Hearing Preservation: Quality of Life Outcomes

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Multi-center EAS clinical trial

» 18-70 years of age at implantation
» Documentation of stable residual hearing
» Poor speech perception with appropriately fit HAs
Hearing preservation outcomes

- Residual hearing preservation

Unaided Residual Hearing in the Implanted Ear Over Time (n=29)

CAUTION: Investigational device. Limited by US law to investigational use.
Hearing preservation outcomes

- Residual hearing preservation
- Improvements in speech perception
Hearing preservation outcomes

- Residual hearing preservation
- Improvements in speech perception
- Quality of life
Conventional CI

- Reported improvement in communication abilities, reduction in feelings of isolation or being a burden to others, improved relationships with loved ones (Mo et al, 2005)

- Subjective improvements experienced equally by older and younger adult recipients (Vermeire et al, 2005)

- Quality of life improvements reported by prelingually deafened adults (Klop et al, 2007)
EAS clinical trial

- **Subjective Benefit**
  - Hearing Device Satisfaction Scale (HDSS)
  - Abbreviated Profile of Hearing Aid Benefit (APHAB)

- **Administered:**
  - Pre-Operatively
  - Initial EAS Stimulation
  - 3, 6 and 12 month Post-EAS Fitting

CAUTION: Investigational device. Limited by US law to investigational use.
EAS clinical trial: HDSS

- Assessment of satisfaction with different features of the device
  - Cosmetics
  - Sound quality
  - Manipulation
  - Effectiveness in noise

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>Very Satisfied</th>
<th>Satisfied</th>
<th>Neutral</th>
<th>Dissatisfied</th>
<th>Very Dissatisfied</th>
<th>Does not Apply</th>
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<tbody>
<tr>
<td>Overall fit or comfort</td>
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<td>Visibility to others</td>
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<td>Sound quality of my own voice</td>
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<td>Effectiveness in background noises (i.e., performance)</td>
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EAS clinical trial: HDSS

HDSS Composite Score (n=29)

Composite Score

Dissatisfied

Satisfied

Timeline

PreOp  3 month  6 month  12 month

Average
EAS clinical trial: HDSS

HDSS (n=29)

Effectiveness in Background Noise
Improvement in Quality of Life
Theater
Movies

Score

Dissatisfied
Satisfied

PreOp
3 month
6 month
12 month

CAUTION: Investigational device. Limited by US law to investigational use.
EAS clinical trial: APHAB

- Assessment of ability/difficulty in specific situations
- Subscales
  » Ease of Communication (EC)
  » Background Noise (BN)
  » Reverberation (RV)
  » Aversiveness (AV)

| A Always | (99%) A |
| B Almost Always | (87%) B |
| C Generally | (75%) C |
| D Half-the-time | (50%) D |
| E Occasionally | (25%) E |
| F Seldom | (12%) F |
| G Never | (1%) G |

11/14/13

1. When I am in a crowded grocery store, talking with the cashier, I can follow the conversation. ...........A B C D E F G .........A B C D E F G

CAUTION: Investigational device. Limited by US law to investigational use.
EAS clinical trial: APHAB

APHAB (n=29)

Difficulty Percentage

Subtest

EAS clinical trial: APHAB

APHAB (n=29)

Difficulty Percentage

Subtest

Ease of Communication

Background Noise

Reverberation

Aversiveness

PreOp

3 month

6 month

12 month

CAUTION: Investigational device. Limited by US law to investigational use.
Other subjective benefit reports

• Decrease in reported impairment at the 3 month post-activation interval as compared to the preoperative interval as measured with the APHAB (Gstoettner et al, 2011)

• Reported improvement in quality of life in hearing preservation cases using the medium or FlexEAS electrode arrays (Lee et al, 2010)
EAS clinical trial: subjective benefit

- Single site findings (HDSS):
  - General improvement in device satisfaction
  - Largest gains in challenging listening situations
    - Effectiveness in background noise
    - Improvement in quality of life (i.e., social, emotional, physical)
    - Movies & theater
  - No change in cosmetics, visibility to others, manipulation (insertion/removal of device)
EAS clinical trial: subjective benefit

- Single site findings (APHAB):
  - Reported improvement with EAS over conventional amplification on the following subtests:
    - ease of communication
    - background noise
    - reverberation
  - No difference on aversiveness subtest
Future Directions

- Continued subjective assessment
  » Long-term outcomes

- Inclusion of other questionnaires
  » Speech, spatial, and qualities of hearing questionnaire (SSQ)
Thank you

UNC Cochlear Implant Team

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