When Topical Is Not Enough: Oral Medications

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Oral Antibiotic Medications

BS - 39 y/o female
Signs: OD eyelid was swollen and red 2 days ago
No history of fever, not painful, and vision seems normal.
PmHx: Suffer from recurrent sinusitis
Allergies: NKDA
VAsc: 20/20 OU
EOM: Full OD, OS with no pain on eye movement
CF: FTFC OD, OS
IOP: 16 OU
SLE: Normal, except for mild erythema OD

Diagnosis?
A. Orbital Cellulitis
B. Hordeolum
C. Preseptal Cellulitis
D. Blepharitis

Poll Question

Preseptal Cellulitis vs Orbital Cellulitis

Visual acuity
Od: Normal
Os: Absent
Pain
Od: Absent
Os: Rare or mild
Chemosis
Od: Normal
Os: Normal
Papillary reaction
Od:Absent
Os: Normal
Miosis
Od: Absent
Os: Normal
Corneal sensation
Od: Normal
Os: Normal
Fever/induration
Od: Absent
Os: Absent
White blood count
Od: Normal
Os: Normal
Intracocular pressure
Od: Normal
Os: Normal
CNS involvement
Od: Absent
Os: Absent

Poll Question

Treatment?
A. cephalaxin (Keflex) – 500 mg BID 7-10 days
B. amoxicillin/clavulanate (Augmentin 875 mg bid
C. trimethoprim with sulfamethoxazole (Bactrim DS)
   every 12 hours or BID
D. All of the Above
Ocular Uses for Oral Antibiotics

Canaliculitis
Chalazion/ Hordeolum
Chlamydia
Dacryocystitis
Dacryoadenitis
Lyme Disease
Eyelid Lacerations
Ocular Surface Disease
Orbital Blow-out Fracture
Preseptal Cellulitis

Cephalosporins

- 1st Generation - cephalexin (Keflex) – 500 mg BID x 1 week
- Gram (+) = Staph. aureus, Staph. Epidermidis
- 3rd Generation – cefuroxime (Ceftin), cefpodoxime (Vantin) cefdinir (Omnicef)

Other Options...

Amoxicillin/clavulanate (Augmentin)
Most common – 875 mg BID
500 mg BID (smaller patients) or 1000 mg (rarely used)

Cephalosporins and Allergic to PCN Link

Cephalosporins share a similar structure to penicillin

Retrospective Study – 65,000 patients with history of PCN allergy who received more than 127,000 courses of cephalosporins only 3 cases of anaphylaxis existed.

Patients with true allergic reaction to PCN have 80% chance of losing sensitivity to PCN within 10 years.

Other Options...

Trimethoprim with sulfamethoxazole (Septra or Bactrim)
Good option if history of an anaphylactic reaction to PCN
Common dosage – 1 BACTRIM DS (double strength) every 12 hours or BID

Oral Fluroquinolones

Tendinopathy and Tendon Rupture
Glucose Homeostasis
Aortic Rupture and Tearing – 2.5 to 3 X greater risk

US Food and Drug Administration: Drug Safety Communication: FDA warns about increased risk of ruptures or tears in the aorta blood vessel with fluoroquinolone antibiotics in certain patients. www.fda.gov/DrugSafety/ucm628753.htm
Prescribing for Children

Children 12 years of age and older can be dosed as adults unless otherwise noted.

Look up dosage for child (mg/kg/day)

Lean on pediatrician or pharmacist****

Poll Question

What is your “go-to” oral medication for the treatment of MGD?

A. Doxycycline 100 mg
B. Zithromax (Z-Pak 500 mg)
C. Doxycycline 50 mg
D. Other
E. None- I don’t ever use oral medication to treat MGD

Doxycycline (Adoxa) vs Zithromax (Azithromycin)

Purpose: To assess the efficacy and safety of oral azithromycin compared with oral doxycycline in patients with MGD who had failed to respond to prior conservative management.

Conclusion: Both improved symptoms of MGD, but 5-day oral azithromycin is recommended for its better effect on improving signs, better overall clinical response and shorter duration of treatment.

VF – 59 YO Female

CC: Right eye has been red in one corner of my eye and irritated for one month. Pain on eye movement.

PMHx: Hypertension and Hyperlipidemia
Systemic Medications: simvastatin 40 mg and HCTZ 12.5 mg
Allergies: NKDA
Fexs: Unremarkable
Topical Medications: Durezol 0.05% tid OD, Besivance tid OD x 1 month

VAcc: OD: 20/20 OS: 20/20
IOP: 12 OD, 14 OS

SLE: See Photo, unremarkable otherwise
Dilated Exam: Unremarkable, C/D 0.50/0.50 OU
Poll Question

Diagnosis?

