Viral Keratitis
CORNEAL DENDRITIC

What else do you want to know about this patient?

What would be your initial treatment?
RISK FACTORS: REFRACTORY AND RECURRENT

ORAL ANTIVIRALS

Why do most ophthalmologists still use acyclovir as their oral agent of choice?

- Why use others?
  - valacyclovir (Valtrex)
  - famciclovir (Famvir)
- Why not topical trifluridine?


<table>
<thead>
<tr>
<th>Drug</th>
<th>Treatment</th>
<th>Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acyclovir</td>
<td>400mg 5 x day</td>
<td>400mg bid</td>
</tr>
<tr>
<td>Valacylovir</td>
<td>1000mg tid</td>
<td>500-1000mg daily</td>
</tr>
<tr>
<td>Famciclovir</td>
<td>250-500mg tid</td>
<td>250mg bid / 500mg daily</td>
</tr>
</tbody>
</table>
### Cost of Oral Antivirals

<table>
<thead>
<tr>
<th>WHOLESALE COST</th>
<th>Per Pill</th>
<th>1 month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic valacyclovir 500 mg tab</td>
<td>$0.8475</td>
<td>$25.43 (500mg)</td>
</tr>
<tr>
<td>Generic famciclovir 500 mg tab</td>
<td>$1.6906</td>
<td>$50.72</td>
</tr>
<tr>
<td>Generic acyclovir 400 mg tab</td>
<td>$1.2700</td>
<td>$76.20 (800mg)</td>
</tr>
</tbody>
</table>
MARGINAL KERATITIS?
CHILDREN

- IV or oral suspension
- Long term prophylaxis: dose reviewed at least every 6 months (weight based!)
- Dose:
  - Over 40kg – 400mg bid
  - 30mg/kg/day divided q8h
## HZV – HSV FACE OFF

<table>
<thead>
<tr>
<th></th>
<th>HSV</th>
<th>HZV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dendrite</td>
<td>Ulcerated, terminal bulb</td>
<td>Elevated, taper</td>
</tr>
<tr>
<td>Corneal sensation</td>
<td>Variable</td>
<td>Loss</td>
</tr>
<tr>
<td>IOP</td>
<td>Rare elevation</td>
<td>Trabeculitis</td>
</tr>
<tr>
<td>Live virus</td>
<td>Yes</td>
<td>YES</td>
</tr>
<tr>
<td>Antiviral</td>
<td>Yes: viroptic 5-9xday Acyclovir 400mg x 5</td>
<td>Yes: topical and Famvir 500 tid</td>
</tr>
<tr>
<td>Less / More</td>
<td>More often multiple lesions, endotheliitis</td>
<td>More often epi defects, iris defects, diffuse haze</td>
</tr>
</tbody>
</table>
STROMAL KERATITIS?
<table>
<thead>
<tr>
<th>The Answered Questions</th>
<th>The Unanswered Questions</th>
<th>Clinical Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stromal keratitis improves with steroids (HEDS 1 SKN)</td>
<td>Would longer steroid duration / taper lead to less treatment failures? Would oral antiviral prophylaxis benefit?</td>
<td>Longer taper, oral antiviral coverage is used commonly, trend toward leaving long-term</td>
</tr>
<tr>
<td>Stromal keratitis patients on steroids and trifluridine don’t need acyclovir (HEDS 1 SKS)</td>
<td>What if the patient is not on trifluridine?</td>
<td>Oral antiviral is commonly substituted for topical antiviral</td>
</tr>
<tr>
<td>Acyclovir may help when added to steroid / topical antiviral treatment (HEDS 1 IRT)</td>
<td>Does it help?</td>
<td>With trabeculitis, iritis, stromal keratitis, oral antiviral is commonly used</td>
</tr>
<tr>
<td>Addition of acyclovir to trifluridine in epithelial disease does not reduce the incidence of stromal keratitis (HEDS II)</td>
<td>Could acyclovir be used as an alternative to trifluridine?</td>
<td>Patients with first episode usually don’t receive oral acyclovir</td>
</tr>
<tr>
<td>Acyclovir 400mg bid prevents recurrent herpetic eye disease</td>
<td>Lower dose? Treatment duration?</td>
<td>6 to 12 months duration, other oral antivirals substituted</td>
</tr>
</tbody>
</table>
HOW DID WE GET HERE?
NEUROTROPHIC ULCER V. PERSISTENT EPITHELIAL DEFECT
DISINFECTION AND HYGIENE

• AAO guidelines:
  – 5 minute soak:
    • 70% ethyl ethanol
    • 1:10 sodium hypochlorite (bleach)
  • Gloves / Isolation room / Avoid waiting room
  • Avoid contact with surfaces / instruments / drops
ACUTE TREATMENT

- Povidone-Iodine 0.5% QID + Dexamethasone 0.1% QID x 10 days
- Povidone-Iodine 5% wash?
- Gancilovir gel (special access)?
- The RPS Adeno Detector (Rapid Pathogen Screening)
- Mixed results in studies

Adenovirus advances: new diagnostic and therapeutic options
Herbert E. Kaufman
WHEN TO TREAT

VISION

PAIN

SEVERE
9 patients (12 eyes) with 13-month follow-up

Steroid failures or “responders”

Cyclosporine 1% BID

Conclusion:
- IOP normalized and reduced medications
- All patients stable (1/3) or improved (2/3)
- Severity of symptoms improved
- Trend of improved vision (2 lines)
TAKE HOME POINTS

• Don’t debride routine or high risk HSV dendrites
• Have your hospital stock viral cultures
• Oral and topical antiviral for HZV pseudo-dendrites
• Zostavax: the vaccine for your cataract patients!
• Be aggressive with epithelial defects in neurotrophic corneas: punctal cautery, tarsorrhaphy, serum tears
• Prevent and perhaps treat adenoviral conjunctivitis
• One million new episodes world-wide per year (epithelial keratitis), 5000 per year in Canada 0.014%

• Besides HSV-1, much less common causes of dendritic epithelial keratitis:
  – HSV-2
  – Varicella-zoster virus
  – Co-infection with HSV-1 and human herpes virus 6
  – Very rarely, cytomegalovirus, epstein-barr virus, or adenovirus

• Pseudodendrite: esp day 1 abrasion, exposure keratopathy, neurotrophic cornea (esp diabetic)