Bimodal Stimulation in Infants: Is There a Benefit to Language Development?

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Supported by grants R01 DC000633 and R01 DC006327
National Institute of Deafness and Other Communication Disorders
Disclosures

- No financial relationships to disclose
Simultaneous bilateral cochlear implantation increasingly performed

Assumption is that bilateral electric hearing will optimize language outcomes

However, may have low-frequency residual hearing that could benefit from bimodal stimulation (CI with contralateral HA)
Outline

• Present language development data from ongoing longitudinal study of children with CIs

• Review theoretical underpinnings of language development that may benefit from bimodal stimulation
EDCHL Data

- 55 children with CIs
  - Implanted before age 3 years
  - Data collected after second grade
- 26 Bimodal - at least 1 year
- 29 CI-only
- Comprehensive evaluations of language development
EDCHL Data

- Equivalent socioeconomic status and age of identification of hearing loss
- Age of first CI slightly later for Bimodal group
- Pre-implant PTA slightly better for the Bimodal group, but no effect of PTA on language measures
Reading Outcomes

QRI Word Reading

Number Words Correct

QRI Passage Comprehension

Number Questions Correct (30)
Auditory Comprehension

CASL Standard Scores

- Bimodal: Higher scores
- CI-only: Lower scores
Expressive Vocabulary

![Expressive Vocabulary Graph]

- **Bimodal**: Standard Scores around 95
- **CI-only**: Standard Scores around 85

**Graph Details**
- Y-axis: EOWPVT Standard Scores
- X-axis: Bimodal vs. CI-only
Working Memory

- Bimodal
- CI-only

Percent Correct

Bar chart showing the percent correct for Bimodal and CI-only conditions.
All CI: Latent Scores at 2\textsuperscript{nd} Grade

![Bar graph showing SDs from NH for different kinds of structure (Phonological, Lexical, Grammatical).]
Bimodal vs CI-Only: Latent Scores

SDs from NH

Phonological