

COMPARISON OF OAEs SCREENING AND CLINICAL AUDIOMETRY IN DIABETIC PATIENTS WITHOUT HEARING SYMPTOM

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ABSTRACT

The main objectives of this study was to evaluate the efficiency of otoacoustic emission (OAE) screening for both transient evoked otoacoustic emissions (TEOAEs) and distortion product otoacoustic emissions (DPOAEs) and to assess the hearing screening, compared with clinical audiometry in 142 diabetic patients without hearing symptoms (71 females and 71 males, aged 30-60 years old), who visited the out-patient endocrine clinic at Ramathibodi Hospital, Bangkok. They were not suspected to have outer and/or middle ear problems. The general information and medical history of all subjects were collected before the OAE screening and clinical audiometry tests. All data were analyzed using STATA 13.0 software (College Station, TX, USA). The results showed that the sensitivity of TEOAEs was 27% and 29%, while the specificity was 96% and 92% in right and left ears, respectively. The accuracy was 50% and 69%, positive predictive value (PPV) was 93% and 87% in right and left ears, respectively, and negative predictive value (NPV) was 40% in both ears. The positive likelihood ratio (LR+) was 6.85 and 3.63, and negative likelihood ratio (LR-) was 0.75 and 0.77 in right and left ears, respectively. The sensitivity of DPOAEs was 66% and 69%, and its specificity was 89% and 83% in right and left ears, respectively, with an accuracy of 74% in both ears. The PPV was 93% and 89%, NPV was 57% and 58%, LR+ was 6.00 and 4.06, and LR- was 0.38 and 0.37 in right and left ears, respectively. In summary, the DPOAEs were more efficient for the detection of hearing impairment in diabetic patients than TEOAEs. Moreover, the test was simple, fast, and costs less, and could be used by non-professional personnel.

KEY WORDS: OAEs SCREENING / CLINICAL AUDIOMETRY / DIABETES
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