

# Oral Medications in Eye Care

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2 hours Continuing Education

**Course Category:** Oral Pharmacology

**Course Description:**

This course will review and discuss the use of oral pharmaceuticals in the treatment and management of patients in the optometric setting. Specific attention will be given to the oral pharmaceutical formulary of the Florida optometrist. A variety of clinical pearls in treatment and management of bacterial and viral infections will be reviewed in case examples, and the role of pain control medications will be discussed. The optometrist will learn practical and useful information in prescribing and dosing practices, thereby increasing his or her comfort level in treating ocular infections.

**Course Objectives:**

1. Review categories of oral agents used in eye care
  - a. Antibiotics
  - b. Antivirals
  - c. Carbonic anhydrase inhibitors
  - d. Analgesics
  - e. Anti-inflammatory
  - f. Antihistamines
2. Review and identify the most appropriate oral medication for use in ocular infections
3. Review potential adverse reactions to oral medications and alternative therapies for ocular infection
4. Review and apply prescribing practices to specific case examples

**Course Outline**

1. Disclosures
  - a. Katherine S. Dunatov, O.D. – no financial disclosures
2. Considerations when prescribing medications
  - a. Age – adult vs pediatric dosing
  - b. Allergies
  - c. Medication interactions
  - d. Dosing regimen → compliance
  - e. Cost – insurance vs self-pay patient
  - f. Current medical conditions and medical history (i.e. h/o substance abuse)
  - g. Pregnancy
  - h. Therapeutic goal

3. FDA Pregnancy Categories – the ones we all know

- a. Category A
  - i. Well-controlled studies in pregnant women
  - ii. No risk - safe
- b. Category B
  - i. Animal studies indicate no risk
  - ii. No well-controlled studies in pregnant women
  - iii. Safe
- c. Category C
  - i. Animal studies show adverse effect
  - ii. No adequate/well-controlled studies in humans
  - iii. Benefits may warrant use of drug in pregnant women, despite risks
- d. Category D
  - i. Positive evidence of human fetal risk
  - ii. Benefits may warrant use of drug in pregnant women, despite risks
- e. Category X
  - i. Demonstrated fetal abnormalities and/or positive evidence of human fetal risk
  - ii. AVOID

4. FDA Pregnancy Risk Categories – new/updated; narratives

- a. Pregnancy
- b. Lactation
- c. Reproductive Potential

5. Florida Oral Medications Formulary

- a. Medications and Categories
  - i. Antibiotics or their generic/therapeutic equivalents:
    - 1. Amoxicillin with or without clavulanic acid
    - 2. Azithromycin
    - 3. Erythromycin
    - 4. Dicloxacillin
    - 5. Doxycycline/Tetracycline
    - 6. Keflex
    - 7. Minocycline
  - ii. Antivirals or their generic/therapeutic equivalents:
    - 1. Acyclovir
    - 2. Famciclovir
    - 3. Valacyclovir
  - iii. Oral Anti-glaucoma agents or their generic/therapeutic equivalents which may not be prescribed for more than 72 hours:
    - 1. Acetazolamide
    - 2. Methazolamide
  - iv. Analgesics
    - 1. Tramadol hydrochloride
    - 2. Acetaminophen 300mg with No. 3 codeine phosphate 30mg

## 6. Antibiotics

- a. Amoxicillin with or without clavulanic acid
  - i. Indications for use in eye care
  - ii. Dosing / Cost \$
  - iii. Adverse reactions
- b. Azithromycin
  - i. Indications for use in eye care
  - ii. Dosing / Cost \$
  - iii. Adverse reactions
- c. Erythromycin
  - i. Indications for use in eye care
  - ii. Dosing / Cost \$\$
  - iii. Adverse reactions
- d. Dicloxacillin
  - i. Indications for use in eye care
  - ii. Dosing / Cost \$\$\$
  - iii. Adverse reactions
- e. Doxycycline/Tetracycline
  - i. Indications for use in eye care
  - ii. Dosing / Cost \$-\$
  - iii. Adverse reactions
- f. Cephalexin
  - i. Indications for use in eye care
  - ii. Dosing / Cost \$
  - iii. Adverse reactions
- g. Minocycline
  - i. Indications for use in eye care
  - ii. Dosing / Cost \$\$-\$\$\$
  - iii. Adverse reactions

## 7. Antibiotics Case Examples

- a. Case #1 – Meibomian Gland Dysfunction (Posterior blepharitis)
  - i. Pertinent medical information/examination findings
  - ii. Picture of above conditions
  - iii. Oral medication treatment options
  - iv. Follow-up
- b. Case #2 – Internal Hordeolum
  - i. Pertinent medical information/examination findings
  - ii. Picture of above condition
  - iii. Oral medication treatment options
  - iv. Follow-up
- c. Case #3 – Preseptal Cellulitis
  - i. Pertinent medical information/examination findings
  - ii. Picture of above condition
  - iii. Oral medication treatment options
  - iv. Follow-up
- d. Case #4 – Chlamydial Conjunctivitis
  - i. Pertinent medical information/examination findings
  - ii. Picture of above condition

