

Oral Pharmaceuticals in Eye Care
Brought to You by an Optometrist and Pharmacist

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2 hours

Outline:

- I. Disclosures
 - A. Greg Caldwell, OD, FAAO
 - 1. Most updated slide will be presented
 - B. Tracy Offerdahl, PharmD, Bpharm
 - 1. Most updated slide will be presented
- II. FDA Pregnancy Categories
 - A. Category A
 - 1. Studies in pregnant women
 - 2. No risk
 - B. Category B
 - 1. Animal studies no risk but human not adequate...or
 - 2. Animal toxicity but human studies no risk
 - 3. Safe
 - C. Category C
 - 1. Most new drugs fall under this category
 - 2. Animal studies show toxicity human studies inadequate but benefit of use may exceed risk OR there are no studies in animals or humans
 - 3. Avoid
 - D. Category D
 - 1. Evidence of human risk but benefits may outweigh risks
 - 2. Avoid
 - E. Category X
 - 1. Fetal abnormalities
 - 2. Risks > benefits
 - 3. Avoid
- III. New FDA Pregnancy Categories
 - A. Pregnancy
 - B. Lactation
 - C. Reproductive Potential

- IV. Case 1- Dacryocystitis, Preseptal Cellulitis and Bacterial Conjunctivitis
 - A. 58 year-old male with red and painful OS
 - B. Visual acuity 20/20 OD, 20/60 OS
 - C. Picture of above conditions
 - D. Patient is allergic to Penicillin and Keflex
 - E. Treatment
 - 1. Polytrim gtts QID OS
 - 2. Zithromax
 - a. 1 Z-pack, use as directed PO
 - 3. Dilation and irrigation
 - a. Contraindication versus indication
 - 4. Confirmed nasolacrimal duct blockage, dacryocystorhinostomy DCR
 - 5. Discussion on treatment
- V. Augmentin
 - A. Amoxicillin and potassium clavulanate
 - B. Kills everything, because it is very broad
 - 1. 12 weeks old and older
 - C. Safe in pregnancy, category B
 - D. Watch for Penicillin allergies
 - E. Adults: 500mg BID (875mg BID)
 - F. Children < 100 pounds, oral suspension 25-45 mg/kg divided into two doses
 - G. Covers Staph, Strep, and Haemophilus influenzae
- VI. Zithromax (azithromycin)
 - A. Macrolide antibiotic
 - 1. Similar to erythromycin
 - B. Drug of choice in Penicillin sensitive patients
 - 1. Assess allergy of beta-lactams thoroughly
 - 2. Statistics of allergic potential and cross-reactivity
 - C. All age groups
 - D. Safe in pregnancy, category B
 - E. No renal adjustment
 - F. Adults: 250mg BID, day 1 and 250mg QD, day 2-5
 - 1. Dispense: 1 Z-pack as directed
 - G. Children <16: 10mg/kg, day 1 and 5mg/kg, day 2-5
 - H. Covers general gram (+) Staph, Strep, and Haemophilus influenza
 - I. Better tolerated than erythromycin, little GI upset
 - J. Chlamydia, 1 gram QD
- VII. Keflex (cephalexin)
 - A. Cross reaction with Penicillin sensitive patients (3-10%)
 - B. First generation, moderately affective against Penicillin-ase
 - C. Good for gram +, not good for Haemophilus which is gram –
 - D. Category B
 - E. Adult: 500mg BID for one week
 - F. Drug of choice for blow out fractures

- VIII. Ceftin (cefuroxime)
 - A. Cross reaction with Penicillin sensitive patients
 - 1. Less than with cephalexin
 - B. Second generation
 - C. Better for Haemophilus (-)
 - D. Children: 3 months to 12 years old, oral suspension 20-30mg/kg/day divided into two doses
 - E. Adults: 250mg BID for 10 days
 - F. Category B
- IX. Cipro (ciprofloxacin), Levaquin (levofloxacin)
 - A. End of the line antibiotic
 - 1. FDA commentary
 - B. Really effective, because they are so broad
 - C. Category C
 - 1. Avoid during pregnancy and breast feeding
 - D. Only use if 18 years old or older
 - E. 500mg BID for one week, Cipro
 - F. 500mg QD for one week, Levoquin
- X. Sulfa Drugs
 - A. Bactrim (sulfamethoxazole/trimethoprim)
 - B. Limited use...last line of defense
 - C. May cause Stevens Johnson Syndrome or Toxic Epidermal Necrolysis; photosensitivity
 - D. Avoid in pregnancy
 - 1. Category C
 - E. Avoid in sickle cell disease
 - F. Cross reaction with:
 - 1. Oral hypoglycemics
 - 2. Carbonic anhydrase inhibitors
 - 3. Celebrex
 - 4. Thiazide diuretics
 - 5. All of the above are sulfa-based
 - 1. Description of cross-reaction potential
 - G. Bactrim BID for ten days
 - H. Bactrim DS BID for ten days
- XI. Summary
 - A. Adults
 - 1. Augmentin
 - 2. Zithromax
 - 3. Keflex
 - 4. Cipro
 - 5. Bactrim
 - B. Children
 - 1. Augmentin

