- Step 1. Convert pounds to kg: 22 lb \times 1 kg/2.2 lb = 10 kg
- Step 2. Calculate the dose in mg: 10 kg \times 25 mg/kg/day = 250 mg/day
- Step 3. Divide the dose by the frequency: 250 mg/day \div 2 (BID) = 125 mg/dose BID
- Step 4. Convert the mg dose to mL: 125 mg/dose \div 125 mg/5 mL = 5.0 mL BID

Pediatric Dosages

Vision America
 3105 Main Street
 Columbus, Alabama 35901
 (205) 972-2020 Fax: (205) 972-2019

715 South Street
 Dothan, Alabama 36023
 (256) 321-6900 Fax: (256) 321-6171

Name: _____ Date: _____
 Address: _____
 Rx: *Augmentin 125 mg/5ml susp*
#100 mL
sig: T + P PO bid x 10d.

☐ Label
 Refill: _____ Times
 Product Selection Permitting _____ Dispense as Written _____
 DEA#: _____ AL License#: _____

Dicloxacillin

- Dicloxacillin - another popular penicillin antibiotic
- Useful for treating staphylococcal infections because these organisms produce penicillinase
- Ask the patient about any penicillin allergies such as rash, hives, itching, or difficulty breathing before prescribing either Augmentin or Dicloxacillin
- Usual adult dosage is 250 mg qid
- The most severe side-effects include anaphylaxis, anemia, pseudomembranous colitis, and Stevens-Johnson syndrome

Antibiotics and Birth Control: Fact or Fiction?

- Only 1 antibiotic, rifampin, has been shown to definitively cause loss of effectiveness
- A small percentage of women may experience decreased effectiveness
- Usually the difference is less than 1 %

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Cephalexin (Keflex)

- Cephalexin – 1st generation cephalosporin
- Effective vs. most gram (+) pathogens
- All cephalosporins share a 5-10% cross-sensitivity to penicillin (true allergy to PCN; PO fluoroquinolone alternative)
- Usual dosage: 500 mg p.o. b.i.d. to q.i.d x 7 d.
- Useful in soft tissue infections:
 - Internal hordeola
 - Preseptal cellulitis
 - Dacryocystitis
- Minimal side effects
- Available as Keflex, Keftab, Keflet



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Case # 1

- 18 yo WM
- cc: Left eyelids red, swollen & sore x 2 w. Upper > lower
- unremarkable medical & ocular Hx; NKDA
- Entering VAs: 20/20 OD, OS, OU
- Ta 16 mm Hg OU
- SLEx: blepharitis; otherwise unremarkable
- External:

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Case # 1

- Dx: Preseptal cellulitis
- Tx: warm compresses x 5 min q.i.d. to lids
- Keflex 500 mg p.o. b.i.d. x 10 d.
- RTC 2 d.

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Preseptal Cellulitis

- Culture any purulent discharge
- Hot compresses 5 min t.i.d. to q.i.d. to lids
- Augmentin 500 mg p.o. b.i.d. or Cephalexin 500 mg p.o. b.i.d x 7-10 d.
- If PCN allergic, erythromycin 500 mg p.o. q.i.d. or Cefaclor (Ceclor) 250 mg p.o. t.i.d. x 7-10 d.
- Pediatric cases are often caused by H. influenza; Rx Augmentin 20-40 mg/kg/d x 7-10d.
- F/u severe cases in 48 h. to r/o orbital cellulitis

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Bactrim

- Is considered a 'second-choice' antibiotic for cases of preseptal cellulitis or lacrimal infections in patients who have contraindications to other antibiotics
- Available as Bactrim DS (160 mg trimethoprim/800 mg sulfamethoxazole) and Bactrim SS (half the amounts of DS) forms
- Typical dosage is 160 mg/800 mg p.o q12 h.



