TAKE THE MYSTERY OUT OF ORAL MEDICATIONS

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- No financial disclosures
CATEGORIES

- I ) ANTIBIOTICS
- II ) ANTIVIRALS
- III ) PAIN RELIEF
- IV ) STEROIDS
ORAL ANTIBIOTICS: OCULAR INDICATIONS

• Beat the bugs!
• Rosacea / Ocular Rosacea
• Dacryoadenitis
• Dacryocystitis
• Preseptal Cellulitis
• Hordeola / Chalazia
• Blowout Fractures
COST

• $4 (30 day) and $10 (90 day) lists for generics at Kroger, Walmart, Target etc.
• Indicated by an *
• Meijer has some generic antibiotics for free (Cipro, Cephalexin, Amoxicillin, PCN-VK, Ampicillin, SMZ-TMP)
CEPHALEXIN *

- 250 or 500 mg (QID or BID)
- Excellent broad spectrum cephalosporin
- Bactericidal
- Cross sensitivity with penicillin regarding allergies but not with everyone
- Keflex brand is very expensive!
- Up to 40% failure rate with facial cellulitis due to resistance
DICLOxacillin

- Penicillinase resistant penicillin
- Great for soft tissue infections
- Bactericidal
- Nausea, allergies, diarrhea
- 250 mg QID or 500 mg BID
- Inexpensive
AUGMENTIN

• Amoxicillin plus clavulanate: 250 , 500 mg TID or 875mg BID
• Works on bugs that are resistant to penicillin due to penicillinase
• Bactericidal, good coverage, allergies
• 500mg now available generically, but more expensive than dicloxacillin
TETRACYCLINE*

• 250 or 500 mg QID
• Bacteriostatic but much resistance
• Poor for soft tissue disease
• Can not be used in pregnant women or children due to effect on bone and enamel formation (discoloration of teeth)
• Makes BC Pill less effective. Yeast infections.
• Photosensitivity, stomach upset, calcium inactivation (take on empty stomach)
• Great lipid / acid modulating effects
DOXYCYCLINE

- 50 or 100 mg BID
- Periostat: 20mg (mostly dental use)
- In tetracycline family
- Can take with food
- Less problems with photosensitivity
- Still get stomach upset
- As effective as tetracycline but fewer side effects, better dosing.
- Oraee (30/10) $$$$$$$$$$$ (very expensive)
- Doxy used to be inexpensive, but not now. Cost went up 10 fold. Used to be on $4 plans, but no longer. Several generic makers stopped making it, cost went up
- Can also use minocycline
AZITHROMYCIN
• Zithromax Z-pack: 6, 250 mg capsules. Is a macrolide. Moderate price
• Take 500 mg (2) the first day and one 250 mg tablet each of the next 4 days
• Can also take a single, 1000 mg dose (for chlamydia for example)
• May enhance the effect of oral anticoagulants
• Expensive but great for compliance
• 2 X risk of sudden cardiac death in heart patients
AZITHROMYCIN

- Now has FDA warning for fatal arrhythmia
- Greater risk if prolonged QT interval, bradycardia, hypomagnesia. Some studies refute this risk, so controversial
- Many experts calling for ban due to resistance concerns. Long half life and broad spectrum contribute majorly to overall resistance.
- Can be as effective in treating rosacea / MGD / chalazia as the tetracycline / doxyccline family of drugs
ERYTHROMYCIN*

- Ery-tab sustained release tablets 250, 333, or 500 mg. Dose is 1000 mg (1 gram) per day so dose according to tablet
- Can use safely when tetracycline family cannot be used (children, etc.)
- Bacteriostatic and terrible stomach upset
- Dose not have the lipid/acid modulating properties of the tetracyclines
- Never a first choice
ERYTHROMYCIN

• Increased risk of sudden cardiac death
• Two-fold increase of very low risk when taken alone
• Five-fold increase when taken with the following drugs......
  Diltiazim, Fluconazole, Itraconazole, Ketoconazole, Verapamil
• These drugs slow the breakdown of E-mycin resulting in increased concentration which in turn increases cellular sodium levels in resting heart muscle cells triggering an arrhythmia
BACTRIM

• Trimethoprim and Sulfamethoxazole: one tablet contains 80 mg T and 400 mg S (also available in double strength). One double-strength tablet Q12h
• Can not use if patient has sulfa allergy
• Good against MRSA and toxoplasmosis
CIPROFLOXACIN*

- Fluoroquinolone: 750 / 500 / 250 BID
- 5mg/100ml suspension
- Effective but overused so resistance an issue. Lavaquin shows less resistance
- Can not use in patients under 18 due to joint / tendon problems
- Possible increased risk of RD? 3% vs. .6%. Other large studies refute this
ORAL FLUOROQUINOLONES

