Cochlear implants in the United States veteran population, a 10-year retrospective analysis

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Disclosure

I have NO financial disclosure or conflicts of interest with the material in this presentation
Background

• Cochlear implantation (CI) is gold standard treatment for severe to profound sensorineural hearing loss

• Veterans are a unique population at increased risk for hearing loss

• Limited studies showing audiological outcomes of CI in veterans
Methods

• **Inclusion criteria**: Patients who had CI surgery at the Cincinnati VA from January 2008 to December 2019

• Retrospective chart review to obtain the following speech recognition scores in the surgical ear and bilaterally: *CNC words, AzBio in quiet, AzBio in noise (signal to noise ratio = 10)*

• Outcomes were tracked at the following time points: *Pre-operative (baseline), 3 months post-operative, 6 months post-operative, 12 months post-operative*
Results

- **116 patients** met inclusion criteria of CI at the Cincinnati VA from January 2008 to December 2019

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Outcome</th>
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<tbody>
<tr>
<td>Mean age, years (SD)</td>
<td>72.7 (9.3)</td>
</tr>
<tr>
<td>Sex</td>
<td>115 males, 1 female</td>
</tr>
<tr>
<td>CI Sidedness</td>
<td>53% right, 47% left</td>
</tr>
<tr>
<td>Previous ear surgery</td>
<td>2.6%</td>
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<tr>
<td>Mean ASA score</td>
<td>2.94 (out of 5)</td>
</tr>
</tbody>
</table>

**Category**  | **Physical Status**
--- | ---
ASA 1 | Normal healthy patient
ASA 2 | Patient with mild systemic disease
ASA 3 | Patient with severe systemic disease that is not a constant threat to life
ASA 4 | Patient with severe systemic disease that is a constant threat to life
ASA 5 | Moribund patient not expected to survive with or without surgery
Surgical CNC

* p < 0.05
Bilateral CNC

* p < 0.05
Surgical AzBio in Quiet

* p < 0.05
Bilateral AzBio in Quiet

* p < 0.05
Surgical AzBio in Noise

<table>
<thead>
<tr>
<th>Time</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Baseline</td>
<td>16.07%</td>
</tr>
<tr>
<td>3 months</td>
<td>42.71%</td>
</tr>
<tr>
<td>6 months</td>
<td>46.13%</td>
</tr>
<tr>
<td>12 months</td>
<td>47.64%</td>
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</tbody>
</table>

* p < 0.05
Bilateral AzBio in Noise

* p < 0.05
Surgical CNC vs HERMES
Surgical AzBio in Quiet vs HERMES
Conclusion

• There are unique challenges in veterans regarding CI evaluation, surgery, and audiologic follow-up

• Veterans realize significant improvements in speech understanding after CI surgery