Doxycycline

- Originally named vibramycin
- Effective member of tetracycline family
- Advantages over tetracycline:
 - Dosage: 20, 50 or 100 mg b.i.d.
 - Can be taken w/o regard to meals
- Contraindicated in pregnancy, nursing mothers, children > 8 yo, photosensitivity warning
- Indications in primary eye care:
 - Meibomitis (chronic inspissated glands) & ocular roseacea
 - Inhibits protein synthesis, liquifies sebum, inhibits collagenase
 - Adult inclusion conjunctivitis
 - Recurrent corneal erosion
 - Corneal ulcer



Periostat

- 20 mg doxycycline hyclate
- Indicated in periodontal disease
- Low dose doxycycline for ocular roseacea



Case # 2

- 65 yo wm
- Presents c/o burning eyes worse in am x "years"
- Meds: allopurinol, diovan
- BCVA 20/25 OD, OS
- SLEx:



Case # 2

- Dx: Posterior Blepharitis OU
- Tx: Alodox lid system
- Systane Balance
- RTC 1 m

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Alodox

- 20 mg doxycycline + ocusoft lid scrubs
- Covered by most insurances as tier 3 co-pay
- \$ 25 rebate
- Assistance program through www.rxhope.com



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Erythromycin

- A macrolide antibiotic; similar drugs include azithromycin & clarithromycin
- Indicated as 2nd-choice treatment in *Staphylococcus* & other gram (+) eyelid infections, as well as for chlamydial infections such as ophthalmia neonatorum & adult inclusion conjunctivitis
- Typical adult dosage is 250-500 mg p.o. q 6-12 h x 2 to 3 wks
- 3 enteric formulations:
 - Erythromycin ethylsuccinate (EES)
 - PCE DisperTab
 - Erythromycin delayed (ERYC)



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Azithromycin – (Zithromax)

- Used for staph resistant soft tissue infections
- Drug of choice for chlamydial infections
- Erythromycin, clarithromycin (Biaxin), azithromycin (Zithromax) – all macrolide antibiotics, of which erythromycin is the prototype
- Dosage for chlamydial eye infection: 4-250 mg capsules or 2-500 mg capsules for one day or a single dose of 1000 mg suspension

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Azithromycin Z-Pack (Z-pack)

- Prepackaged 250 mg capsules by Pfizer
- 2 capsules day 1
- 1 capsule p.o. q.d. for days 2 – 5



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Azithromycin Tri-Pak/ZMAX

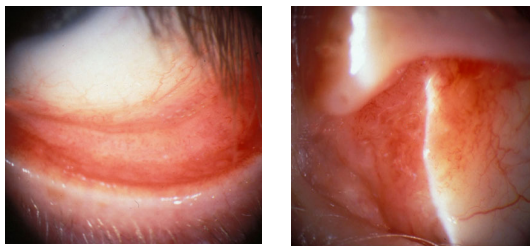


- TRI PAK: 500 mg qd x 3 d
- ZMAX: single 2.0g dose



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CASE REPORT



Chlamydial Inclusion Conjunctivitis

Patient was a 19 yo sexually active white female with a conjunctivitis recalcitrant to topical antibiotic/steroid therapy. Proven culture positive for chlamydia. Resolved with single dose of Azithromycin 2-500 mg tablets.

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Oral Macrolide Therapies

- Erythromycin Ethylsuccinate (EES 400 mg qid)
- Erythromycin Particles (PCE 333 mg tid)
- Erythromycin Delayed (ERYC 250 mg qid)
- Clarithromycin (Biaxin 250 mg bid x 7D)
- Azithromycin (Z-Pack, Tri-Pak, ZMAX)

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Oral Fluoroquinolones

- Broad Spectrum; especially effective vs. gram negative organisms (not chlamydia)
- Resistant bacteria continue to emerge
- Levofloxacin (Levaquin) most commonly Rx'ed systemic FQ
- Cipro now available in q.d. dosage & available generically
- Avoid FQs in patients on coumadin tx
- Avoid ofloxacin & levofloxacin w/ theophylline
- Photosensitivity warning; use conservatively in pregnant females & children
- Side effects: mild GI, mild HA, dizziness

