Bimodal Benefit For Children: Pushing The Envelope

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I have no relevant financial or nonfinancial relationships in the products or services described, reviewed, evaluated or compared in this presentation.

Background

FDA Recommendations for Pediatric Cochlear Implantation

- Severe to Profound Sensorineural Hearing Loss Bilaterally
- Less than 30% Accuracy with Aided Word Recognition Bilaterally

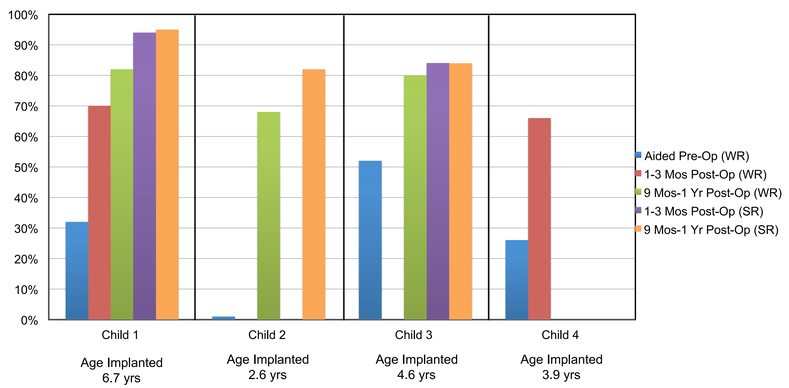
- The current candidacy guidelines do not include children who have little to no benefit from a hearing aid in one ear and have good benefit from a hearing aid in the opposite ear
- The current candidacy guidelines also do not include children who have better hearing but do not receive adequate benefit from hearing aids
- Research shows us that central summation along with listening in noise and localization are all improved when listening with both ears
- Research has also taught us when we can take advantage of acoustical stimulation with electrical stimulation, people have a better appreciation of music, do better in noise and localize better
- These are advantages children with hearing losses not falling within the FDA guidelines for cochlear implantation could benefit from when receiving a cochlear implant in one ear while still benefiting from a hearing aid in the other ear

Methods

- Retrospective chart review
- Children implanted between the ages of 2.5 years and 7 yrs
- All the children had hearing loss better than the FDA guidelines for CI candidacy with poor word/sentence discrimination
- All the children struggled significantly in the classroom and/or socially
- Looked at word/sentence discrimination scores pre implantation, at 1-3 months post implantation and 9 months-1 year post implantation
- Looked at post-implantation word/sentence discrimination each ear individually and performance with the ears together.
- Looked at Speech and Language outcomes pre and post implantation

Outcomes

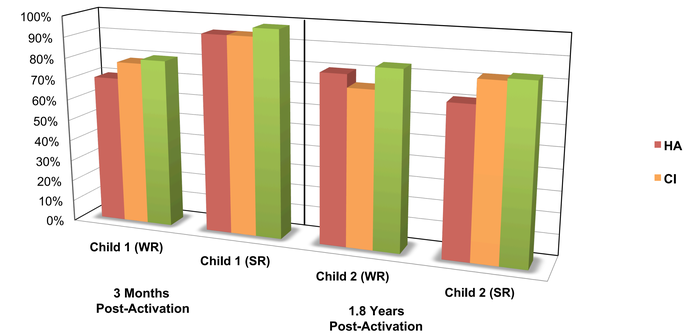
CI Only Word & Sentence Recognition



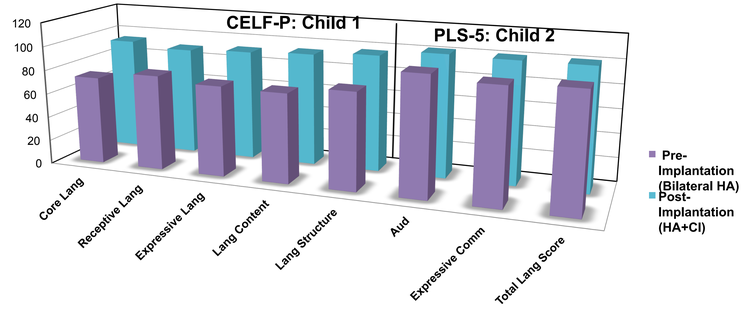
Note: WR = word recognition, SR = Sentence Recognition, child 2 does not have testing at 1-3 months due to her young age, child 4 only has 1-3 month testing due to the length of time of implantation. These tests were all completed in quiet

Individual Outcomes

Aided Results – Word and Sentence Recognition



Language Scores



Lessons Learned

- Performance for each of the children improved significantly after cochlear implantation in a short period of time
- Bimodal benefit is slightly better than the hearing aid only or cochlear implant only
- These cases provide evidence that children can have great success when Audiologists are proactive when considering candidacy for cochlear implantation
- These cases show that if children have residual hearing and are receiving benefit from their hearing aid, they will quickly benefit with the cochlear implant and surpass how they were doing with the hearing aid alone