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Improving Treatment in Patients with Presbycusis

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Abstract Aget-related changes in auditory function in atherosclerosis are based on morphological changes in the inner ear. The problem of pathology of the inner ear, occurring against the background of atherosclerosis of the vessels, is not sufficiently studied, in this regard, it is advisable to further study the state of cerebral circulation for the diagnosis and treatment of elderly patients. To achieve this goal, we examined 60 people aged 55 to 70 years. Taking into account the data on the state of auditory function, REG, ECG and other studies, the treatment of patients suffering from sensorineural hearing loss against the background of atherosclerosis and osteochondrosis of the cervical spine was carried out. In the presence of osteochondrosis of the cervical spine, patients were recommended physical therapy, massage of the cervical-thoracic spine up to 10-20 sessions (taking into account blood pressure), complain, calcium pang mate, cerebrolysin, selenium. After the therapy, all patients showed an improvement in the perception of whispering and colloquial speech.

Keywords Sensoneural hearing loss, Atherosclerosis, Complain

1. Introduction

Age-related changes in auditory function in atherosclerosis are based on morphological changes in the inner ear. The problem of pathology of the inner ear, which occurs against the background of vascular atherosclerosis, has not been sufficiently studied, and therefore it is advisable to further study the state of cerebral circulation for the diagnosis and treatment of elderly patients. To achieve this goal, we examined 60 people aged 55 to 70 years [2,3,5]. Taking into account the data on the state of auditory function, REG, ECG and other studies, patients suffering from sensorineural hearing loss on the background of atherosclerosis and osteochondrosis of the cervical spine were treated. In the presence of osteochondrosis of the cervical spine, patients were recommended physical therapy, massage of the cervical-thoracic spine up to 10-20 sessions (taking into account blood pressure), complain, calcium pang mate, cerebrolysine, selenium. After the therapy, all patients showed an improvement in the perception of whispered and spoken speech [4,6,8]. To achieve this goal, we examined 60 people aged 55 to 70 years, including 32 women, 24 men aged 55 to 60 years, and 36 people aged 60 to 70 years. 16 people had hearing loss 10 years ago, and 44 - over 10 years. A general practitioner and a neuropathologist consulted all patients. In the study of blood (general analysis and sugar) and urine, no pathological abnormalities were detected. X-ray examination of all patients revealed the phenomena of spinal osteochondrosis in the area of he IV-VI cervical vertebrae. In 12 people, there was a periodic increase in blood pressure; persons with hypertension were not included in the development. The most frequent complaints in the 60 examined patients were hearing loss and tinnitus, which is permanent in 37 patients. Pathological intentions on the part of other ENT organs were not revealed [1,3,5]. Hearing was examined before and after treatment: the perception of whispered and spoken speech was determined, threshold and suprathreshold, tonal speech audiometry was performed. They perceived whispered speech at a distance of up to 1 m 15 people, from 1 to 3 m - 16, more than 3 m 8, did not hear it - 21. Colloquial speech at the auricle was heard by 6 patients, at a distance of 0.1 to 1 m - 14, from 1 to 3 m-10, from 3 to 5 m - 17 and over 5 m – 13 [1,2,3,5]. The degree of hearing loss by air conduction in two frequency ranges (speech and upper) is presented in Table 1.

From Table 1, it can be seen that hearing loss of more than 50 db at frequencies of 125-3000 Hz was in 27 persons in the range of 4000 –8000 Hz-in 33.

The state of the cerebral circulation was judged according to rheoencephalography (REG), rheoencephalograms were recorded using a six channel electrocardiograph 6-NEK (GDR) and a rheographic prefix –RG-1M according to the generally accepted method in front-mastoid (F-M) and occipital-mastoid (O-M) leads that characterize the state of the basins of the internal carotid and vertebral arteries. when evaluating reoencephalograms, attention was paid to the shape of the REG curves: the nature of its rise and descent, the peaks, the severity and location of the incisor and the presence of additional ones on the catacroth [2,3,9]. when quantifying, the amplitude (a) of the main wave in ohms was taken into account, as well as the ratio of the amplitude from