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Oral Fluoroquinolones

• Ciprofloxacin	Cipro	500 mg q12h x 10d
• Ofloxacin	Floxin	400 mg q12h x 10d
• Levofloxacin	Levaquin	500 mg qd x 7-10d
• Trovafloxacin	Trovan	200 mg qd x 7-10d
• Gatifloxacin	Tequin	400 mg qd x 7-10d
• Moxifloxacin	Avelox	400 mg qd x 7d
• Norfloxacin	Noroquin	400 mg bid x 7-10d
• Sparfloxacin	Zagam	200 mg q12h x 1d; then qd x 10d
• Lomefloxacin	Maxiquin	400 mg qd x 10d

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Levaquin

- Broad spectrum antibiotic; both gr (+) and Gr (-)
- Usual dose is 500 mg PO qd x 1 week
- Most Rx'ed PO FQ antibiotic



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Avelox

- Gatifloxacin 400 mg
- Usual dosage 1 tablet PO QD
- Drawback: COST !!!



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Cipro

- Ciprofloxacin is a common fluoroquinolone (trade names: Cipro, Cipro XR, *generic*),
- Rx'ed for numerous bacterial and urinary tract infections, gonorrhea, and anthrax
- Comes in 100 mg, 250 mg, 500 mg, 750 mg, and 1000 mg tablets
- Typical dosage is 500 mg p.o. q12h.



Summary of Oral Antibiotics

DRUG NAME	MG	DOSAGE
Amoxicillin w/ clavulanic acid (Augmentin)	500mg/125mg	TID x 7 to 10 d. for moderate to severe infections
Cephalexin (Keflex)	500 mg	BID x 1 week for lid infections
Azithromycin	250 mg	1 gm for chlamydia; Z-pack for soft tissue infections
Doxycycline	50 mg	100 mg QD for 1 month, then 50 mg for six months for meibomian gland dysfunction
Levofloxacin	500 mg	QD x 1 week for skin & soft tissue infections

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Telithromycin (Ketex)

- The ketolides are a new class of antibiotics
- Similar to the macrolides – erythromycin, etc.
- Via bacterial ribosome – inhibits protein synthesis
- For use in patients 18 yoa or older
- Dosage: 800 mg (2 x 400mg tablets) qd x 5d
- Do not co-administer with cisapride (Propulsid), pimozide (Orap), lovastatin (Mevacor), simvastatin (Zocor), atorvastatin (Lipitor), rifampin, digoxin, phenytoin (Dilantin), carbamazepine (tegretol), or Phenobarbital
- Do not use if allergic or hypersensitive to macrolides, in myasthenia gravis or hepatitis



Ketex Side Effects

- Occur in ~ 1% of patients
- Inhibits accommodative function, especially ability to release accommodation
- Can have blurred vision, difficulty focusing, and diplopia
- Usually occurs after the first or second dose
- Most episodes last several hours
- Women under age 40 appear most vulnerable
- FDA requires post-marketing surveillance for visual disturbances

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What are the most common patient mistakes with oral antibiotics ?

- Asking for antibiotics they don't need (viral infections)
- Not taking the antibiotics as prescribed
- Stopping the medications before the full time interval of the prescription (this encourages bacterial resistance)
- Saving some of the antibiotic prescription and self-prescribing them later. How many times have we heard this ?

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Antibiotic Resistance

- "There will be a continual need for new antibiotics because bacteria are very adaptable. We've already seen some resistance to (4GFQs) in some ocular isolates, mainly because they have been in the systemic world for years."
- "Typically antibiotics have a 7 to 10 year lifespan. We hope with their proper use this will be the case with the (4GFQs) as well."
 - Deepinder K. Dhaliwal, MD. *Expert Review Anti-Infective Therapy* 2005; 3(1): 131-139.

