Electrophysiologic changes after 'pullback' of the slim modiolar electrode - first clinical impressions

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Disclosure

Research projects:
Cochlear Corp.
Advanced Bionics
Objective

Depending on the position of the electrode array within the scala tympani, ABR potential changes

Shepherd et al, 1993 Hearing Research
Objective

• In perimodiolar electrodes ECAP threshold is lower than in straight electrodes Gordon et al. 2013 O&N; Park et al. 2017 O&N

• Speech perception outcomes poorer in lateral wall electrodes Park et al. 2017 O&N

• Speech perception with no sig. difference in lateral wall and perimodiolar electrode arrays Moran et al. O&N 2019
Electrode pullback

Complete insertion pullback of the electrode to achieve a position closer to the modiolus

Electrophysiologic differences after pullback  Todt et al. 2008, Acta Oto

Similar audiologic outcome  Basta et al. 2010, Laryngoscope

Pullback about 1.37 – 1.5 mm without any risk of electrode migration  Todt et al. 2010, ScientificWorldJournal
Electrode pullback
Electrode pullback
Aim of the study

Electrophysiological changes using the pullback – technique in CI-surgery
Material and Methods

- Nucleus Slim modiolar Electrode (CI532 / CI632)
- 19 adult patients unilateral implanted
- Insertion with sheat to the distal marker in the RW
- Pullback to the central marker is in the RW
- Auto NRT, Impedances, Transimpedances
Results

- 12 male, 7 female patients, mean age 62y (29-81y)

- Implantation between January 2018 and June 2019

- Mean duration of deafness 2.5y (0.5 – 8y)

- 5 right side implants, 14 left side implants

- RW insertion
Results - Impedances
Results – t-NRT
Transimpedances
Conclusion

- Unchanged Impedances after pullback

- Sig. lower t-NRT values after pullback EL 7-11 $p<0.001$

- More favorable t-NRT pattern after pullback

- Careful pullback to avoid migration of the electrode
- Audiological evaluation

- Preservation of residual hearing?

- Posters 172/173/184/185
Thank you very much for your attention!

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