

Abstract EFAS/DGA 2007

Estimation of Speech Perception with the CI from preoperative Data

Joseph, G., Büchner, A., Battmer, R.D., Lenarz, T.

Medical University of Hannover, Department of Otolaryngology, Hannover, Germany

Director: Prof. Dr. med. Th. Lenarz

The computation of possible postoperative speech perception with the CI can be important for the rehabilitation plan, for the expectations of the patient and also for quality control. For the development of a classification function a collective was selected by the conditions: age > 18 years, first language German, no additional handicaps, no bilateral CI and only implant types Nucleus24 or Advanced Bionics HighFocus. For 242 patients we found the complete set of preoperative data: duration of deafness in the ipsilateral and the kontralateral ear, promontorium test ipsilateral, audiogram of both sides, Freiburger monosyllables and numbers preoperative. This collective was divided into a learn set and a test set with the same distributions in durations of deafness and in postoperative speech tests.

For the development of a classification function the learn and the test set were divided into performance classes by the results of the speech tracking test one year after implantation. On the learn set different classification functions were generated. The performance of a function like this can be obtained by the results on the test set. These results are lower than the results on the learn set, but they are more similar to the expected results that would be obtained with completely new data.

Divided into two performance classes, 57,9 % of all patients from the test set set were classified correctly and with three performance classes the result was 43,8 %. The most important variable was the ipsilateral duration of deafness.

The classification accuracy obtained up to now is only 5-10 % above chance level but this analysis shows that this way to generate a classification function is practicable.