A. Bacterial Conjunctivitis
B. Episcleritis
C. Scleritis
D. HSV

Episcleritis

Simple episcleritis vs nodular episcleritis
Mild discomfort/pain
Involves conjunctival and superficial episcleral plexi
Phenylephrine Blanching Technique – 2.5% or 10%
Deep episcleral plexi blanches

Anterior Scleritis

Diffuse vs nodular vs necrotizing scleritis
More pain than episcleritis – deep, boring pain that radiates
Worse on eye movement
40% present with uveitis
Phenylephrine Blanching Technique – 2.5% or 10%
Deep episcleral plexi does not blanch

Anterior Scleritis

50% of patients will have a systemic autoimmune disease
40% will develop rheumatoid arthritis (RA)
Others: Wegens, relapsing polyarthritis, HIV, HSV, Lyme, TB, leprosy, syphilis, or post-trauma/surgery

Lab Testing
Chest X-Ray – rule out granulomatosis with polyangiitis
Rheumatoid Factor (RF)
Anti-CCP Antibody – helpful to confirm RA
ANCA – ulcerative colitis and Crohn disease
RPR - syphilis
FTA Abs - syphilis
HLA B27 – autoimmune (ankylosing spondylitis)
AKB – autoimmune (lupus, etc)
Lyme

Episcleritis

20% resolve without treatment
Topical NSAID provides no benefit
Topical corticosteroid is treatment of choice
Rarely need to consider and institution

Oral Scleritis

1/3 of patients respond to NSAIDS
Oral NSAID – initial treatment of choice
Indomethacin – 25mg PO tid (can increase to 50 mg PO tid)
Naprosyn – 500 mg 2 x daily
Ibuprofen – 600 mg – 800 mg 3-4 x daily
Flurbiprofen – 100mg PO tid (can increase to tid)

2 weeks of treatment and if no response...

Bring Out the Big Guns...

Oral Corticosteroid

THANKS

THAT SHOULD DO IT
**Oral Corticosteroid**

*Prednisone*

- 40-80 mg initial dose, but usually give 60 mg PO x 2 weeks then recheck.
- Goal is to get to 10 mg PO qday or 20 mg PO every other day
- Taper 10 mg every 1 week, but don’t start taper until improvement is noticed
- Depending on level of inflammation slower vs faster taper can occur

**Poll Question**

Side effects from oral corticosteroids such as insomnia, mood swings, personality changes, depression, and psychosis increase among patients taking:

- A. 20-29 mg
- B. 30-39 mg
- C. 40 mg or more
- D. Less than 10 mg

**Side Effects**

- Euphoria, Insomnia, Mood swings, Personality changes, Severe depression, and Psychosis
- Increased IOP
- Cataract formation
- Fluid retention (moon face, buffalo hump)
- Increased blood sugar levels in diabetics
- Gastric ulcers
- Not to be used in pregnant

**Increased risk** among patients taking 40 mg or more

5% to 18%

**Other Considerations...**

Indicated for acute inflammatory eye, orbital and eyelid conditions

- Dosepaks available
  - 24 mg, 30 mg, 60 mg with taper
- Best taken with meals
- Short term use rarely has ocular side effects

**Oral Glaucoma Medications...**

are they an effective option?

**Oral Carbonic Anhydrase Inhibitor (CAI)**

- Diamox *(acetazolamide)*
- Neptazane *(methazolamide)*
**Acetazolamide**

125mg tablets
250mg tablets

500mg sustained-release capsules

*Diamox Sequels*

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**Mechanism of Action**

Block aqueous production by inhibition of carbonic anhydrase

> 90% must be blocked to decrease aqueous production

Possible effects on ocular blood flow

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**Dosage**

**In office**
2 x 250mg tablets

**Continual therapy**
1 x 250mg tablets Q 6 hours

**Diamox 500 mg sustained-release capsules 2 x a day**

Peak effectiveness 8 hours
**Common Side Effects**
- Tingling of extremities
- Gastrointestinal upset
- Metallic taste
- Increased urination
- Fatigue

**Contraindications**
- Liver or Kidney Disease
- Severe COPD

**Contraindication**
- Sulfa Allergies?

**When and Why?**


27 Patients → acetazolamide

10 (37%) no allergic reaction
2 (7%) had urticaria
15 (56%) had predictable adverse reactions for the drug (ex. Tingling)

To Buy Time
To Buy Time

Surgery is not an option

IOP spikes after surgery

To Buy Time

Surgery is not an option

Pressure spikes after surgery

Topical absorption of a drug is unreliable

Topamax (topiramate)

Anterior Lens and Iris Displacement secondary to ciliary body edema

Transient Myopia

Angle Closure


...another Option

Neptazane (methazolamide)

Methazolamide

25mg Tablets

50mg Tablets
Methazolamide vs Acetazolamide

HSV Keratitis Features
- Unilateral presentation always suspicious for HSV
- Iritis with high IOP always suspicious for HSV

After 2nd episode, 70-80% had another recurrence within 10 years

Bilateral involvement or prolonged HSV suggests comorbid disease (immunodeficiency or immunosuppression)

