

# Abstract

The aim of the study is to determine which of the selected factors, such as: age, sex, hearing loss level, time of pharmacotherapy initiation, comorbidities (diabetes, primary hypertension, atherosclerosis, VBI) and types of pharmacological treatment are important in predicting hearing improvement. The research was carried out among 318 patients, including 147 men and 172 women, aged 15 to 88 years. The average age of men was 55.68 years, and women 51.26 years. Appropriate exclusion and inclusion criteria were applied.

The treated patients were divided into two main groups: A - patients who improved their hearing and B - patients with a negative therapeutic effect. In addition, in group A, the A1 subgroup with acumatic and audiometric improvement was distinguished - 81.0% of the entire group, the A2 subgroup with audiometric improvement, without significant acumatic improvement, and the A3 subgroup, in which patients had an acumatic improvement, and no significant improvement was found in audiometric tests.

In the sense of hearing examination, acumatic test, pure-tone audiometry, speech audiometry, suprathreshold tests and tympanometric test with the evaluation of the acoustic reflex were used as a method of objective examination of the hearing organ. The research was an extended analysis of the hearing condition. However, in the analysis of the results in terms of the objectives of the work, the results of acumetry as well as pure-tone and speech audiometry were assessed.

In audiometry, the Madsen Orbiter 922.2 audiometer and the ZODIAC 901 impedance audiometer were used. In the statistical evaluation of the test results, logit binomial models were used.

Based on the conducted studies, it was found that there were no significant influences of age or sex of patients on treatment results, in terms of hearing improvement. The results of the study in pure-

tone audiometry showed that patients with a hearing loss not exceeding 45dB had the best prognosis for hearing improvement. The prognosis of more severe hearing losses, before treatment, was poor.

Analysis of speech audiometry results showed a good therapeutic effect in patients with speech detection threshold lower than 30dB. Patients with speech recognition level even higher than 40dB and a differentiation threshold of up to 60dB also had good prognosis.

The time of treatment initiation turned out to be statistically insignificant in terms of obtaining a satisfactory therapeutic effect for the patient. However, starting treatment in more than 7 days from the onset of symptoms had a lower chance of improving hearing.

When it comes to assessing the influence of comorbidities in patients with sensorineural hearing loss, the improvement of hearing as a result of pharmacotherapy was hampered by the presence of arterial hypertension, atherosclerosis, and insufficiency of the vertebrobasilar arterial circulation. In the analysis of the role of the type of pharmacotherapy and the duration of its use, a statistically significant beneficial effect of mannitol and the prolonged duration of treatment was found.

On the basis of the conducted research, the following conclusions were drawn:

1. Due to the fact that the patient's age has no significant influence on the treatment result, it is advisable to try pharmacotherapy in sensorineural hearing loss in all cases. The sex of the patient also has no significant influence on the effect of the therapy.
2. Diseases such as arterial hypertension, atherosclerosis, as well as insufficiency of the vertebrobasilar circulation (VBI) have an adverse effect on the treatment.
3. The depth of hearing loss tested in pure-tone audiometry and in speech audiometry have a significant impact on the prognosis of hearing improvement, with a hearing loss not exceeding 30-45dB being the most favourable prognosis.
4. The use of Mannitol, in the absence of contraindications, in a set of drugs used in pharmacotherapy has a significant impact on the improvement of hearing.
5. Pharmacotherapy is recommended regardless of the time from the onset of sensorineural hearing loss.