2. Zithromax
 3. Ceftin
 4. Avoid Cipro
 5. Bactrim
- XII. Baxdela (delafloxacin)
- XIII. Sivextro (tedizolid) vs. Zyvox (linezolid)
- XIV. Case 2- Rosacea Blepharitis
- A. 48-year-old male both eyes are red, gritty, sandy and dry
 - B. Visual acuity 20/20 OU
 - C. Show multiple pictures of rosacea, lid margins and conjunctiva
 - D. Treatment
 1. Warm compresses
 2. Lid hygiene
 3. Artificial tears
 4. Doxycycline 100mg QD for at least one month
 5. Dermatological consult
 6. Discussion on treatment
- XV. Vibramycin (doxycycline)
- A. Drug of choice for marginal inflammatory blepharitis
 - B. Antibiotic, anti-inflammatory and anti-collagenase
 - C. Avoid in children < 14 years of age
 - D. Category D
 1. Avoid in pregnancy and breast feeding
 - E. No renal adjustment
 - F. Can enhance coumadin
 - G. 50-100mg QD for 2-12 weeks
 - H. Lower maintenance dose
 1. 20 mg Periostat (Doxycycline)
 2. Helpful in those with stomach or GI sensitivity
 3. Excellent for those requiring long maintenance dose
 - I. My Paradigm for Minocycline / Doxycycline
 1. Status of MG
 - a. Inspissated
 - b. Turbid
 - c. Clear
 - J. Maximum dosage for 2-12 weeks (pulse)
 1. 100 mg BID, QD
 2. 50-100mg qd while turbid
 3. 20 mg longer treatments
 - K. Customize Treatment
 - L. 50 mg Minocycline with pill cutter (25 mg)
- XVI. New tetracycline antibiotics
- A. Nuzyra (omadacycline)
 - B. Seysara (sarecycline)

- XVII. Precautions with Oral Tetracycline Analogs
 - A. Enhanced photosensitivity
 - B. Avoid in children and pregnancy (Category D)
 - C. Can enhance Coumadin
 - D. Can enhance the action of digoxin
 - E. Benign intracranial hypertension, reported cases
 - 1. 17 cases from 1978-2002
- XVIII. Benign intracranial hypertension
"It's not rare if it's in your chair"
- XIX. Case 3- Varicella Zoster Virus, Herpes Zoster Ophthalmicus
 - A. 52-year-old male with red and painful OD
 - B. Visual acuity 20/30 OD, 20/20 OS
 - C. Show multiple pictures of lids and conjunctiva
 - D. Discussion on treatment
- XX. Oral Anti-Virals
 - A. Third generation, go into every cell but only activate in viral infected cells
 - B. First generation were mutagenic
 - C. Can be used prophylactically prior to PKP, LASIK or PTK
- XXI. Zovirax (acyclovir)
 - A. Good for simplex
 - B. Poor absorption
 - C. Dosage: 800mg 5 times per day
 - D. Maintenance dose: 200-400mg BID
 - E. Category B
- XXII. Famvir (famciclovir)
 - A. Proven to reduce post-herpetic trigeminal neuralgia
 - B. Drug of choice for zoster patients 50 years old and older
 - C. Dosage:
 - 1. Zoster 500mg TID
 - 2. Recurrent simplex 125-250mg BID
 - D. Category B
- XXIII. Valtrex (valacyclovir)
 - A. Pro-drug of acyclovir
 - B. GI upset
 - C. HSV-1, HSV-2 and VZV
 - D. Dosage: 1 g TID for one week
 - E. Category B
- XXIV. Case 4- Recurrent Herpes Simplex Keratitis
 - A. 47 year old female with a red and painful OD
 - B. Visual acuity 20/30 OD, 20/20 OS
 - C. First episode
 - 1. Discussion on treatment
 - D. Second episode
 - 1. Discussion on treatment

