

Short-term test-retest reliability of the olivocochlear efferent reflex strength in normal-hearing subjects

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The medial olivocochlear bundle has an inhibitory effect on the outer hair cell activity in the cochlea. Therefore, by activating the medial olivocochlear bundle using contralateral acoustic stimulation (CAS), a reduction in otoacoustic emission amplitude can be measured. To monitor the efferent reflex strength in clinical populations such as patients with vestibular schwannoma, information regarding its test-retest reliability is essential as it may assist in the correct identification of physiological or pathological changes in the amount of efferent suppression (ES) over time. The goal of this study was to investigate the short-term test-retest reliability of the olivocochlear efferent reflex strength as measured by using CAS of transient-evoked otoacoustic emissions (TEOAES) in normal-hearing subjects using commercially available equipment. So far, one ear of 12 subjects (6 females, 6 males) with normal hearing between 18 and 40 years were included in the current study. Hearing status was evaluated by otoscopic evaluation, admittance measures, pure-tone audiometry and TEOAES with and without CAS. After one week, the audiological test battery was repeated. Reliability of the amount of ES was assessed using one-way repeated measures analysis of variance and parameters intraclass correlation coefficients, standard error of means and minimal detectable differences. Preliminary analysis indicates that there were no significant differences in the amount of ES between both sessions. Also, reliability measures of the amount of ES were good, although dependent on the measured center frequency. More subjects will be tested, and these results, as well as the clinical implications of measuring the efferent reflex strength over time will be discussed.