Abstract

Introduction: Disorders of balance and dizziness are characteristic symptoms in patients after vestibular schwannoma surgery and often have a negative impact on their quality of life. This thesis deals with impairment of postural stability particularly in patients at the long time period after surgery. The aim of this study is to observe the longitudinal development of vestibular compensation from acute postoperative period to time of several years after surgery. Another aim is to evaluate the short-term effect of vestibular rehabilitation in a long time period after surgical treatment, and to compare the results of measuring the subjective visual vertical, posturography, score of the Dizziness Handicap Inventory questionnaire, age and tumor size in these patients.

Methods: Examined group consisted of 10 patients after resection of vestibular schwannoma (mean age 41.4 ± 12.1 years; 2 women and 8 men). All patients underwent intensive rehabilitation program in the acute phase after surgery. 7 patients did exercise with visual feedback, and 3 patients had conventional rehabilitation without visual feedback. In long time period after surgery all patients underwent one exercise unit with visual feedback. Patients underwent computerized posturography examination using force platform Balance Master® in the acute period after surgery, after they finished a rehabilitation program, in a period of several years after surgery and after completion of exercise unit with visual feedback. Patients answered DHI questionnaire and were examined for subjective visual vertical using the bucket method. Data analysis was performed using ANOVA test on the level of significance of $p = 0.05$.

Results:

1. There is a significant influence of rehabilitation in the acute period after resection of vestibular schwannoma on the static component of balance. We found a statistically significant reduction in movement of CoG, in stance on a foam surface with eyes open in CTSIB.

2. In long term period after surgery there is a significant improvement in both static and dynamic component of balance. We observed a statistically significant change in

patients standing on a foam surface with eyes closed in CTSIB. There was also a significant reduction in the step width in Tandem Walk test.

3. Vestibular rehabilitation in a long term after vestibular schwannoma resection does not improve postural stability significantly.

4. There is no correlation of computerized posturography, subjective visual vertical, DHI score, tumor size and age of the patients after resection of vestibular schwannoma.

Conclusions: Vestibular rehabilitation in the acute postoperative period improves especially static component of balance in patients after surgery. In the long period after resection there is a significant compensation of both static and dynamic component of stability. In long term period after operational treatment there is no significant improvement of balance via vestibular rehabilitation. The results of the objective examination of balance do not correlate with subjectively rated handicap.