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Our Issues, Our Drugs, Our Patients

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Varicella zoster Virus

VIRUSES TAKING ADVANTAGE OF HIV
DR. JEREMY NEL

APRIL 2016
Varicella zoster virus

- Herpesviridae
  - Along with HSV-1, HSV-2, CMV, EBV, HHV-6, HHV-7 and HHV-8
- Causes two distinct syndromes:
  - Varicella (chickenpox) – on initial exposure
  - Herpes zoster (shingles) – on reactivation
Chickenpox

• Commonly occurs in children (90% < 13 years)
• Incubation period 10-21 days
• Prodrome of fever, malaise, pharyngitis, anorexia.
• Crops of lesions: macules → papules → vesicles → pustule → crusting.
  – Patients infectious from 2 days before rash until all vesicles crusted.
• Lesions start on face then spread centrifugally.
Chickenpox

- Spread mostly by intimate contact
  - 2ndary attack rate in susceptible household members is 90%.
  - Spread by aerosolised droplets from nasopharynx of infected person, or by contact with vesicle fluid.

- **Complications:**
  - **Skin and soft tissue infection** – with GAS especially (cellulitis, necrotising fasciitis, toxic shock syndrome, etc.)
  - **Neurological** – encephalitis, acute cerebellar ataxia, varicella vasculopathy
  - **Pneumonia** – from varicella, with possible secondary bacterial infection
  - **Hepatitis**
HIV and Chickenpox
HIV and chickenpox

• More numerous lesions
• Lesions take longer to heal
• More likely to have complications:
  – Varicella pneumonia
  – Hepatitis
    • Can be severe, and can occur before, during or after the rash.
Primary varicella pneumonia

- Bilateral
- Nodular usually
Primary varicella pneumonia

Can progress to ARDS and death
Secondary bacterial pneumonia

Think:
- *Streptococcus pneumoniae*
- *Staphylococcus aureus*
Herpes Zoster (shingles)

• Reactivation of VZV in cranial nerve or dorsal root ganglia, with spread along sensory nerve to dermatome.

• Risk factors:
  – Age (50% if over 85 years and unvaccinated)
  – Immunosuppression (HIV, transplants, haem malignancies)
Herpes zoster: clinical

- Dermatomal rash – doesn’t cross midline.
  - Most commonly thoraco-lumbar region
  - Usually just one dermatome
- Same evolution as chickenpox
  - Papules $\rightarrow$ vesicles $\rightarrow$ pustules $\rightarrow$ crusting
# Herpes Zoster: Complications

<table>
<thead>
<tr>
<th>EARLY</th>
<th>LATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumonia</td>
<td>Varicella vasculopathy</td>
</tr>
<tr>
<td>Hepatitis</td>
<td>Postherpetic neuralgia</td>
</tr>
<tr>
<td>Neurological: Meningitis, encephalitis, transverse myelitis...</td>
<td></td>
</tr>
<tr>
<td>Herpes zoster ophthalmicus</td>
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2016
HIV and Shingles

• Longer period of new vesicle formation (> 1 week)
• More likely to involve more than one dermatome.
• More likely to have complications:
  – Pneumonia
  – Hepatitis
## Treatment

<table>
<thead>
<tr>
<th></th>
<th>Immunocompetent without complications</th>
<th>Immunocompromised or with complications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Varicella (chickenpox)</strong></td>
<td>Acyclovir orally 800 mg 5x daily x 5 days -- if within 24 hours</td>
<td>Acyclovir intravenously 10mg/kg tds x 7-10 days -- if active disease (e.g. uncrusted lesions)</td>
</tr>
<tr>
<td><strong>Herpes Zoster (shingles)</strong></td>
<td>Acyclovir orally 800 mg 5x daily x 7 days -- if within 72 hours</td>
<td>Acyclovir intravenously 10mg/kg tds x 7-10 days -- if active disease</td>
</tr>
</tbody>
</table>
Steroids?

• 2013 Cochrane meta-analysis concluded that there was “there is moderate quality evidence that corticosteroids given acutely during zoster infection are ineffective in preventing postherpetic neuralgia.”

• Not routinely advised.
Steroids for varicella pneumonia

- Controversial.
- Only one study done: uncontrolled, 15 patients, only 1 of whom was HIV positive.
- 6 patients got steroids and appeared to do better: shorter ICU and hospital stay, trend towards improved mortality (not statistically significant).
- RCT needed to address this!
## Symptomatic relief

<table>
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<tr>
<th>CONDITION</th>
<th>TREATMENT</th>
<th>NOTES</th>
</tr>
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<tbody>
<tr>
<td>Chickenpox (varicella)</td>
<td>Calamine lotion</td>
<td>Itch, not pain, is usually the problem.</td>
</tr>
<tr>
<td>Herpes zoster (shingles)</td>
<td>Paracetamol, NSAIDs, or opioids</td>
<td>Pain, not itch, is usually the problem.</td>
</tr>
<tr>
<td>Postherpetic neuralgia</td>
<td>Tricyclic antidepressants, gabatentin, pregabalin</td>
<td>Paracetamol and NSAIDs are not effective. Opioids are 3rd line at best.</td>
</tr>
</tbody>
</table>
Vaccinations

• For varicella – Varivax
  – 2 doses
  – Ideally for everyone without evidence of immunity (on history or serologically)

• For zoster – Zostavax
  – Single dose to all adults > 50 years, regardless of whether previous varicella or shingles reported

Contraindicated if CD4 < 200 (or if pregnant)
Postexposure prophylaxis

• Risk of transmission: varicella > herpes zoster

• **Immunocompetent**: varicella vaccine (if within 3-5 days)

• **Immunocompromised**: VariZIG (asap, but probably works within 10 days)
  – Can prolong incubation period – watch for 28 days