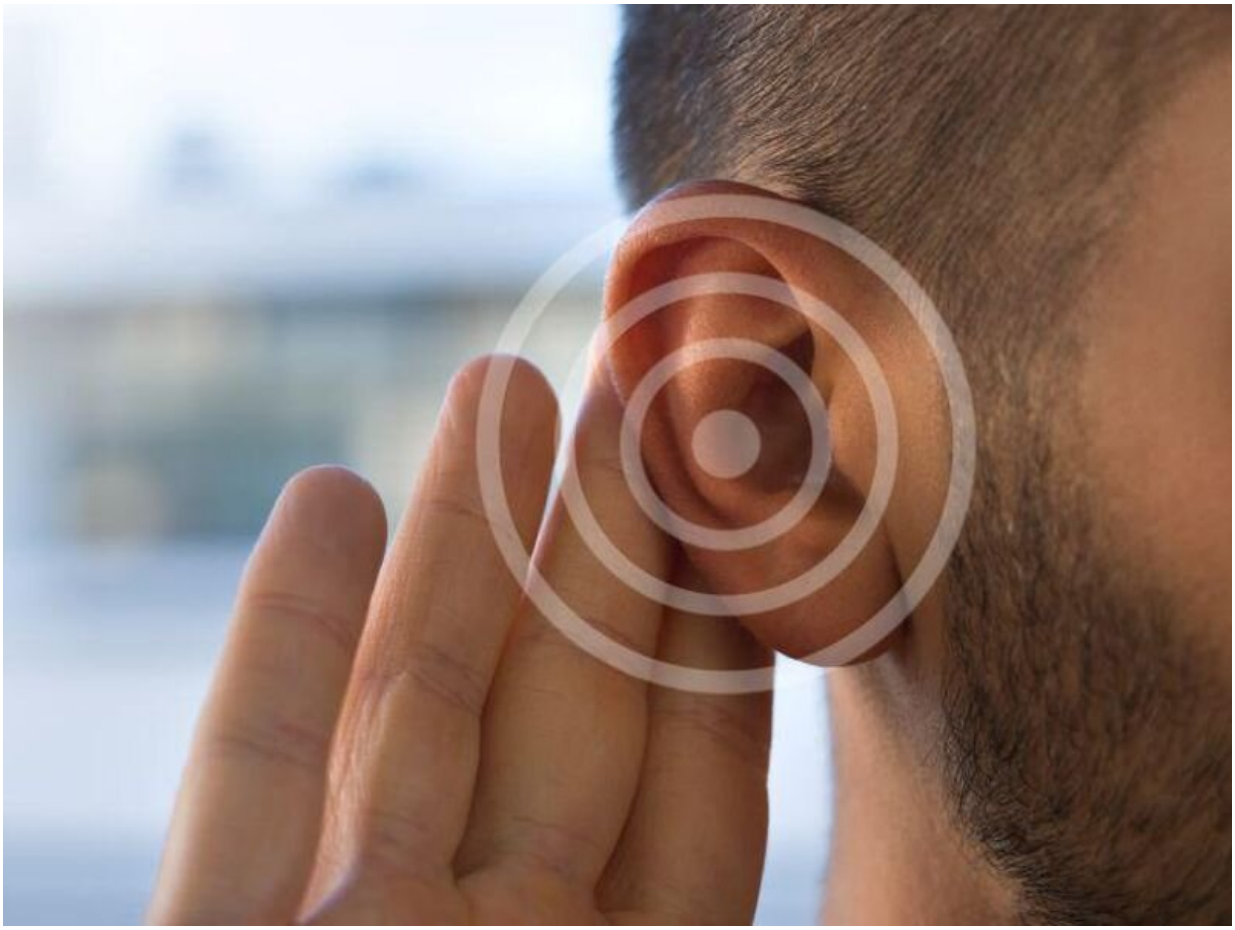
Medical Xpress

Vestibular evaluation can help predict outcomes in sensorineural hearing loss

March 24 2023, by Elana Gotkine



For patients with sudden sensorineural hearing loss (SSNHL), vestibular

assessment is beneficial for predicting hearing outcome, according to a study published online Feb. 15 in the *Frontiers of Neurology*.

Andrea Castellucci, M.D., from the Azienda USL—IRCCS di Reggio Emilia in Italy, and colleagues prospectively assessed 86 patients with SSNHL. Pure-tone/speech/impedance audiometry, cervical/ocular-vestibular evoked myogenic potentials (VEMPs), video head impulse, and video-Frenzel examination were examined as part of the audio-vestibular investigation. Patients were followed and classified into SSNHL-no vertigo, SSNHL+vertigo, and early-stage Meniere disease (MD) subgroups.

The researchers found that SSNHL+vertigo patients who exhibited either down-sloping or flat-type audiograms had more impaired hearing, whereas hearing was less impaired in MD where low frequencies were mostly impaired. Compared with semicircular canals (SCs), otolith receptors were more frequently involved.

The lowest vestibular impairment was exhibited by the SSNHL-no vertigo subgroup, but 52 and 72 percent developed otolith dysfunctions and nystagmus, respectively. Anterior SC impairment and upbeating spontaneous/positional nystagmus was only seen for MD individuals; they also exhibited cervical-VEMPs frequency tuning and ipsilesional spontaneous nystagmus more frequently.

Impaired cervical-VEMPs and posterior SC were seen more often among SSNHL+vertigo patients, and they had a higher number of impaired receptors. In terms of outcomes, hearing was better in MD and worse in SSNHL+vertigo. Recovery of hearing was mainly affected by cervical-VEMPs impairment and the number of receptors involved.

"Our data confirm that the assessment of vestibular function represents a valuable method to explore underlying pathomechanisms as it provides

additional data on the involvement of inner ear receptors, supporting further understandings in labyrinthine function," the authors write.

More information: Andrea Castellucci et al, Vestibular assessment in sudden sensorineural hearing loss: Role in the prediction of hearing outcome and in the early detection of vascular and hydropic pathomechanisms, *Frontiers in Neurology* (2023). DOI: 10.3389/fneur.2023.1127008

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