- Significant side effects......
- Peripheral neuropathy
- Tendon rupture
- Heart arrhythmia
- Dysglycemia in diabetics
ORAL ANTIVIRALS

- Used to manage Herpes Simplex and Herpes Zoster
ORAL ANTIVIRALS-DOSING SIMPLEX

- Acyclovir (200*,400,800) : typically 800mg TID, varies
- Prophylactic dosing 400mg BID
- Also available in a pediatric suspension
- 200 mg available on $4 / $10 plans, but only allocated one 200 mg tablet per day, so problematic

- Famvir (125,250,500)
- 500mg TID

- Valtrex (500,1000)
- 500 mg TID
ORAL ANTIVIRALS-DOSING ZOSTER

- Acyclovir: 800mg 5X day for 10 days
- Famvir: 500mg TID x 1week (may be antiviral of choice with zoster; can kill latent virus particles)
- Valtrex: 1000 mg TID X 1 week
SIDE EFFECTS OF ANTIVIRALS

• Very safe
• Significant caution with renal impairment: only true contraindication other than allergy
• Headache
• GI upset / abdominal pain
H.E.D.S. (HERPETIC EYE DISEASE STUDY) - FINDINGS

- Prophylactic 400 mg of oral Acyclovir (Famvir / Valtrex not studied) twice per day for one year resulted in a 45% decrease in the rate of recurrence for all forms of ocular complications
- Over the six months after discontinuation, there was no rebound increase but no continued benefit, so have to keep taking it
- Interestingly, the benefit mostly applied to those with previous stromal disease, not previous dendrites alone in this study
RECENT STUDY

- Olmstead County, Minnesota (394 patients)
- Those NOT taking prophylactic antivirals were......
- 9.4 X more likely to have epithelial recurrence
- 8.4 X more likely to have stromal rec.
- 34.5 X more likely to have lid / conj. rec.
PROPHYLAXIS

• So........

• At least discuss prophylaxis for all patients with stromal disease and patients with multiple attacks of epithelial disease
• Acyclovir 400mg PO BID
• Very safe, caution in severe kidney disease
PROPHYLAXIS

However: Report in Journal of Infectious Disease 2013:208 (November) 1359-1365 and an editorial in the same issue.....

• Are we creating Acyclovir resistant strains of HSV with prophylactic use?
• In cases using Acyclovir for ocular prophylaxis, 26% showed ACV resistance. So now we must consider this
ORAL PAIN MEDICATIONS

- Manage underlying condition appropriately first from an ocular standpoint
- Topical/ocular pain control......
- Cycloplegia
- NSAIDS
- Steroids
- Bandage CL
- Topical anesthetic in office only
PAIN MEDICATIONS

- If topical management is not enough, then consider oral pain relief
- Laws vary for OD’s regarding use of controlled substances

Two broad categories...

- OTC pain relief, mostly NSAID’s
- Narcotic pain relief
NSAIDS

- OTC NSAID’s are often enough to mitigate ocular pain
- Aspirin, Ibuprofen, APAP, naproxen
- Common Trade names aspirin, Advil, Tylenol, Aleve
- Aspirin 81mg, 325-500mg
- Advil 200mg
- Tylenol 325-500mg
- Aleve 220mg
RX NSAIDS

- Indomethacin (Indocin) 25, 50 mg
- Naproxen (Anaprox) 275, 550 mg
- Ibuprofen (Motrin) 200-800 mg
- Indomethacin very good for scleritis. TID dosing
COMMON NSAID CONCERNS

• GI upset (take with food or drink, don’t lie down for 30 minutes)
• Bleeding
• Ulcers

• Caution also with renal disease, heart disease, liver disease (mostly APAP)
• Rx strength particularly problematic with heart disease
TRAMADOL (ULTRAM): USED TO BE NON-NARCOTIC, BUT NOW A CONTROLLED SUBSTANCE

- Immediate release (50-100 mg) and extended release (100-300 mg) versions
- Maximum dose 300mg /day
- Dose q 6-8 h
- Schedule IV, so limited (but possible) abuse potential
NARCOTIC PAIN RELIEF

• As an OD, may or may not have authority to use (only Tramadol in Indiana)
• Standard warnings.....no alcohol, don’t operate machinery
NARCOTIC SIDE EFFECTS

- Constipation very common, and can be severe
- Nausea and vomiting: often ceases after first few doses
- Sedation
- Lack of mental clarity
- Respiratory depression (most severe)
NARCOTIC PAIN RELIEF

- DEA Scheduled substances
- I-V
- Schedule one has high abuse potential, schedule 5 very limited abuse potential

- Two types of dependence....
- Psychological and physical
- Physical usually requires 2 weeks of therapy or more
OXYCODONE

