Course Description
Sometimes topical medications are just not enough. This course reviews common oral medications used in clinical practice and provides a common sense approach to judicious use of oral medications. Case presentations are used to highlight practical application of basic concepts. Emphasis is placed on oral analgesics and anti-infectives.

1) Oral Medications
   a) Analgesics
   b) Anti-infectives
   c) Anti-inflammatories
   d) Antihistamines
   e) Nutraceuticals
   f) Glaucoma Medications

2) General Considerations
   a) Patient Characteristics
   b) Remember Rule #1 for using oral medications “Each patient is an individual”
   c) Medication Characteristics

3) Patient Characteristics
   a) Age
   b) Socio-economic status
   c) Known allergies
   d) Ocular Health History
   e) Systemic Health History
   f) Other Medications
   g) Compliance

4) Formulation/Delivery
   a) Oral
   b) IV
   c) IM
   d) Inhalation
   e) Topical
   f) Transdermal
   g) Buccal or sublingual
   h) Subcutaneous
   i) Rectal

5) Metabolism/Excretion
   a) Liver
   b) Kidney

Remember no drug has an isolated effect. All drugs create a variety of responses in the body. We use the desired effect of a drug but this must always be balanced against the unwanted effects.

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Oral Anti-Infectives in Primary Eye Care

6) General Considerations
   a) Drug mechanism of action
   b) Cross reactions
   c) Side Effects
   d) Goal of Therapy?
   e) Target tissue

7) Drug Classifications
   a) Inhibit Cell Wall
      i) The Penicillins
      ii) The Cephalosporins
   b) Alter Protein Synthesis
      i) Tetracyclines
      ii) Macrolides
   c) Alter Nucleic Acid
      i) Fluoroquinolones
      ii) Antimetabolites
      iii) Trimethoprim
      iv) Sulfamethoxazole

8) Common Oral Antibiotics
   “The Solid Six”
   a) Amoxicillin w clavulanic acid
      i) Augmentin
      ii) 250-500 mg qid for 10 -14 days
      iii) Now 500-875mg bid
      iv) Great in children Hemophilus
      v) Use in
         (1) dacryocystitis
         (2) dacryoadenitis
         (3) preseptal cellulitis
   b) Cephalexin
      i) Keflex
      ii) 250-500 mg qid 10-14 days
      iii) 10-15% cross reaction with penicillins
      iv) Treat
         (1) dacryocystitis
         (2) dacryoadenitis
         (3) preseptal cellulitis
      v) Good In Children
   c) Tetracycline
      i) Achromycin V
      ii) 250-500 mg qid for 10-14 days
      iii) Not in children or pregnant or nursing mothers, sun exposure
      iv) Treat

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(1) meibomianitis
(2) blepharitis,
(3) chlamydia,
(4) ocular rosacea
v) Cheaper than doxycycline

d) Doxycycline
   i) Vibramycin
   ii) 100 mg bid for 10-14 days
   iii) Not in pregnant nursing mothers
   iv) Treat
       (1) Same as tetracycline

e) Erythromycin
   i) E.E.S. 400
   ii) 400 mg qid for 10-14 days or longer
   iii) Safer in kidney problems
   iv) The workhorse substitute
   v) Careful with antihistamines
   vi) Not H. flu

f) Trimethoprim and Sulfamethoxazole
   i) Septra and Bactrim and DS
   ii) 2 Step block
   iii) 80mg/400mg 160mg/800mg q 12h for 10-14 days
   iv) Soft tissue infections
   v) Not in children < 2 mos and not in pregnant or nursing mothers, sickle cell disease

g) Others
   i) Biaxin- Toxoplasmosis
   ii) Azithromycin
   iii) Ceclor-2nd gen Cephalosporin good in children
   iv) Ciprofloxacin not in pregnant

9) Some Helpful Hints
   a) What have they taken before?
   b) Kids and drugs
   c) Clark's Rule
   d) Adult dose X child's weight / 150
   e) Pharmacists are our friends

Analgesic Therapy in Primary Eye Care

10) Classification
   a) Over The Counter
   b) Prescription
      i) Legend
      ii) Controlled Substances
         (1) Schedule I
         (2) Schedule II
         (3) Schedule III
         (4) Schedule IV
         (5) Schedule V
11) Pain Mechanism
   a) Arachidonic Acid Pathway
      i) Prostaglandins
      ii) Nocioceptors
   b) Pain is a subjective response
      i) Individual variability
      ii) Two components
         (1) Biological-Somatic, Visceral, Neurological

12) Classification of Analgesics
    a) Nonnarcotic Analgesics
       i) Salicylates
       ii) Nonacetylated Salicylates
       iii) NSAID’s
       iv) Acetaminophen
    b) Narcotic Analgesics
    c) Combination

13) Clinical Indications For The Use of Analgesics
    a) Cornea/Conjunctival FB
    b) Cornea/Conjunctival Abrasion
    c) RCE
    d) Post Refractive Surgery
    e) Blunt Ocular Trauma
    f) Anterior Uveitis
    g) Mostly Anterior Segment Based.

