Outcomes for Hybrid Cochlear Implant Recipients Who Maintain Minimal or No Low-Frequency Residual Hearing

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What is a Hybrid Cochlear Implant?

- Shorter electrode array than traditional cochlear implant
  - designed to stimulate the basal end of the cochlea where the significant HL is present (~15 mm, 250 degrees)
- Hybrid allows individuals with steeply sloping HF hearing losses an alternative to traditional cochlear implantation
Purpose of Hybrid CI

• Designed to protect and preserve cochlear structures
• Allow for combined acoustic and electrical stimulation in the same ear
Outcomes

3 possible outcomes for hearing preservation:
1. Good preserved residual hearing—functional hearing at and below 500+Hz
2. Some preserved residual hearing—functional hearing at 125 and 250 Hz
3. Loss of all residual hearing—loss of all functional hearing

3 possible outcomes for speech perception:
1. Above median
2. Median
3. Below median

Outcomes for hearing preservation does NOT necessarily predict outcomes for speech perception benefit
23/29 with Functional Hearing 79%
CNC Word Recognition

- **Freedom**
  - Mean = 53.6
  - N = 53

- **Hybrid E Only**
  - Mean = 50
  - N = 50

- **Iowa Hybrid E Only**
  - Mean = 51
  - N = 25

Percent Correct

- 0
- 10
- 20
- 30
- 40
- 50
- 60
- 70
- 80
- 90
- 100
Final Thoughts

• Candidacy is determined by a number of factors for standard CI and Hybrid candidates
  – Audiogram
  – Speech perception
  – Etiology
  – Demographic factors
• There is variability amongst hybrid benefit
  – Similar to what is seen with a standard CI
• Verification of the acoustic component through real-ear testing is important.
• In cases where hearing is maintained minimally or not all at, patients can still benefit from a shorter array cochlear implant.
  – Performance for those that have not maintained residual hearing do similarly to bimodal users who have a standard electrode
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