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Is There an Increased Breast Cancer Risk ?

- One large study* determined that chronic use of antibiotics increased a woman's risk of developing breast cancer. The risk was increased for all antibiotics studied
- Several other studies# have failed to reproduce these findings

*. Velicer CM, et al. Antibiotic use in relation to the risk of breast cancer. *JAMA*. 2004;291:827-835

#. Goldstein N. Oral antibiotics and breast cancer. *Hawaii Med J*. 2004 Jun;63(6):172.

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Systemic Antivirals

- Acyclovir (Zovirax)
- Valacyclovir (Valtrex)
- Famcyclovir (Famvir)

These are anti-herpetic drugs and are ineffective vs. adenovirus serotypes !

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HEDS Study

- PO antivirals are of no benefit in speeding resolution of corneal disease
- PO antivirals ARE helpful in preventing recurrence
- PO antivirals ARE helpful for herpetic uveitis

[Sulish S, Laibson PR](#). The impact of the herpetic eye disease studies on the management of herpes simplex virus ocular infections. *Curr Opin Ophthalmol*. 1999 Aug;10(4):230-233

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Acyclovir (Zovirax)

- Specifically targets virally-infected cells
- Minimally toxic to healthy cells
- Best to initiate therapy within 72 hours
- Tx: 800 mg p.o. 5x/d x 7 d for HZO; 400 mg p.o. 5x/d x 10 d for acute epithelial HSK
- Main side effect: occasional nausea
- Use w/caution in kidney disease
- Available generically



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Acyclovir in Preventing Recurrent HSV Keratitis

- Effective chronic suppressive prophylaxis dose is 400 mg b.i.d. for 1 year
 - Dendritic (epithelial)
 - Disciform (stromal)
- b/c of expense, greatest benefit is in suppression of vision-threatening stromal disease

Herpetic Eye Disease Study Group. Acyclovir for the prevention of recurrent herpes simplex virus eye disease. *N Eng J Med* 1998; 339(5): 300-6.

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Valacyclovir (Valtrex)

- Prodrug of acyclovir – greater bioavailability
- Rapidly & completely converted to acyclovir after oral administration
- Can be taken without regard to meals
- Again, best to initiate therapy within 72 hours
- Dosage: 1000 mg caplet p.o. t.i.d. x 7 d. for HZO; 500 mg p.o. t.i.d. x 7 d for HSK
- Side effects: nausea/headache
- Marketed as Valtrex by Glaxo Wellcome
- EXPENSIVE !!



Famciclovir (Famvir)

- Higher blood concentration vs. acyclovir
- Efficacy NOT established for initial episode of HZO
- Dosage:
 - Recurrent HSV – 1000 mg p.o. bid x 1 d
 - Recurrent cold sores – 1500 mg in a single dose
 - HZV – 500 mg p.o. t.i.d. x 7 d
 - Chronic suppressive 250 mg bid



Zostavax

- Varicella Zoster Virus (shingles) vaccine for patients > 60 yoa. Live attenuated virus. Given as a single dose by injection
- Anyone who has been infected by chickenpox (more than 90% of US adults) is @ risk for developing shingles
- In landmark Shingles Prevention Study, Zostavax reduced risk of developing shingles by 51% (4 yr follow-up)
- Duration of protection following vaccination unknown
- Contraindicated if patient has a history of allergy to gelatin or neomycin; is immunocompromised; or is pregnant

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Oral Anti-Inflammatories

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Systemic Steroids

- Prednisone
- Methylprednisolone (medrol dose-pak)



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Uses in eye care for oral steroids

