Abstract EFAS/DGA 2007

Does the natural sounds loudness estimation method work for patients with "dead regions"?

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A “dead region”, DR, is defined in terms of the characteristic frequencies of the inner hair cells and/or neurones immediately adjacent to the dead region [1]. It is usually not possible to predict the occurrence of dead regions based on a tonal audiogram [2] and specific methods of diagnosis must be used (threshold equalizing noise method (TEN test)). Classic hearing aid fitting methods which ignore the presence of dead regions are often unsuccessful and hearing aids fitted using such methods do not improve a life comfort of hearing impaired people with dead regions.
We propose an alternative method of hearing aids fitting for patients with “dead regions” - The Natural Sounds Loudness Estimation (NSLE) [3]. We have investigated four persons with DR’s in both ears. There were high-frequency DR’s starting in different frequencies, from 750 Hz up to 5000 Hz, were found. Listeners ability to follow subjectively perceived changes in loudness was investigated. Tracking of loudness changes is the basis for calculation of insertion gains of hearing instruments. We found that all DR-subjects were able to follow the task, with correlation to the original sound track of 0.6-0.8. Therefore, in our opinion NSLE method seems to be good, alternative method for hearing aids fitting for people with well diagnosed “ dead regions”.

Literatur:

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