Cochlear Implantation: Outcomes in Children with Cochlear Nerve Deficiency

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### Methods

- 3 children diagnosed with CND who received cochlear implants
  - All three implanted with Cochlear devices and use N6 processors
- Audiometric thresholds and speech scores reviewed within patient
- ECAP data observed within patient across visits

<table>
<thead>
<tr>
<th></th>
<th>Age of Implant</th>
<th>Ear</th>
<th>MRI</th>
<th>ABR</th>
<th>Comorbidities</th>
</tr>
</thead>
<tbody>
<tr>
<td>CASE 1</td>
<td>7</td>
<td>right (implanted)</td>
<td>absent</td>
<td>profound SNHL</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>left</td>
<td>present</td>
<td>ANSD</td>
<td></td>
</tr>
<tr>
<td>CASE 2</td>
<td>4</td>
<td>right</td>
<td>absent</td>
<td>profound SNHL</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>left (implanted)</td>
<td>absent/severely hypo-plastic</td>
<td>profound SNHL</td>
<td></td>
</tr>
<tr>
<td>CASE 3</td>
<td>2</td>
<td>right</td>
<td>absent</td>
<td>profound SNHL</td>
<td>CMV, trigonocephaly, hydrocephalus, and parenchymal brain calcifications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>left (implanted)</td>
<td>cochlear nerve deficiency</td>
<td>profound SNHL</td>
<td></td>
</tr>
</tbody>
</table>
- Speech perception scores improved for CASE 1
  - MLNT scores increased from 20% to 70%

- Subjectively speech abilities improved for CASE 2
Discussion

- Cochlear implant may be a possible solution for children with cochlear nerve deficiency

- Potential indicators for success
  - Measureable aided audiometric thresholds pre-implant
  - Families highly motivated and understanding of potential outcomes
  - Future research needed

- ECAP measures may be variable within this population, but may indicate neural integrity