EFFICACY OF CORNEAL CROSSLINKING IN BACTERIAL KERATITIS

MADHU UDDARAJU
DIRECTOR

Srikiran Institute of Ophthalmology
FINANCIAL DISCLOSURE

No Financial interest
BACKGROUND
MICROBIAL KERATITIS-CAUSATIVE ORGANISMS

Culture positive-43.3%,
Most common Fungus isolated- *Aspergillus flavus*
Most common bacteria- *Coagulase negative streptococci*
PURPOSE

• A pilot study to assess the efficacy of CXL in bacterial keratitis specifically for augmenting the healing process.
MATERIALS & METHODS

• Prospective, randomised trial
• 40 cases that were distributed into 2 groups of 20 each.
• Randomization- 1:1 ratio by `rand` and `sort` function in Microsoft Excel
• Allocation concealment- by sequentially numbered opaque sealed envelopes (SNOSE)
CXL FOR BACTERIAL KERATITIS

Smear positive bacterial keratitis
(N = 40)

CXL Group (N = 20)
Continuation of antibacterial + Collagen cross-linking

No-CXL Group (N = 20)
Continuation of antibacterial
STANDARD MEDICAL THERAPY

Gram Positive
- Cefazoline e/d 1hrly
- Moxifloxacin e/d 1hrly
- Gatifloxacin e/o HS

Gram Negative
- Fortified Tobramycin e/d 1hrly
- Fortified Gentamicin e/d 1 hrly
PACK CXL – DRESDEN PROTOCOL
<table>
<thead>
<tr>
<th>Enrolment Characteristics</th>
<th>CXL N=20</th>
<th>No CXL N=20</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>39.5</td>
<td>56</td>
<td>0.10</td>
</tr>
<tr>
<td>Male sex</td>
<td>8</td>
<td>11</td>
<td>0.59</td>
</tr>
<tr>
<td>Infiltrate diameter, mm</td>
<td>6.79</td>
<td>5.48</td>
<td>0.12</td>
</tr>
<tr>
<td>Hypopyon size, mm</td>
<td>1.3</td>
<td>1.0</td>
<td>0.82</td>
</tr>
</tbody>
</table>

Statistically NOT significant
<table>
<thead>
<tr>
<th>Causative organism</th>
<th>CXL N=20</th>
<th>No CXL N=20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staphylococcal</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Sterptococcal</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Pseudomonas</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>No growth</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>
# RESULTS

<table>
<thead>
<tr>
<th>Outcome at 3 weeks</th>
<th>CXL (N=20)</th>
<th>No CXL (N=20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment failure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threatened limbal involvement</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Healed</td>
<td>20 (18+2)</td>
<td>17(15+2)</td>
</tr>
</tbody>
</table>
RESULTS

• **Group A** 15 of 20 Cases showed scarring within 3 week of medical therapy alone and of the remaining 5, 2 of them scarred with continued medical therapy for 2 more weeks and 3 of them required therapeutic keratoplasty for non resolution.

• **Group B** 18 of 20 cases showed scarring within 2 week of Medical therapy along with 1 CXL therapy at presentation. The remaining 2 scarred within 3 weeks
TREATMENT FAILURE
THREATENED LIMBAL INVOLVEMENT

• Non CXL group 3 cases - 2 Pseudomonas & 1 case
  No growth
CXL GROUP CASES
34Y/M
STAPH.AUREUS
52/F
STREPTO. PNEUM
45/F
DEEP STROMAL
NO GROWTH
37/M
STAPH SPP
43/M
STAPH
CONCLUSION

• PACK CXL – Could have a beneficial effect in the management of bacterial keratitis
• The healing time is less when CXL is done additionally
• Larger studies to validate the results
• Cost involved could be a deterrent
Thank you.