HEARING PRESERVATION CLASSIFICATION

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Insertion of an electrode into the cochlea usually causes a certain degree of trauma to delicate cochlear structures (electrode insertion trauma, EIT), which may activate mechanisms of hair cell and ganglion cell death, including necrosis and apoptosis. Any damage to the cochlear structures of the inner ear can lead to degeneration of neural tissue and may lead to a reduction in the number of neural elements. However, a sufficient number of intact neural elements is necessary for cochlear implants to provide good speech discrimination. It is generally assumed that the amount of EIT correlates with the level of postoperative hearing preservation. Thus the extent of hearing preservation is believed to serve as a good indicator of the magnitude of EIT.

Initially, it was thought that only patients with substantial hearing would benefit from hearing preservation surgery. The patient could either use acoustic amplification or natural hearing together with electric stimulation. However, the conclusion that preservation of functional cochlear structures must be an aim in all CI surgeries was formulated by expert otologists at the VIIIth Hearing Preservation Workshop, 15 October 2009, Vienna, Austria. Therefore, hearing preservation has become a standard cochlear implant surgical approach among the whole cochlear implant patient group, regardless of the level of preoperative residual hearing.

With increasingly higher number of cochlear implant patients having preserved hearing, there is a need for a

hearing preservation classification. There have been several attempts to classify hearing preservation after cochlear implantation. However, none of these schemes were independent of the initial hearing level, and classifications were suitable only for a limited group of subjects. What is more, existing classification schemes do not recognise the fact that hearing preservation in patients with substantial preoperative hearing is more valuable than in patients with poorer residual hearing. The goal of a uniform hearing preservation classification is to have, within different CI centres, one reliable method of classifying possible postoperative hearing loss in patients.

Currently, there is an on-going discussion within the group of the HEARRING centres to propose an optimal classification. The proposed classification should fulfil the following criteria:

- Classification independent of initial hearing;
- Classification for all cochlear implant patients; i.e. covering the whole range of patients with pure tone averages from 0 to 120 dB;
- Classification easy to use and easy to understand.

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