- Contact dermatitis/allergic response of the eye lids
- Reaction to insect bite or sting on the eye lids
- Recalcitrant cystoid macular edema
- Recalcitrant uveitis, especially bilateral or vitritis
- Choroiditis/retinitis
- Scleritis
- Myasthenia gravis
- Inflammatory orbital pseudotumor
- Thyroid eye disease/Grave's ophthalmopathy
- Optic neuritis (but not by themselves!)
- Giant cell arteritis
- Diffuse lamellar keratitis post LASIK (in conjunction with topicals)

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Contraindications to Systemic Steroids

- Diabetes mellitus
- Infectious disease
- Chronic renal failure
- Congestive heart failure
- Systemic hypertension
- Peptic ulceration
- Osteoporosis
- Psychosis
- "Glaucoma"

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Systemic Prednisone

- Most common systemic corticosteroid Rx'ed
- Typical daily dosage is 40 to 60 mg p.o. q.d. initially with tapering over a 1 to 2 week period
- Most common dosing is to give the desired amount in 10 mg tablets (need 40 mg, take 4 pills)
- Dosages up to 60 mg can be taken at one time, and it is recommended that prednisone be taken with meals to reduce gastric distress
- ?? To ask before prescribing:
 - Diabetic ?
 - Peptic ulcer disease ?
 - Pregnant ?



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Medrol Dosepak

- Methylprednisolone is an alternative steroid in the treatment of ocular conditions
- Available in 2, 4, 8, 16, 24, and 32 mg tablets generically and as the Medrol "dosepak" blister packages
- Dosepaks have six 4 mg tablets that the patient takes on day one, w/ the number of tablets taken reduced by one each day over 6 days in a tapering schedule (21 tablets total)
- Many practitioners prefer using prednisolone as opposed to the lower dosage methylprednisolone but the dosepak is a convenient way to manage the patient's tapering sequence



Medrol Dosepak Directions

- 1st Day: 2 tablets before breakfast, 1 tablet after lunch and after supper, then 2 tablets at bedtime
- 2nd Day: 1 tablet before breakfast, 1 tablet after lunch and after supper, and 2 tablets at bedtime
- 3rd Day: 1 tablet before breakfast, after lunch, after supper, and at bedtime
- 4th Day: 1 tablet before breakfast, after lunch and at bedtime
- 5th Day: 1 tablet before breakfast and at bedtime
- 6th Day: 1 tablet before breakfast

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Systemic Side Effects of Steroids

- Systemic:
 - Increases w/ higher dose & duration
 - Suppression of the pituitary feedback loop
 - Osteoporosis
 - Electrolyte imbalance & Fluid retention
 - Effect on long bone growth
 - Psychological manifestations of aggression, psychosis, tremors
 - Diabetes mellitus
 - Increased appetite & weight gain
 - GI upset, peptic ulcer formation
 - Increased susceptibility to infection
 - Delayed wound healing

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Ocular Side Effects of Steroids

- These are well known: PSCs and increased IOP . . . IOP increases are rare; PSCs are not!
- 10 mg per day or less for one year or less has almost no chance of PSC formation
- 16 mg per day for several years has a 75% chance of PSC formation
- Overall, general population has a 0.5% chance of PSC development while those on long-term oral steroids have a 30% prevalence

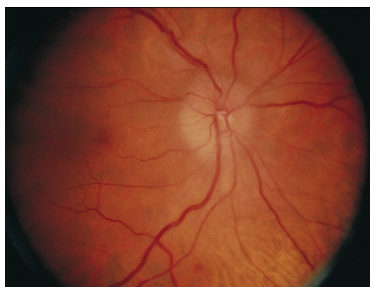
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Case Report

- 79 yo BF cc: "right eye was dim, then went black" x 24 h
- PMHx: HCTZ, naproxen, allopurinol
- ROS: painless loss of vision OD, some scalp tenderness, (+/-) Headache; (-) jaw claudication
- BCVA: HM OD ; 20/30 OS
- A: 4+ APD OD, EOM F + S; Ext wnl
- TVF: absolute defect OD; full OS
- SLEx: PC IOL OD, 3+ NSC OS fundus:

