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Research on otoacoustic emission responses in patients suffering from tinnitus

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Since tinnitus is a phantom auditory perception and is generally heard only by the patient himself, determining the psychoacoustic parameters of tinnitus is a subjective method often used. Not only the difficulty of determining the correlation between the intensity of annoyance but also the lack of diagnostic and therapeutic support to the clinician, have lead towards studies that objectively evaluate the tinnitus. This study has been done at Hacettepe University, Medical Faculty, Ear-Nose-Throat Department, Audiology and Speech Pathology Unit. This study aims to investigate if the results of otoacoustic emission (OAE) measures are in accordance with the subjectively determined tinnitus frequency and if any difference exists in OAE responses between the two groups. There are two groups both having 15 subjects. First group consists of subjects having normal otologic examination results without hearing loss but suffering from tinnitus. The second group is the control group. After determining the hearing thresholds, including high frequencies for both groups, OAE responses have been recorded. For the first group the tinnitus frequency and intensity have been subjectively determined. It has been found that in these subjects there is a positive relationship between the tinnitus frequency measured subjectively at left ear and the distortion product otoacoustic emission (DPOAE) measures. No difference has been found in the spontaneous otoacoustic emission (SOAE) measures between the two groups. Transient evoked otoacoustic emission (TEOAE) and DPOAE amplitude measures at some frequencies are lower for the first group. Therefore, it is assumed that tinnitus affects cochlea and thus causes OAE measures to be different from normal.

