COMPARATIVE PERFORMANCE BETWEEN TWO HEARING AID PRESCRIPTIONS, AND BETWEEN AN ADAPTIVE DIRECTIONAL MICROPHONE SYSTEM AND A MULTI-BAND NOISE REDUCTION SYSTEM, IN A DIGITAL HEARING INSTRUMENT

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ABSTRACT

The amplification outcomes of two hearing aid prescriptions: NAL-NL1 and Digital Perception Processing (DPP), of nine moderate to moderately-severe hearing-impaired adults were compared in the same digital hearing instrument. NAL-NL1 aims at optimizing speech intelligibility while amplifying speech signal to a normal overall loudness level or at a lower level if that improves speech intelligibility (Dillon, 1999); whereas DPP focuses on restoring loudness based on normal and impaired cochlear excitation models (Launer & Moore, 2003). DPP gave better sentence recognition performance than NAL-NL1 mainly in the signal-front/ noise side condition, whereas the two prescriptions gave similar performance in the signal-front / noise-front condition. Subjective evaluations by APHAB and sound quality paired comparisons did not give conclusive results between the two prescriptions. In each hearing aid prescription, the ability of the hearing aid to combat noise was evaluated by a sentence-in-noise test among three conditions: (1) adaptive directional microphone (DAZ), (2) multi-band noise reduction system (FNC), and (3) combination of (1) and (2) (DAZ+FNC). In signal-front and noise-side evaluation, DAZ and DAZ+FNC gave better performance than FNC in nearly all subjects; whereas in signal-front and noise-front evaluation, the conditions were not different.
Presentations