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DPOAE following stapes surgery: Stapedectomy versus stapedotomy

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Introduction: Our study was designed to evaluate DPOAE following stapes surgery (SS) in patients with otosclerosis and to compare two surgical techniques that are currently being used for SS in our department.

Method: The study cohort included 12 males and 17 females aged between 16 and 69 years. DPOAE was recorded prior to and 1 month after surgery. Twelve patients underwent stapedectomy (SE) and the other 17 were operated on using stapedotomy technique (SO). Results: DPOAE were measured only in low frequencies in 2/12 patients in SE group and 5/17 patients in SO group prior to surgery. DPOAE were recorded post-operatively in all but 4 patients (2 in each group). The amplitude of post-operative DPOAE was significantly higher in SE group at frequencies 3, 4, and 5 kHz ($p < 0.05$, < 0.01 and < 0.001 , respectively) and did not differ significantly at frequency 2 kHz between the two groups. Decreasing of the DPOAE amplitude was demonstrated in 3 patients (2 in SE and 1 in SO group) who reported again for follow-up examination 6-9 months after SS.

Conclusions: Our results could be explained by variations of changes of sound transmission properties related to different kinds of prostheses used for stapes replacement. Scar formation can compromise the mobility of the reconstructed ossicular chain and lead to decrease of DPOAE through the time.