ORALS AND THE EYE

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Course Description

This course will serve to educate the optometrist on proper protocol, prescribing, and contraindications for the most commonly prescribed oral medications for the eye and adnexa. This course will briefly refresh the clinician on the pharmacology of these medications, but it will mainly focus on contemporary prescribing considerations through the use of clinical case presentations.

Course Objectives

- To briefly refresh the clinician on the pharmacology of common oral medications
- To go over the indications and contraindications of the following oral mediations
    - Oral antibiotics
    - Oral antivirals
    - Oral steroids
    - Oral analgesics
    - Oral glaucoma agents
    - Oral nutraceuticals
- To highlight common uses for the above medications through use of case presentations in a "rapid fire" format

Outline

I. Antibiotics

A. Penicillins

1. Review of mechanisms of action
2. Importance of penicillinase resistance
3. Dicloxacillin (typically 250mg qid x 1 week)
4. Augmentin (typically 500, 875, or 1000mg bid x 1 week)
5. Indications and contraindications (eg. allergy to drug class)

B. Cephalosporins

1. Review of mechanisms of action (related to penicillins)
2. Cephalexin (Keflex) (typically 500mg bid x 1 week) most common
3. Indications and contraindications (eg. anaphylaxis to penicillins)

C. Macrolides

1. Review of mechanisms of action
2. Erythromycin (typically 500mg tid x 1 week)

3. Azithromycin ("Z-pac" vs 250mg, 500mg, 1000mg – Chlamydia)
4. Indications (pregnancy category B) and contraindications

D. Fluoroquinolones
1. Mechanisms of action
2. Levofloxacin (typically 500mg qd x 1 week)
3. Indications (true penicillin allergy, etc) and contraindications

II. Antivirals
A. Mechanisms of action
1. Naturally inactive, phosphorylated in vivo
2. Usually safe (pregnancy category B)
3. Renal considerations (excreted through urine)

B. Indications (eg. HSV/VZV) / contraindications
1. Contraindications (special considerations for kidney disease)
2. Acyclovir (typically 400mg 5x/day x 1 week for HSV)
3. Valacyclovir (Valtrex) (typically 500mg tid x 1 week for HSV)
4. Famcyclovir (Famvir) (typically 250mg tid x 1 week for HSV)
5. Typically double the strength for VZV

III. Analgesics
A. Acetaminophen
1. Mechanisms of action (part of which are still unknown, does have ceiling effect)
2. Analgesic and antipyretic properties
3. Synergy with narcotic agents (combination medications)
4. Contraindications (liver considerations)

B. NSAIDS
1. Mechanisms of action (inhibit cyclooxygenase, no effect on leukotrienes, do have ceiling effect)
2. Mimic glucocorticoids
3. Ibuprofen (most commonly prescribed)
4. 1600mg ibuprofen (two 200mg qid) approaches analgesia of narcotics
5. Contraindications (eg. bleeding disorders, hypersensitivity)

C. Narcotics
1. Mechanisms of action (direct effect in opioid receptors, mimic morphine – take with food)
2. CNS effects (do not mix with alcohol, etc.)
3. 5 schedules (schedule III by far most commonly prescribed)
4. Codeine vs hydrocodone (less nausea with hydrocodone)
5. Most commonly prescribed in combination with acetaminophen (Vicodin, Lortab)
6. Contraindications (eg. hypersensitivity, respiratory considerations)

IV. Steroids
    A. Corticosteroid mechanisms of action (inhibit arachidonic acid formation – cuts off the rest of the inflammatory cascade)
    B. Indications (relieve ocular pain CAUSED BY inflammation)
    C. Protect against inflammatory damage (scarring, etc.))
    D. Typical dosing (readily available in 5/10mg tablets vs. "dose-paks")
    E. The art of tapering – mathematically easy due to 5/10mg tablets
    F. Contraindications (eg. caution with diabetes/infectious disease, etc.)

V. Glaucoma Agents
    A. Carbonic anhydrase inhibitors
        1. Diamox (acetazolamide) 250mg qid or 500mg sequels
        2. Methazolamide (25-50mg qid)
        3. May be used as additive therapy
        4. Contraindications (eg. pregnancy, kidney, liver, lung considerations)
        5. Caution with some secondary glaucomas
        6. Methazolamide generally safer than acetazolamide
        7. Both have good bioavailability in their generic forms

    B. Calcium channel blockers
        1. May emerge as a viable therapy for normal tension glaucoma
        2. Vasodilate (as do CAI's)
        3. Ca++ excititoxicity implicated in several neurological conditions (Parkinson, etc.)

    C. Hyperosmotics
        1. Rule out diabetes mellitus
        2. Indicated for acute narrow angle glaucoma with IOP >/=50mmHg

    D. Donezepil
        1. Used to increase bloodflow in Alzheimer's disease
        2. Optic nerve is part of the CNS, also
        3. May emerge as additive therapy for normal tension glaucoma

VI. Nutraceuticals
    A. AREDS / AREDS 2 /AREDS 3???
        1. Avoid beta-carotine in smokers???
        2. Results of AREDS 2 – omega-3 FA's, etc.
        3. Interactions (warfarin, etc.)
    B. Nutritional optic neuropathy
        1. B vitamin complex supplementation, etc.
    C. Glaucoma
        1. THC (drawbacks and clinical trial results)

2. Ginkgo (typically 150mg qd) may increase bloodflow

D. Dry eye syndrome
    1. Omega-3 FA's (Fish oil, flaxseed, cold water fish, etc.)
    2. Relationship to inflammation, tear production, meibum secretion

E. Retinitis pigmentosa
    1. Vitamin A (palmitate formulation) 15,000 IU's – liver considerations
    2. Lutein may also help slow peripheral loss

G. This is a BIG business – ask patients about ALL medications (not just Rx's)