- iii. Oral medication treatment options
- iv. Follow-up
- e. Case #5 – Ocular Rosacea
  - i. Pertinent medical information/examination findings
  - ii. Picture of above condition
  - iii. Oral medication treatment options
  - iv. Follow-up/Maintenance dosing

## 8. Antivirals

- a. Acyclovir, Valacyclovir, Famciclovir
  - i. Indications for use in eye care
  - ii. Dosing / Cost \$-\$\$
  - iii. Adverse reactions
  - iv. Vaccines
    - 1. Shingrix → 2 step recombinant/adjuvanted vaccine
    - 2. Zostavax → 1 step live vaccine
    - 3. Varivax → 2 step live vaccine (Varicella prophylaxis)

## 9. Antivirals Case Examples

- a. Case #1 – Herpes Zoster
  - i. Pertinent medical information/examination findings
  - ii. Picture of above condition
  - iii. Oral medication treatment options
  - iv. Follow-up
- b. Case #2 – Herpes Simplex
  - i. Pertinent medical information/examination findings
  - ii. Picture of above condition
  - iii. Oral medication treatment options
  - iv. Follow-up
- c. Corticosteroid use in Herpes Zoster and Herpes Simplex
- d. HEDS studies review; maintenance dosing

## 10. Oral Glaucoma medications/Carbonic Anhydrase Inhibitors

- a. Acetazolamide
  - i. Indications for use in eye care
  - ii. Dosing / Cost \$
  - iii. Adverse reactions
- b. Methazolamide
  - i. Indications for use in eye care
  - ii. Dosing / Cost \$\$
  - iii. Adverse reactions

## 11. Oral Glaucoma medications/Carbonic Anhydrase Inhibitors Case Examples

- a. Case #1 – Glaucoma
  - i. Pertinent medical information/examination findings
  - ii. Picture of above condition
  - iii. Oral medication treatment options
  - iv. Follow-up

## 12. Analgesics

- a. Controlled substances - overview
  - i. Tramadol hydrochloride (Ultram)
    - 1. Schedule IV
    - 2. Indication for use in eye care
    - 3. Dosing / Cost \$
    - 4. Adverse reactions
  - ii. Acetaminophen 300mg/No. 3 Codeine Phosphate 30mg (Tylenol #3)
    - 1. Schedule III
    - 2. Indications for use in eye care
    - 3. Dosing / Cost \$
    - 4. Adverse reactions
- b. Over the Counter
  - i. Tylenol
    - 1. Indication for use in eye care
    - 2. Dosing / Cost \$
    - 3. Adverse reactions

## 13. Analgesics Case Examples

- a. Case #1 – Severe corneal abrasion
  - i. Pertinent medical information/examination findings
  - ii. Picture of above condition
  - iii. Oral medication treatment options
  - iv. Follow-up

## 14. Anti-inflammatories

- a. Prednisone
  - i. Indications for use in eye care
  - ii. Dosing / Cost \$
  - iii. Adverse reactions
- b. Medrol Dose Pack
  - i. Indications for use in eye care
  - ii. Dosing / Cost \$
  - iii. Adverse reactions
- c. NSAIDS – Over the Counter
  - i. Aspirin
    - 1. Indications for use in eye care
    - 2. Dosing / Cost \$
    - 3. Adverse reactions
  - ii. Ibuprofen
    - 1. Indications for use in eye care
    - 2. Dosing / Cost \$
    - 3. Adverse reactions
  - iii. Naproxen
    - 1. Indications for use in eye care
    - 2. Dosing / Cost \$
    - 3. Adverse reactions
- d. Comparison of Opioid vs Non-opioid treatment for pain
  - i. Summary chart (Percentage of people with 50% pain relief (above placebo))

- ii. Advil Dual Action → 250mg Acetaminophen, 125mg Ibuprofen per tablet
  - 1. 2 tabs q8n NTE 6 tabs q24h
  - 2. FDA approved 02/2020

#### 15. Anti-inflammatories Case Examples

- a. Case #1 – Temporal Arteritis
  - i. Pertinent medical information/examination findings
  - ii. Picture of above condition
  - iii. Oral medication treatment options
  - iv. Follow-up
  
- b. Case #2 – Uveitis
  - i. Pertinent medical information/examination findings
  - ii. Picture of above condition
  - iii. Oral medication treatment options
  - iv. Follow-up

#### 16. Antihistamines

- i. **H1 (allergy related)** and H2 (gastro-intestinal related)
- ii. H1 → 1<sup>st</sup> and 2<sup>nd</sup> generation antihistamines
  - 1. 1<sup>st</sup> generation → BENADRYL, MECLIZINE → strong sedative effect and less anti-cholinergic effect
    - a. Anti-emetic agents
    - b. Anti-allergic agents
    - c. Motion sickness agents
  - 2. 2<sup>nd</sup> generation → CLARITIN, ZYRTEC, ALLEGRA → strong anti-cholinergic effect and less sedative effect
    - a. Anti-allergy only
  
- iii. Indications for use in eye care
- iv. Dosing / Cost \$
- v. Adverse reactions

#### 17. Antihistamine Case Example

- a. Case #1 – Allergic conjunctivitis in combination with allergic rhinitis
  - i. Pertinent medical information/examination findings
  - ii. Picture of above condition
  - iii. Oral medication treatment options
  - iv. Follow-up