**Efficacy of Intratympanic High Dose Methylprednisolone Compared to Intratympanic High Dose Dexamethasone in Treatment of Idiopathic Sudden Sensorineural Hearing Loss**

Anna MEGOW, MBBS, Candice Chiew Yin Li SUNG SANG, MBBS, Emily ZHEN, MBBS, Chi-Kee Leslie SHAW, MBBS, MS, FRACS

Department of Otolaryngology Head and Neck Surgery, Modbury Hospital, South Australia, Australia. Department of Otolaryngology Head and Neck Surgery, Perth Children’s Hospital, Western Australia, Australia.

**Objective**

To determine the efficacy of high dose intratympanic methylprednisolone (ITM) compared to dexamethasone (ITD) in the primary and salvage treatment of idiopathic sudden sensorineural hearing loss (ISSNHL).

**Method**

- Prospective study of patients referred to our centre with new ISSNHL for primary or salvage treatment following a 3-week course of systemic steroid therapy.
- Thirty patients were recruited (twenty in ITD group and ten in ITM group).
- A ventilation tube (VT) was placed into the affected ear of each patient to facilitate intratympanic delivery of steroids.
- Four doses of either 25 mg/mL dexamethasone or dose equivalent 125 mg/mL methylprednisolone were administered through the VT weekly over 1 month.
- Response was assessed with pure tone audiometry which was performed weekly during treatment and at 6- and 12-months post treatment.

**Results**

**Methylprednisolone Group**

This group revealed a statistically significant improvement in hearing loss.

Hearing was completely restored within 10 dB of the unaffected ear in 20% of patients.

The remaining 37.5% of patients showed a partial recovery of ≥10 dB in hearing and the rest showed modest or no improvement in hearing.

**Dexamethasone Group**

No patients made complete recovery in the ITD group. Only one patient made partial recovery.

No significant side effects noted in either group.

**Recovery of Hearing in Methylprednisolone Group**

<table>
<thead>
<tr>
<th>Hearing Loss Distribution</th>
<th>Total</th>
<th>Partial Recovery (≥10 dB)</th>
<th>Complete Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Mid-High Frequencies</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Low Frequencies</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Asymmetric (Bimodal)</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>10</td>
<td>3 *(30%)</td>
<td>2 *(20%)</td>
</tr>
</tbody>
</table>

*percentage of total number of participants. N = 10

**Discussion**

- In patients with recovery in their hearing, the greatest improvement was noted in the low to mid frequencies range
- Patients who were administered ITM within 8 weeks delay of onset of symptoms showed the most improvement.

**Conclusion**

Our pilot study has shown patients with low and mid frequency ISSNHL benefit from salvage ITM, with a 20% complete recovery in hearing and remaining 37.5% partial recovery in hearing when treated within 8 weeks delay of onset of symptoms. No significant hearing improvement was noted in the ITD group.