Autoimmune-mediated Uveitis

- Uveitis is defined as the inflammation of the uveal tract which encompasses:
  - The iris
  - The ciliary body
  - The choroid

- Uveitis is responsible for up to 15% of severe visual impairment in USA and Europe.

- Uveitis can be infectious or non-infectious.

- Autoimmune uveitis are non-infectious disease involving predominantly CD4+ Th1 T cells specific to retinal autoantigens.
Prevalence of Uveitis worldwide

<table>
<thead>
<tr>
<th>Region</th>
<th>Setting survey</th>
<th>Time period</th>
<th>Population size</th>
<th>Incidence (per 100,000 persons per year)</th>
<th>Prevalence (per 100,000 persons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rochester, Minnesota, United States</td>
<td>Resident population</td>
<td>1945-1954</td>
<td>29,885</td>
<td>17</td>
<td>204</td>
</tr>
<tr>
<td>Johannesburg, South Africa</td>
<td>Bantu-speaking community</td>
<td>1971-1973</td>
<td>652,259</td>
<td>25</td>
<td>—</td>
</tr>
<tr>
<td>Turku, Southwestern Finland</td>
<td>Single center</td>
<td>1980-1982</td>
<td>459,515</td>
<td>22.6</td>
<td>75.4</td>
</tr>
<tr>
<td>Andra Pradesh, India</td>
<td>Resident population</td>
<td>1996-1997</td>
<td>3,500,000</td>
<td>—</td>
<td>714.3</td>
</tr>
<tr>
<td>Northern California, United States</td>
<td>Multiple centers</td>
<td>1998-1999</td>
<td>731,895</td>
<td>52</td>
<td>114.5</td>
</tr>
</tbody>
</table>

Prevalence of Uveitis in US - Claims based

• Approximately 4 million eligible patients in 2012

• 5299 cases of uveitis, prevalence of 133 per 100 000 (95% CI, 129.1-136.3)

• 146 cases per 100 000 women (95% CI, 140.3-150.8)

• 119 cases per 100 000 men (95% CI, 114.1-123.9).

• Noninfectious uveitis (NIU) 91%, prevalence of 121 cases per 100 000 (95% CI, 117.5-124.3).

• 81% of NIU cases (3904 cases) were classified as anterior NIU, prevalence of 98 per 100 000 adults (95% CI, 94.7-100.9).

Anatomical classification SUN

- Anterior uveitis
  - Iris
  - Ciliary body
- Intermediate uveitis
  - Vitreous
  - Pars plana
- Posterior uveitis
  - Retina
  - Choroid
- Panuveitis
Anterior chamber cell – SUN criteria

<table>
<thead>
<tr>
<th>Grade</th>
<th>Cells in the field (Field size is a 1x1mm slit beam)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>&lt;1</td>
</tr>
<tr>
<td>0.5+</td>
<td>1-5</td>
</tr>
<tr>
<td>1+</td>
<td>6-15</td>
</tr>
<tr>
<td>2+</td>
<td>16-25</td>
</tr>
<tr>
<td>3+</td>
<td>26-50</td>
</tr>
<tr>
<td>4+</td>
<td>&gt; 50</td>
</tr>
</tbody>
</table>
Vitreous haze – SUN criteria

<table>
<thead>
<tr>
<th>Grade</th>
<th>Amount of vitreous flare/haze</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No flare</td>
</tr>
<tr>
<td>0.5+</td>
<td>Trace</td>
</tr>
<tr>
<td>1+</td>
<td>Clear optic disc and vessels, hazy nerve fiber layer</td>
</tr>
<tr>
<td>2+</td>
<td>Hazy optic disc and vessels</td>
</tr>
<tr>
<td>3+</td>
<td>Optic disc visible</td>
</tr>
<tr>
<td>4+</td>
<td>Optic disc not visible</td>
</tr>
</tbody>
</table>
Normal Fundus and Normal FA

For reference..
Normal Autofluorescence and OCT
Normal visual fields and ERG
Anterior uveitis

• Commonly HLA B 27 associated, JRA
• Typically alternating pattern “flip-flop” (one eye at a time)
• RSVP – redness, sensitivity, vision problems, pain
Treatment

- Most respond to topical/local therapy with corticosteroids
  - Drops, injections
- Some may require IMT
  - Agents of choice
    - MTX
    - Anti-TNF
Intermediate uveitis

- Commonly idiopathic
- Presents with floaters
- Decreased vision from macular edema
Intermediate Uveitis

- Major inflammation in the vitreous
- Accounts for 15% of cases
- Snowballs, snowbanking, retinal phlebitis, CME
- Don’t forget lymphoma
Treatment

- Oral steroid
- Intraocular steroid
- Periocular steroid
- Caution – cataract, glaucoma
- May require IMT

**No financial interest**
Posterior/ panuveitis

• Variable phenotype
• Associated with systemic disease – Behcets, sarcoidosis, syphilis
• Infectious - TB, Toxo, viral infections
• Idiopathic
• Neoplastic

• Needs extensive workup – imaging and lab
• Complete review of systems
• Co-ordinate care with other specialties
Toxoplasmosis

- Definite host Cat
- Undercooked meat, untreated water
- Cyst dormant; Tachyzoite active

- Serology
- Clinical exam

- Triple treatment (Bactrim)
- May need steroid
Sarcoidosis

- Granulomatous inflammation
- Usually chronic
- Bilateral
- Lungs frequently involved

- CXR, CT chest, Gallium scan
- Steroids
- IMT
VKH

- Eyes, skin, CNS
- Chronic, bilateral
- Perilimbal vitiligo, poliosis
- Exudative retinal detachments
- Steroid
- IMT
Behcets disease

- Bilateral
- Young males
- Japan, Turkey

- Hypopyon uveitis, genital and oral ulcers
- Retinal vasculitis

- Aggressive steroid/IMT
- Blind/death
Viral retinitis

Immediate intraocular and systemic antivirals

Steroid for inflammation
Serpiginous chorioretinopathy

- Chronic, recurrent, bilateral
- M=F
- Relentless
Birdshot chorioretinopathy

- Blurry vision, field loss, night blindness
- HLA A 29
- Chronic, bilateral
- Needs long term treatment
Work up

- CBC
- UA
- ANA, anti-DNA, RF, anti-CCP
- HLA typing
- Lyme disease antibody and western blot
- PPD, chest X-ray
- ACE
- Chest CT, and Gallium scanning if sarcoidosis suspected
- RPR/FTA-ABS

- HIV
- Toxoplasma IgM/IgG
- Audiology/LP if tinnitus and headaches/vitiligo
- Additional as determined by patient presentation
Current Treatment of Uveitis

• Oral Corticosteroids
  • Risk of systemic toxicities

• Topical corticosteroid drops
  • Not effective on more serious or posterior uveitis

• Steroid injections
  • May need to be repeated for adequate control of the uveitis
  • Undesired side effects

• Immunosuppressive treatment
  • Does not cure uveitis and therapy is frequently associated with side effects that limit the duration and intensity of treatment.
Corticosteroids
Topical vs. Systemic

- Methotrexate (esp. in JIA)
  - Add CSA/MMF

- CSA
  - MMF
  - AZA

- Biologics (Anti-TNF first line)

- Other Biologics vs. Alkylation Agents*
Thank you