

## SUMMARY

**Introduction:** vertigo is a relative cause of aging in the elderly. Elderly people are thus burdened with many diseases, which include many drugs and the effects of disability. They often struggle with emotional sphere disorders, loneliness, withdrawal, while seniors with profound hearing loss, also with the exclusion of the society. On the one hand, there are many causes affecting the occurrence of balance disorders, on the other hand, analyzing the available literature, the group of elderly patients seems to be a relatively rare object of in-depth analysis. Taking up the diagnostic challenge may be the beginning of proper rehabilitation, improvement and return to activity of elderly patients, which has a socio-economic impact.

**The study aimed to assess:**

1. Searching for objective parameters evaluating the severity of effects in order to use comparative analyzes in various disease states with vertigo and to monitor the rehabilitation process;
2. Evaluation of vestibular, inner and middle ear disorders in geriatric patients with chronic vertigo and their relationship with the severity of these ailments assessed using the DHI (*Dizziness Handicap Inventory*) scale;
3. Assessment of the occurrence of balance disorders in geriatric patients with chronic vertigo and their relationship with the severity of these ailments assessed using the DHI scale;
4. Evaluation of vitality and risk of falls in patients with chronic vertigo.
5. Evaluation of the usefulness of selected diagnostic methods in finding the causes of chronic vertigo in the elderly.

**Materials and methods:** the study included 40 patients hospitalized in the Geriatrics Department of the SP ZOZ of the Ministry of the Interior and Administration in Bialystok between October 2018 and December 2019. The study group consisted of patients in the case of which one of the basic complaints constituting the reason for reporting to the hospital was dizziness lasting for at least 2 months. People without this symptom constituted the control group. During the hospitalization of patients in the Geriatrics Ward, tests were carried out to assess the performance of daily activities, the risk of falls, mental state, and nutritional status. The presence of chronic comorbidities, medications, results of laboratory tests, DHI scale, and imaging tests were assessed.

Then the patients were referred to the USK otolaryngology clinic, where they were consulted in order to search for the causes of vertigo, the laryngological history was collected, they underwent a detailed physical examination, including elements of a neurological examination, had diagnostic maneuvers performed and additional tests were ordered: audiometry, VNG, static stabilometry eye-tracking tests.

**Results:** the study group consisted of 35 patients. The mean age of patients with vertigo was 79.29 years (SD=6). The average score of the DHI scale was 61.8 points. The study group was characterized by multimorbidity, took many medications and was characterized by malnutrition. Numerous studies and tests conducted have revealed a number of abnormalities that affect the appearance of vertigo. Typically, several causes of vertigo were identified in one patient. Due to the heterogeneity of the study group in terms of the intensity of symptoms and the small control group (5 patients), an analysis of objective parameters of pathology intensity was performed using the DHI scale and static stabilometry. A number of parameters have been shown to correlate with the intensity of vertigo. The relatively low diagnostic value of selected tests, commonly considered essential in the diagnosis of vertigo, has also been demonstrated.

**Conclusions:**

1. The vast majority of elderly patients with balance disorders report unsteadiness;
2. Dizziness in the elderly, as previously shown by several researchers, is multifactorial. They are particularly often accompanied by complaints of pain, mobility disorders and muscle pathologies in the cervical spine;
3. The severity of dizziness measured with the DHI scale correlates with worse results on the stabilometric platform. The research confirmed positive, statistically significant correlations between many parameters of the stabilometric test and both the total result of the DHI scale and its subscales E, P and F. The results of the analysis confirmed the largest statistically significant positive correlation between the anterior-reverse variance parameter in stabilometry and the sum of the DHI scores;
4. There was no difference between subjects with and without a history of ear disease in the severity of dizziness as measured by stabilometry. In the assessment of the caloric test, no differences were observed in the study group in terms of correlation with DHI and stabilometry. However, there were differences in the DHI score and hearing loss in the anamnesis and the presence of the pancochlear audiometric curve. The occurrence of geotropic nystagmus in positional tests was observed in the study group;
5. Dizziness can negatively affect the life and cognitive performance of older people experiencing them - the deterioration of basic life functions in patients with dizziness,

measured with the Barthel scale, and the deterioration of cognitive abilities, measured with the Katzman scale, has been demonstrated;

6. Dizziness may contribute to an increased risk of falls in the elderly - a higher history of falls has been found in patients with dizziness. Nevertheless, in the group of patients with dizziness, there were no significant differences in DHI scores and stabilometry parameters between those who experienced and did not experience falls;
7. The completed studies seem to confirm the high diagnostic value of the data from the medical history for the search for the causes of dizziness. A relatively low diagnostic value of selected tests, commonly considered essential in the diagnosis of balance disorders, was also demonstrated. Among the number of additional tests performed, X-ray of the cervical spine seems to be particularly useful in diagnostics, which is perhaps a little overlooked nowadays, when MRI and CT are widely available.