Epithelial
- Corneal vesicles
- Dendritic Ulcer
- Geographic Ulcer
- Marginal Ulcer

Stromal
- Infiltration
- Vascularization
- Haze and scarring
- Ulcer/no ulcer

Endothelitis
- Area of corneal edema
- No epithelial involvement
- Pseudo-guttatae and Descemet’s folds

Neurotrophic
- Ulcerated
- Results from altered corneal innervation and decreased tear production

Poll Question
What is the new FDA-approved topical treatment for patients with Neurotrophic keratitis?
A. Restasis
B. TobraDex
C. Oxervate
D. Rocklatan
Study Conclusions
Up to 72% of patients achieved complete corneal healing; 80% of healed patients were recurrence free after 1 year*

After 8 weeks of treatment, 6 times daily

Of patients who healed after one 8-week course of treatment...
80% Remained healed for one year*

1. Bonini S, after treatment…
2. Recurrent inflammation with scar/vascularization
3. Post-keratoplasty performed for HSV reasons
4. Postoperatively in patients with history of HSV undergoing any type of ocular surgery
5. In patients with a history of ocular HSV during immunosuppressive treatment

HSV Keratitis Treatment

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosage</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acyclovir (Zovirax)</td>
<td>400 mg 5 x daily for 7-10 days</td>
<td></td>
</tr>
<tr>
<td>Valacyclovir (Valtrex)</td>
<td>500 mg 2 x daily for 7-10 days</td>
<td></td>
</tr>
<tr>
<td>Famciclovir (Famvir)</td>
<td>250 mg 2 x daily for 7-10 days</td>
<td></td>
</tr>
<tr>
<td>Trifluridine ophthalmic solution 1% (Viroptic)</td>
<td>1 drop 5 x day for 7 days, can decrease to 5 x day after 7 days, if ulcer not healed.</td>
<td></td>
</tr>
<tr>
<td>Ganciclovir ophthalmic gel 0.15% (Zogran)</td>
<td>1 drop 5 x day until ulcer heals followed by 3 x day for 5 days</td>
<td></td>
</tr>
<tr>
<td>Acyclovir ophthalmic ointment (Avacyl)</td>
<td>1 x a day in keratouveitis 5 x per day until healed then 3 times per day for 7 days</td>
<td></td>
</tr>
</tbody>
</table>

HSV Keratitis Prophylaxis

<table>
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<th>Dosage</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acyclovir (Zovirax)</td>
<td>400 mg 2 x daily for 1 year</td>
<td></td>
</tr>
<tr>
<td>Valacyclovir (Valtrex)</td>
<td>500 mg 1 x daily for 1 year</td>
<td></td>
</tr>
<tr>
<td>Famciclovir (Famvir)</td>
<td>250 mg 2 x daily for 1 year</td>
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Why?
1. Multiple recurrences of HSV keratitis
2. Recurrent inflammation with scar/vascularization
3. Post-keratoplasty performed for HSV reasons
4. Postoperatively in patients with history of HSV undergoing any type of ocular surgery
5. In patients with a history of ocular HSV during immunosuppressive treatment

Treatment Principles
Treat epithelial disease 1st and stromal 2nd

When using steroids use either therapeutic or prophylactic dose of ophthalmic orals to prevent reoccurrence

In stromal cases that are controlled taper steroid gradually. Patient may never be able to get off in stromal disease and prophylactic orals may be required indefinitely.

HZV Features
HZV is the etiologic agent of both varicella (chickenpox) and reactivation (shingles)

Can erupt anywhere on the body
(15% involve the ophthalmic division of the CN 5)

Clinical Manifestation Phases
Pre-eruptive Phase
Acute Eruptive Phase
Chronic Phase (PHN)
**HZV Features**

HZV typically happens once in life (30% of adults)

Recurrent episodes are atypical – must consider a sinister etiology

A workup for occult malignancy or other reduced cell mediated immunity concerns

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**Post Herpetic Neuralgia**

Neuropathic pain syndrome that persists beyond 90 days or develops after lesions have resolved

Most frequent and debilitating complication of HZV

Treatment: oral anti-virals, cool compresses, analgesics, amitriptyline, gabapentin, nerve block

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**HZV Treatment**

**Acyclovir (Zovirax)**

800 mg 5 x daily for 7-10 days

**Valacyclovir (Valtrex)**

1000 mg every 8 hours for 7-10 days

**Famciclovir (Famvir)**

500 mg every 8 hours for 7-10 days

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**Herpes Zoster Ophthalmicus**

Involves the ophthalmic division of the 5th CN

Ocular complications

- Conjunctivitis
- Keratitis - Pseudodendrites
- Acute retinal necrosis (rare)
- Uveitis
- Cranial nerve palsies
- Optic Neuropathy

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**You Are the Primary Eye Care Provider!**

Practice at The Highest Level Allowed Within Your Scope

Oral Medications Are Necessary at Times to Put Out Fires

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**Thank You!**

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