- Schedule II: high abuse potential with severe dependence risk
- Percocet: 5mg with 325 mg of APAP
- Percodan: 4.5mg with 325 of APAP
- Tylox: 5mg with 500mg of APAP
HYDROCODONE

- Schedule II now
- Lortab: 2.5,5,7.5 mg with 500mg APAP
- Vicodin: 5mg with 500mg APAP
- Vicodin ES: 7.5MG with 500mg APAP
- Norco: 5,7.5,10 with 325 APAP
- Zohydro ER: 10,15,20,30,40,50
CODEINE

- Schedule III
- Tylenol with Codeine, all have 300mg of APAP
- Tylenol #2 : 15mg
- Tylenol #3 : 30mg
- Tylenol # 4 : 60 mg
ORAL STEROIDS

• When oral steroids are used appropriately for a relatively short time they are very, very safe
• After all, they are basically a natural substance already found in the body
• Be aware of body weight when dosing
WHO DOESN’T GET ORALS, OR GETS THEM VERY, VERY CAREFULLY

- Diabetics
- Patients with stomach problems / ulcers
- Patients with active infection
- Pregnant women
WHAT CAN THEY DO THAT’S BAD?

- Almost nothing in the short term!
- Increase Na⁺, decreased K leading to fluid retention
- Hypertension
- Elevate blood glucose levels
- Stomach pain and ulcers
- Insomnia, euphoria, psychosis
- Thin skin / bruising
- Osteoporosis
- Increased ICP
- PSC’s (more than topicals)
- Increased IOP (less than topicals)
WHAT CAN THEY INTERACT WITH?

- Screw up glucose control
- ASA, Coumadin
- Digoxin
- Some antibiotics, anti-seizure meds, anti-TB meds (TB itself is a strong relative contraindication)
WHAT DO THEY DO THAT’S GOOD?

• Duh!.............they decrease inflammation and therefore inflammatory sequelae
WHAT CAN WE USE ORAL STEROIDS FOR IN EYE CARE?

- Contact dermatitis / allergic response of the eye lids
- Reaction to insect bite or sting on the eye lids
- Recalcitrant CME
- Recalcitrant uveitis, especially bilateral or vitritis
- Choroiditis / retinitis
- Scleritis
USES OF ORALS IN EYE CARE

- Myasthenia Gravis
- Inflammatory orbital pseudotumor
- Thyroid eye disease / Grave’s ophthalmopathy
- Optic neuritis (but not by themselves!)
- GCA
- DLK post LASIK (in conjunction with topicals)
OCULAR SIDE EFFECTS OF ORAL STEROIDS

• These are well known................PSC’s and increased IOP
• IOP increases are rare, but can occur with very long term use
• PSC’s are not rare!
• 10 mg per day or less for one year or less has almost no chance of PSC formation
• 16 mg per day or more for several years has a 75% chance of PSC formation
• Overall, general population has a .5% chance of PSC development while those on long term oral steroids have a 30% prevalence (across doses)
ORAL STEROIDS

- Oral steroids are generally prescribed in one of two ways........
- 1) Medrol dose pack (methylprednisolone)
- 2) Prednisone 10mg tablets
COMPARISONS

- When it comes to suppressing the HPA (hypothalamic-pituitary-adrenal) axis.............
- 25mg Cortisone = 20mg Hydrocortisone = 5mg Prednisone = 4mg Triamcinolone = 4mg Methylprednisone = .75mg Dexamethasone
- Potency essentially follows this order but in reverse
- Body produces an amount of cortisone that equals 5mg of prednisone per day
MEDROL DOSE PACK

• Available in different strengths
• Most commonly used is a package of 21, 4 mg tablets (2 mg is available)
• Six are taken the first day, then one less each day thereafter (6-5-4-3-2-1 = 21 tablets)
• Self tapering and little to no suppression of the HPA axis
• In eye care, really only strong enough and long lasting enough for treatment of lid reactions
PREDNISONE*

• Most common dosing is to give the desired amount in 10 mg tablets (need 40 mg, take 4 pills)
• Is available in 1, 2.5, 5, 10, 20, and 50 mg tablets
• Best choice for most of our desired uses in eye care
• Potent and flexible
DOSING

• Up to 60 mg, take entire dose in the morning
• Over this amount take ½ in morning, ½ in evening
• As previously mentioned, Medrol dose pack self tapers
• With prednisone, after relatively short course at full desired strength (say 2-3 weeks or so), taper by ten milligrams every other day
DOSING

- An alternative approach is to give twice the desired dose every other day then don’t taper. Only for short term use
- Theory is that anti-inflammatory properties remain high but suppression of HPA axis is much, much less
- For long term use taper must be very slow
- As OD’s we rarely would be involved in the long term prescription of oral steroids
THE END!

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