

## SUMMARY

The close proximity of the vestibular organ during otosurgical procedure may have a negative impact on the inner ear. The most common symptoms of vestibular damage are vertigo and imbalance. Over the recent years, a number of scientific articles have been published on that topic but, the pathogenesis is not fully understood.

The aim of the study was to evaluate vestibular function before surgery, 1 month after surgery and a year after. The following procedures were evaluated: open tympanoplasty (group I – 30 patients), stapedotomy (group II – 31 patients) and cochlear implantation (group III – 35 patients). The patients selected for surgery were submitted to static posturography, bithermal caloric test and DHI questionnaire. Patients treated at the ENT Department of Medical University of Białystok were enrolled into the study. 34 patients without vestibular symptoms were enrolled into the control group.

Our results suggest that stapedotomy and open tympanoplasty may have a slight impact on vestibular organ. On the other hand cochlear implantation may cause vestibular dysfunction.

In an open tympanoplasty group, 1 month after surgery, we observed statistically significant change in EC test (posturography). The 3 remaining posturographic parameters in group I (EC, EOU, ECU) 1 month after surgery and all posturographic tests 1 year after the procedure were not statistically significant. Analysis of caloric test and DHI were not statistically significant. No significant pre- and post-surgery differences were found in stapedotomy group.

Significant differences were found in group III (cochlear implant) between caloric test pre- and one year post-surgery. A statistically significant improvement was found in the EC test at one year.

DHI results correlated with the posturography results in all groups. Patients with high preoperative values achieved higher scores in postoperative evaluations. A change towards lower DHI scores correlated with lower posturographic values.

There have been described repeated cases of benign paroxysmal positional vertigo after surgery in the operated ear and on the contralateral side.

Although some abnormalities were detected in the tests during the study, most patients did not experience a deterioration in quality of life due to central compensation. A noticeable tendency between DHI scores and posturography results was observed.