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Optic Disc OD



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Case Report

- DDX: AAION (GCA) vs NAION vs CVA
- Additional testing ?
- Color vision: 0/14 plates OD; normal OS
- Fundus photos
- Stat ESR, C-reactive protein

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Case Report

- Lab report same day:
 - ESR 44 mm/hr (reference 0 – 20mm/hr)
- Dx: AAION (GCA)
- TX: Prednisone 60 mg PO x 2 (loading dose) then 60 mg qd as per telephone consult with patient's GP !
- Refer back to GP
- Retina consult for IVFA
- Neurology consult for TA biopsy (+)
- CRP (rec'd later): 2.8 mg/dL (ref 0 – 0.3 mg/dL)

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GCA Diagnosis

- **The set of clinical criteria most strongly suggestive of giant cell arteritis are:**
- Jaw claudication
- CRP >2.45 mg/dl
- Neck pain
- ESR \geq 47 mm/hr, in that order
- "CRP was more sensitive (100%) than ESR (92%), and a combination of ESR with CRP gave the best specificity (97%) for detection of giant cell arteritis."

Hayreh SS, Podhajsky PA, Raman R, et al. Giant cell arteritis: validity and reliability of various diagnostic criteria. [Am J Ophthalmol 1997;123: 285-296](#)

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Oral NSAIDs - Guidelines

- All NSAIDs similar in effectiveness & toxicity
 - Immense cost difference
- Ibuprofen and ASA always should be 1st choice
- NSAIDs and ACE inhibitors contraindicated in severe heart failure & renal disease
- NSAIDs may cause GI upset, bleeds & ulcers
 - 4-fold risk of peptic ulcers & 14-fold risk of small intestine ulcer

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Oral NSAIDs - Guidelines

- Prescribing Hints
 - Take with food, milk or water
 - Avoid lying down for 30 min after taking meds
- Use with caution in certain individuals
 - Alcoholism
 - Asthma
 - Congestive Heart Failure

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OTC Oral NSAIDs

- Ibuprofen (Advil, Nuprin) 200 mg
- Acetylsalicylic acid (Aspirin) 81mg, 325-500 mg
- Acetyl-para-aminophenol (APAP – Tylenol) 325-500 mg
- Naproxen (Aleve) 220 mg



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Concomitant Use of Ibuprofen & Aspirin

- Ibuprofen can interfere with the anti-platelet effect of low-dose ASA (81 mg)
- Other non-selective OTC NSAIDs (ketoprofen, naproxen) may do likewise
- Recommendations:
 - Dose ibuprofen at least 30 minutes after taking immediate release ASA
 - Dose ibuprofen more than 8 hours before ASA
 - Use APAP instead of NSAIDs for high-risk patients

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Rx NSAIDs

- Indomethacin (Indocin) 25-50 mg
- Ibuprofen (Motrin) >200 – 800 mg
- Naproxen (Anaprox) 275, 550 mg



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Oral Analgesics (Narcotic & non-narcotic)

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Oral Analgesics

- Conditions requiring oral analgesia in eyecare:
 - Corneal Ulcers
 - Herpes simplex & zoster
 - Surgery
 - Trauma

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Oral Analgesics - Guidelines

- Never exceed maximum recommended amounts:
 - ASA – 8 g/d
 - APAP – 4 g/d
 - Ibuprofen – 1200 mg/d OTC & 2400 mg/d Rx
 - Codeine – 360 mg/d
- Precautions:
 - NO EtOH !
 - Do not operate machinery

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Oral Narcotic Analgesic Guidelines

- Make the proper diagnosis 1st !
- Treat the underlying cause of the pain
- Treat pain at presentation – do not wait !
- Treat pain continuously over 24 h schedule
- Non-prescription drugs are a low-cost effective 1st choice!
- Treat pain w/ simplest & safest means to alleviate patient's pain & titrate therapy as necessary

