Electric-Acoustic Stimulation (EAS): Objective Findings

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- EAS Multi-Center Clinical Trial supported by MED-EL Corporation
EAS clinical trial

- US multi-center clinical trial on the safety and efficacy of EAS
- 2006: enrollment initiated at UNC

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

• Test Battery
  » Unaided residual hearing
  » Aided speech perception

• Intervals
  » Preoperative
  » Initial CI activation (1 month postop)
  » Initial EAS activation (2 months postop)
  » Post-initial EAS activation
    • 3-, 6-, and 12-months

CAUTION: Investigational device. Limited by US law to investigational use.
EAS clinical trial: single-site findings

• Demographics
  » Subjects, n=32
    • Arm 1, n=20
    • Arm 2, n=12
  » Age at implantation
    • Average: 55.8 years (18.2 - 76.6 yrs)
  » Surgical approach
    • Round window, n=24
    • Cochleostomy, n=8

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EAS clinical trial: single-site findings

Threshold (dB HL)

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>250</th>
<th>500</th>
<th>1000</th>
<th>2000</th>
<th>4000</th>
<th>8000</th>
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<tbody>
<tr>
<td>pre-op</td>
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EAS clinical trial: single-site findings

Threshold (dB HL)

250 500 1000 2000 4000 8000

Frequency (Hz)

pre-op
Initial-CI

CAUTION: Investigational device. Limited by US law to investigational use.
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Threshold (dB HL)

Frequency (Hz)

pre-op
3-mo

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EAS clinical trial: single-site findings

[Box plot showing threshold (dB HL) vs. frequency (Hz) for pre-op and 12-mo conditions.]
EAS clinical trial: single-site findings

• Speech perception measures
  » 70 dB SPL
  » CNC words in quiet
  » CUNY sentences in steady noise
    • SNR determined at 3-month post-initial EAS interval
      » 0 dB SNR, n=30
      » 5 dB SNR, n=1
      » 10 dB SNR, n=1

• Listening conditions
  » HA alone
  » CI alone
  » EAS

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EAS clinical trial: single-site findings

CNC Words in Quiet

Follow-up interval: pre, mo3, mo6, mo12

Groups: CNC_HA, CNC_CI, CNC_EAS

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EAS clinical trial: single-site findings

CUNY Sentences (0 dB SNR)
EAS clinical trial: single-site findings

• Summary
  » Change in residual hearing prior to CI activation
  » Variable stability in hearing preservation over time
  » Improvement in speech perception in quiet and noise with CI alone as compared to the HA alone listening condition
  » Improvement in speech perception in quiet and noise with EAS as compared to the CI alone listening condition
Electric-Acoustic Stimulation: Objective Findings

THANK YOU