- E. Third episode
 - 1. Discussion on treatment
- XXV. Herpetic Eye Disease Study
 - A. HEDS I
 - 1. Benefit from steroids in stromal keratitis
 - 2. No benefit from oral acyclovir in stromal keratitis
 - 3. Benefit from steroids if iritis present
 - B. HEDS II
 - 1. No benefit from acyclovir to stop progression to stromal or iridocyclitis
 - 2. Maintenance dose 400mg BID, decreases recurrence by 41% within first year
- XXVI. Post Herpetic Neuralgia
 - A. Narcotics
 - B. Tri-cyclic antidepressants
- XXVII. Vaccinations for herpetic infections
 - A. When
 - B. How
 - C. Indications
 - D. Controversy
- XXVIII. Oral Pain Management in Eye Care
 - A. Two major types of pain:
 - 1. Nociceptive Pain – normal processing of stimuli that damages normal tissues; how pain becomes conscious;
 - 1. responsive to non-opioids and opioids
 - 2. Neuropathic: abnormal processing of sensory input by the peripheral or central nervous system
 - 1. treatment includes adjuvant analgesics
 - 2. sometimes much harder to treat
- XXIX. Drug Treatment Options for pain
 - A. 3 Groups of analgesics
 - 1. Non-opioids – acetaminophen & NSAIDs
 - 2. Opioids – μ agonists & mixed agonist-antagonists
 - 3. Adjuvants – multipurpose & specific to type of pain
 - 1. Sleep, depression, anxiety, muscle aches/spasms
 - 2. Anti-seizure medications that address nerve damage/inflammation
 - a. Gabapentin (Neurontin)
 - b. Pregabalin (Lyrica)
 - c. Topiramate (Topamax)
- XXX. Morphine-based
 - A. Morphine - CII
 - 1. Prototype – the one to which all other opioids are compared
 - 2. 30mg is the comparison

3. No maximum dose

B. Hydromorphone Products

1. Very potent - CII

1. Example: Compare to morphine

a. 30mg PO morphine = 8mg PO hydromorphone

2. Hydromorphone (Dilaudid) tablets (“take 1 – 2 tablets every 4 to 6 hours as needed for pain”) = typical dosing more MOST acute/immediate release pain medications

XXXI. Codeine-Based

A. Codeine – C3; Schedule III

1. Weak analgesic

1. 30mg PO morphine – 200mg PO codeine

2. Add acetaminophen/aspirin – Schedule III

1. Tylenol #2 = 300 mg acetaminophen & 15 mg codeine

2. Tylenol #3 = 300 mg acetaminophen & 30 mg codeine

3. Tylenol #4 = 300 mg acetaminophen & 60 mg codeine

4. 1 – 2 tablets every 4 – 6 hours as needed for pain (not to exceed 3 grams of APAP per day)

3. Add expectorant – Schedule V

B. Hydrocodone – C2; Schedule II

1. 30mg PO morphine = 20mg PO hydrocodone

2. With acetaminophen (APAP) = Vicodin, Lortab, Norco

3. MOVED to a CII med in 2014

4. Difficult move for practitioners who need a pain medication for optometric patient with mod/severe pain

5. “Hydrocodone exception” legislation

C. Oxycodone – C2; Schedule II

1. 30mg PO morphine = 20mg PO oxycodone

2. OxyCONTin (Controlled release tablets (q 12 hours...once in a while q 8 hours); new formulation is out to help control abuse

3. Oxycodone Products

1. Immediate Release; short-acting tablets

a. OxyIR (IR cap) 5 mg

b. with APAP:

i. *Percocet* and *Endocet* (oxycodone/APAP dose) –
2.5/325, 5/325, 7.5/325 tablets

1. 500mg APAP no longer available

XXXII. Adverse Effects that concern patient care

A. Constipation

1. “You need the mush and the push!”

2. Miosis

3. Sedation

4. Respiratory Depression

1. Increased with other CNS depressants
2. Know what your patient is taking!

XXXIII. Tramadol – a great choice

- A. Tramadol (Ultram) tabs
- B. Tramadol with 325 mg APAP (Ultracet), Tramadol ER tabs
- C. tramadol (50 – 100 mg q 4 – 6 hours; do not exceed 400 mg/day)
 1. Dual action: mu receptors & inhibits neuronal uptake of serotonin & norepinephrine
 2. Lowers seizure threshold; increases serotonin levels
 1. watch drug interactions with other meds that ↑ serotonin
 - a. Selective serotonin reuptake inhibitors (SSRIs):
fluoxetine/Prozac
 - b. Migraine meds (“triptans”): sumatriptan/Imitrex
 - c. No significant sedation potential
 3. Not controlled
 1. AS OF AUGUST 2014, NOW A C4 (Schedule IV)
 2. “tramies” = abuse potential; helps decrease withdrawal symptoms

XXXIV. Questions

XXXV. Thank-you