Anterior Uveitis

Management Principles

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Learning objectives:
1. Discuss the management of uveitis
2. Appreciate the ocular complications of uveitis
3. Understand the side effects of drugs used to treat uveitis

Suggested reading:

Anterior Uveitis

- Confirm diagnosis of antr or iridocyclitis
- Exclude posterior involvement ... Must dilate
- Consider further investigations
  - Blood tests (HLA-typing, ANA, toxoplasmosis titres, etc)
  - OCT III (FFA)
  - CXR
  - VF

Aims of Therapy

- Preserve vision & reduce symptoms
- Prevent uveitis complications
- Prevent treatment complications

Uveitis – pretreatment assessment

- Exclusion of latent infection & evaluate infection risk
- Evaluate co-existing local & systemic disease
- Need for local or systemic treatment?
- Consider potential drug side effects & drug interactions

Immunosuppression

- Topical: drops / ointment
- Peri-ocular (sub-Tenon’s) injection
- Intra-ocular injection (triamcinolone)
- Intra-ocular implant
- Systemic
  - Oral
  - Intravenous

Corticosteroids: Anti-inflam’ & Immuno-supp’
Marked reduction of:
• wbc motility
• bv permeability
• Inflam’ cascade
• Function of immune cells

### Classification

<table>
<thead>
<tr>
<th>Natural Steroids</th>
<th>Half-life (hrs)</th>
<th>Anti-inflam’ effect</th>
</tr>
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<tbody>
<tr>
<td>cortisol</td>
<td>8-12</td>
<td>1</td>
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<table>
<thead>
<tr>
<th>Synthetic Steroids</th>
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<tbody>
<tr>
<td>prednisolone</td>
<td>12-36</td>
<td>4</td>
</tr>
<tr>
<td>methylpred’</td>
<td>12-36</td>
<td>5</td>
</tr>
<tr>
<td>triamcinolone</td>
<td>12-36</td>
<td>5</td>
</tr>
<tr>
<td>betamethasone</td>
<td>36-72</td>
<td>25</td>
</tr>
<tr>
<td>dexamethasone</td>
<td>36-72</td>
<td>25</td>
</tr>
</tbody>
</table>


### Pharmacokinetics

4 key considerations:
• Corneal penetration (epith vs endoth)
• Potency (surface, stroma, aqueous)
• Duration of action
• Side effects

**Core Concept 1**
• Ineffective* for postr uveitis / vitritis (CMO is exception)
• Effective for surface, cornea & AC

**Core Concept 2**

Corneal penetration
• Prednisolone acetate 1% (Pred Forte®) penetrates AC best
% Decr Inflam rabbit stroma:

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Pred Forte</td>
<td>51%</td>
</tr>
<tr>
<td>Maxidex Drops</td>
<td>40%</td>
</tr>
<tr>
<td>Flucin</td>
<td>31%</td>
</tr>
<tr>
<td>Maxidex Ointment</td>
<td>13%</td>
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</tbody>
</table>

Kupferman A, Leibowitz HM. Arch Ophthalmol 92,1974
**Core Concept 2**

Coreneal penetration

- Pred Forte (prednisolone acetate 1%)
- Maxidex (dexamethasone 0.1%) drops
- Pred Mild (prednisolone acetate 0.12%)
- Flucon / FML (fluorometholone 0.1%)
- Maxidex (dexamethasone 0.1%) ointment
- Methylprednisolone 1%?
- Prednisolone 0.5% MINIMS?

**Core Concept 3**

Risks (glaucoma & cataract) correspond to penetration ...

- Pred Forte (prednisolone acetate 1%)
- Maxidex (dexamethasone 0.1%) drops
- Pred Mild (prednisolone acetate 0.12%)
- Flucon / FML (fluorometholone 0.1%)
- Maxidex (dexamethasone 0.1%) ointment
- Methylprednisolone 1%?
- Prednisolone 0.5% MINIMS?

**Core Concept 4**

• Preserved vs non-preserved

**Core Concept 5**

• Induction / loading dose … every hour+!
• Maintenance … 1-3 times / day
• Withdrawal … weeks / months!
• Relapse … induction dose, slower reduction
  .... Always document absence / presence of complications

**Core Concept 5**

<table>
<thead>
<tr>
<th>Regimen (Pred Forte)</th>
<th>% decr inflam</th>
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<tr>
<td>5 min</td>
<td>72%</td>
</tr>
<tr>
<td>15 min</td>
<td>68%</td>
</tr>
<tr>
<td>30 min</td>
<td>61%</td>
</tr>
<tr>
<td>1 hr</td>
<td>51%</td>
</tr>
<tr>
<td>2 hr</td>
<td>30%</td>
</tr>
<tr>
<td>4 hr</td>
<td>11%</td>
</tr>
</tbody>
</table>

Leibowitz HM: Ophthalmology 87;753,1980

**Core Concept 6**

• If poor response … reconsider:
Wrong diagnosis? (infection?, Fuch's? …)
Aggressive uveitis?
Poor compliance?

Core Concept 7
Disease or Drug??
• Cataracts
  — Dose & duration
• Glaucoma
  — MPS, genetic
  — 5% “high responders”, 30% “responders”
  — ≥5mmHg in 15/24 on Maxidex, 2/24 on Flucon

Core Concept 8
Appropriate cycloplegia & mydriasis
• Cyclopentolate 1% (Cyclogel) 2-4 times/d
• Atropine 1% (Homatropine 2%)1-2 times/d
• Tropicamide 1% (Mydriacil) 1-3 times/d

References & Reading
• Abelson M, Butrus S. Corticosteroids in Ophthalmic Practice. Principles & Practice of Ophthalmology. Vol1;Ch25, 258-267

Thank you
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