Very early activation after Cochlear Implantation – our experiences in the first children cases

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Disclosure:

- I have nothing to disclose
Background:

- **In former times** – general recommendation: speech processor activation
  4 weeks (wound is usually healed by that point of time)

- **Since 2013** – first activation routinely done 2 weeks after implantation

  **Postoperative changes in telemetry measurements after cochlear implantation and its impact on early activation**

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- Showed that activation is possible less than 4 weeks po
- Analyzed the postoperative change in telemetry over time
- Conformation acceptance of the patients
Material\&Methods:

- retrospectively study
- children (01/2017-05/2018) routinely received a CI were analyzed
- age/median age
- implant
- 1 day postoperatively-
  - Experienced the patients any - clinical complications
  - Ability to wear the audio processor, pain, swelling
  - Impedance values were analyzed – compared to the intraoperative results
Minimal access:

- Routine surgical procedure (mastoidectomy, post. tympanotomie)
- Minimal invasive access (skin incision 3.5-4.5cm)
- C-shaped flap as protection
- Electrode fixes partially in a channel
- RW insertion if possible / atraumatic insertion (95.6%)
Very early activation in Children
Double c-shaped flap:
Median impedance values

17 implants_12 patients
5 bilateral
median age: 3 years (12m-12y)
CI 522
CI 523

median impedance values intraoperativ
1 day post op
same curve profile
Impedance values:

- No significant differences in intra and 1 po day impedances
- Data range from 6.0 kΩ to 7.3 kΩ

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### t-Test: Paired Two Sample for Means

<table>
<thead>
<tr>
<th>Variable 1</th>
<th>Variable 2</th>
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<tbody>
<tr>
<td>Mean</td>
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<tr>
<td>Variance</td>
<td>0.23486503</td>
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<td>Observations</td>
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<td>Pearson Correlation</td>
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<td>Hypothesized Mean Difference</td>
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<tr>
<td>df</td>
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<tr>
<td>P(T&lt;=t) one-tail</td>
<td>6.2204E-14</td>
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<tr>
<td>t Critical one-tail</td>
<td>1.7207429</td>
</tr>
<tr>
<td>P(T&lt;=t) two-tail</td>
<td>1.2441E-13</td>
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<tr>
<td>t Critical two-tail</td>
<td>2.07961384</td>
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</tbody>
</table>

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Boxplot der Daten von Tabelle A (Grundlagen dieser Daten waren jene aus Z30 bis Z52 & AC30 bis AC52)
Results:

- No statistically significant difference between intraoperative and first po impedances for each channel (22)
- Noticeable that the curve profile was the same in the both measurements
- No statistically significant difference in the value (intra/ first po day) decreased from 0.8 to 0.74 kOhm
Conclusion:

- We can rethink the activation time to give our patients an earlier entry into the hearing world.

- Recommend the minimal invasive surgical guidelines.

- We faced no problems with the activation first day after surgery.

- Could proof, that very early activation could take place without any problems.

- Recommendation to children – satisfied patients.

- Not the impedances are the predictor for the time of activation – it is the shorter wound healing period after minimal invasive surgery.

- Based on our study – rehabilitation can begin sooner for our patients.