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Oral Narcotic Analgesic -Guidelines

- Mild to moderate pain is often successfully treated with APAP & NSAIDs
- Moderate to severe pain is best treated with opioid analgesics
- Adjunctive treatments are very valuable in pain management
 - “RICE” – rest, ice, compression, elevation
 - Mydriatic/cycloplegic useful w/ ciliary ocular pain
 - Bandage CL or pressure patch for corneal epithelial defect

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The #1 Non-Narcotic Analgesic

- Tramadol (Ultram)
- Tablets (immediate release): 50 or 100mg dose q 6 to 8 h to 400 mg/day max.
- Tablets (extended release): 100, 200, and 300 mg. (300 mg/day max)



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Oral Narcotic Analgesics

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Controlled Substances

- DEA Schedules: 5 schedules based on abuse potential & physical/psychological dependence
 - Schedule I: High abuse potential (Heroin, marijuana, LSD)
 - Schedule II: High abuse potential w/ severe dependence liability (narcotics, amphetamines)
 - Schedule III: moderate dependence liability (Nonbarbiturate sedatives)
 - Schedule IV: Less abuse potential vs. S3 & limited dependence liability (non-narcotic analgesics, anti-anxiety agents)
 - Schedule V: Limited abuse potential (small amount of narcotic in antitussives or antidiarrheals)

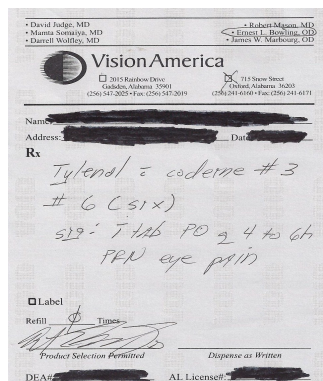
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Oral Narcotic Analgesics

- Pharmacology: centrally acting opioid receptor blockers
- Safe & effective for acute, short-term pain mgmt
- 4 commonly used narcotics:

	Schedule
• Propoxyphene (mild pain)	IV
• Codeine (mild to moderate pain)	III
• Hydrocodone (moderate to severe pain)	III
• Oxycodone (severe pain)	II
- Clinically used in combination w/ acetaminophen
- Generally Rx'd as 1 tab. p.o. q 4-6 h. PRN pain (disp #6)
- Onset 20 minutes; peak @ 1h; duration 4 – 6 h.

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Schedule III Oral Narcotic Analgesics

- | Narcotic Rx | Medicine Combination |
|----------------------|---|
| • Codeine | |
| • Tylenol #2 | APAP 300 mg + Codeine 15mg |
| • Tylenol #3 | APAP 300 mg + Codeine 30mg |
| • Tylenol #4 | APAP 300 mg + Codeine 60 mg |
| • Hydrocodone | |
| • Lortab 2.5, 5, 7.5 | APAP 500 mg + Hydrocodone 2.5, 5, or 7.5 mg |
| • Vicodin | APAP 500 mg + hydrocodone 5 mg |
| • Vicodin ES | APAP 500 mg + hydrocodone 7.5 mg |



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Schedule II Oral Narcotic Analgesics

- | Narcotic Rx | Medicine Combination |
|---|-------------------------------|
| • Oxycodone | |
| • Percocet | APAP 325 mg + Oxycodone 5 mg |
| • Percodan | APAP 325 mg + Oxycodone 4.5mg |
| • Tylox | APAP 500 mg + Oxycodone 5 mg |
| • Addiction potential is not a concern when used for less than a week | |



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Perspective on Addiction

- “Clinically significant dependence develops only after several weeks of chronic treatment with relatively large doses of morphine-like opioids.”

The Medical Letter, 8/21/2000

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Questions? Comments ?

- E-mail: drbowling@windstream.net
- Disclaimer: I have no financial interest in any of the medications discussed. I'm just a poor old country eye doc.
- Thanks for having me out!

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