14) NSAIDS
    a) Analgesic
    b) Anti-inflammatory
    c) Antipyretic
    d) Not Curative
    e) Mechanism Of Action
       i) Inhibit Cyclo oxygenase
       ii) Interferes with formation of prostaglandins
          (1) PGs Systemic Effects
             (a) Pain
             (b) Inflammation
             (c) Platelet aggregation
             (d) Protect the gut
             (e) Inhibit water retention
             (f) Bronchoconstriction
          (2) PGs Ocular Effects
             (a) Miosis
             (b) Vasodilation
             (c) Altered IOP

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iii) NSAIDS Side Effects
   (1) GI Upset
   (2) Increase bleeding
   (3) Water and sodium retention
   (4) Allergic reaction
   (5) Decrease renal blood flow

f) NSAIDS Oral Analgesics
   i) Salicylates
      (1) Aspirin
      (2) ASA
      (3) Reyes Syndrome
      (4) Ceiling Effect
      (5) 650 mg qid for analgesic effect
      (6) Oldest
      (7) Peripheral
   ii) Indole Derivatives
       (1) Indocin
           (a) Inflammatory
           (b) High side effects
       (2) Ketorolac
           (a) Toradol
           (b) Good analgesic
   iii) Proprionic Acid Derivatives
        (1) Ibuprofen
           (a) Motrin, Advil, Nuprin
        (2) Naproxen Sodium
           (a) Anaprox, Aleve
        (3) Naproxen
           (a) Naprosyn
        (4) Ketoprofen
           (a) Orudis
        (5) Carprofen
           (a) Rimadyl
        (6) Fenoprofen
           (a) Nalfon
   iv) Piroxicam
       (1) Feldene
           (a) long 1/2 life
           (b) Offender to GI tract

  g) Analgesic Comparison
   i) Ibuprofen-Superior
   ii) Indomethacin-Comparable
   iii) Ketoprofen-Superior
   iv) Ketorolac-Superior
   v) Naproxen -Superior 550 mg

h) NSAID Contraindications
   i) Upper GI problems
   ii) Bleeding Disorders

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iii) Bronchial asthma
iv) Renal or hepatic disease
v) CHF
vi) Pregnancy

i) NSAID Drug Interactions
   i) Plasma Protein Bound Drugs
   ii) Other NSAIDS
   iii) Oral Hypoglycemic Agents
   iv) Sulfad Drugs
   v) Anticoagulants

15) Acetaminophen
   a) Among most common used
   b) not anti-inflammatory
   c) safer in kids, teenagers, pregnant
   d) No GI upset
   e) Not cross sensitive
   f) Comparable to ASA
   g) Contraindications
      i) Liver impairment
      ii) Alcoholism

16) Controlled Substances (Narcotics)
   a) How do Narcotics Work
      i) Centrally acting
      ii) brain, brainstem, spinal cord
      iii) Opiod receptors
      iv) agonists, partial agonist or mixed
      v) Dose dependent
   b) Narcotic Analgesics
      i) The Basics
      ii) Opiods or Opiates
      iii) Natural or Synthetic
      iv) Drug of choice for the treatment of acute moderate to severe pain
   c) Narcotic Analgesics
      i) The Basics
         (1) Controlled Substance Act of 1970
         (2) Regulated by:
            (3) DEA
            (4) Common Narcotics
            (5) Morphine
            (6) The gold standard
            (7) High side effects and abuse
      ii) Codeine
         (1) Most commonly used
         (2) Quick onset
         (3) Low addiction at regular dosage
      iii) Oxycodone
         (1) 10-12X more potent than codeine
         (2) less side effects?
         (3) Schedule II
iv) Hydrocodone
   (1) 6x more potent than codeine
   (2) less side effects?
v) Propoxyphene
   (1) Sedation effect greater than analgesic effect
vi) Pentazocine
   (1) Theoretically a great drug because of agonist antagonist activity. Practically not as good
vii) Patient Education
   (1) Drowsy, dizzy, no driving
   (2) Nausea, vomiting, constipation
   (3) GI upset
   (4) NO Alcohol
   (5) Respiratory problems
viii) Contraindications
   (1) Hypersensitivities
   (2) COPD
   (3) Liver and Kidney problems
   (4) Pregnancy
   (5) History of abuse
ix) Guideline For Initiating Therapy
   (1) Specific diagnosis
   (2) Individual patient
   (3) Careful history
   (4) Round The Clock
x) Use Caution With
   (1) Patients who self diagnose or self prescribe
   (2) “New” patients with same illness as someone you gave narcotics
   (3) How We Get In Trouble
   (4) Overprescribe, misprescribe
   (5) Excessive quantities
   (6) Self treatment or family treatment
   (7) Multiple drugs and duplicate prescriptions
xi) Don’t Treat Poly
   (1) Polypharmacy
   (2) Polyphysician
   (3) Polycomplaint
xii) Practical Guidelines
   (1) Keep Rx pads safe
   (2) Do NOT preprint DEA #
   (3) Never pre-sign Rx pads
   (4) Good records
   (5) Ten is better than 10
   (6) Patient education
   (7) Know thy pharmacist
xiii) The Fabulous Five +1
   (1) Tylenol w Codeine (III)
   (2) Empirin/COD (III)
   (3) Lortab ASA(III)
   (4) Vicodin or Vicodin ES (III)
   (5) Darvon Compound or Darvon-N 100 (IV)
(6) Chloral Hydrate (IV)
17) Clinical Case Challenges
18) Summary

Judicious Prescribing Does Not Mean Not Prescribing