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the incisura level to the amplitude of the main wave (DKI), expressed as a percentage, the coefficient (KA), which is the blood filling values of the symmetrical sides of the head, also expressed as a percentage; the pulse wave propagation time in seconds. The visual assessment revealed typical signs for REG curves in atherosclerosis, which were characterized by an obtuse angle of narcotic elevation, the presence of a round and hump-shaped apex, a convex catacrotic with a weakly represented incisor, located on the upper third of the catacrotic with a poorly expressed diastolic wave, and the absence of additional waves on the catacrotic. with the introduction of vasodilators, the slowness of the reaction that occurred earlier, after taking the drug, was noted. The results of studies of cerebral circulation indicate significant deviations from those of the control group. All the examined patients showed a decrease in the amplitude of REG in the basin of the internal carotid and vertebral arteries of the right (0.095±0.010 and 0.059 ±0.010 10 s) of the left (0.088 ±0.0009 and 0.044±0.005 s) hemispheres, an increase in the time of narcotic ascent, more pronounced in both the studied basins of the left hemisphere, an increase in DCI and pulse wave propagation time in the basins of the internal carotid and vertebral arteries, characteristic of this group of patients was the presence of an asymmetry coefficient equal to 20.68±1.82% in the basin of the internal carotid artery and 34.09±2.14% in the vertebral artery [1,5,9].

Taking into account the data on the state of auditory function, REG, electrocardiography (ECG) and other studies, patients suffering from sensorineural hearing loss on the background of atherosclerosis and osteochondrosis of the cervical spine were treated.

Due to the fact that the etiology and pathogenesis of atherosclerosis are complex, the arsenal of effective drugs that affect it is currently insufficient. In this disease, hypo lipid drugs are prescribed (nicotinic acid, nicotinamide, complained, theonicol), which prevent the formation of lipoproteins, nicotinic acid in the observed individuals was used 1 table. 3 times a day after meals for 3 weeks.

Complained was administered intramuscularly up to 10 -15 injections also after meals, starting with 0.7 ml, gradually increasing to 1.5 ml. These drugs have not only hypo lipid properties, but also enhance the effect of antihypertensive drugs, expanding the small vessels of the brain, improving blood flow in them, increasing the resistance of the brain to hypoxia.

Along with nicotine-based drugs, unsaturated fatty acid preparations are used, which help to increase the utilization of saturated fatty acids, in particular lintel. It, in addition to the lipid lowering effect, has the property of reducing blood clotting and activating fibrinolysis. This drug was prescribed 1.5 tablespoons on an empty stomach in the morning for 1.5 months, after which they took a break from taking it for 2 to 4 weeks with the repetition of 2 to 3 courses. To stimulate the formation of phospholipids in the liver and prevent its fat infiltration, 1 table was given 3 times a day for 2 months. In combination with the drugs, it was also recommended to take calcium pang mate 1 table 3 times a day for 45 days (2 courses), vitamin C, pyroxene, which have a certain lipid-lowering effect. Along with these drugs, intencordin, curtail, and dipromoniumwere prescribed to improve cerebral and central blood circulation. To normalize the metabolic processes in the brain tissue (especially in the presence of atherosclerotic encephalopathy with memory disorders), one ampoule of cerebrolysin was administered intramuscularly every other day. To improve the utilization of carbohydrates, carboxylase was prescribed up to 20 injections (200 mg each) intramuscularly daily for 15-20 days, taking into account the fact that it regulates the metabolic processes in the cochlea and venous outflow, reduces vascular tone, increases the saturation of the perilymph with oxygen to stabilize energy processes, conduct uneven impulses were used.

2. Materials and Methods

Intramuscularly disodium salt of adenosine triphosphate (ATP) for 1 ml to 20 injections. Patients who had an increase in blood pressure, combined with increased vascular tone of the brain against the background of increased peripheral vascular resistance and venous congestion (according to REG), were prescribed vincula 1 tablet 3 times a day for 1 month, a decoction of valerian (12.0 to 200.0 water) 3 times a day, to relieve muscle tension, have a calming effect on the central nervous system, reduce the excitability of the limbic system of the thalamus and hypothalamus - selenium 1 ampoule intramuscularly at night for up to 10 injections, followed by continued use of 1 tablet, at night for 1 month.

Table 1. Perception of tones by air and bone conduction in elderly patients with ensorineural hearing loss before treatment

Studied indicators	Thresholds of auditory perception in patients before treatment							
	Up to 30 dB		31-50 dB		51-70 dB		More than 70 dB	
	125-3000 Hz	4000-8000 Hz	125-3000 Hz	4000-8000 Hz	125-3000 Hz	4000-8000 Hz	125-3000 Hz	4000-8000 Hz
Airconductivity	19	11	14	14	13	16	14	19
Boneconductivity	18	9	13	16	14	18	15	17

Table 2. Perception of tones by air and bone conduction in elderly patients with sensorineural hearing loss after treatment

Studied indicators	Thresholds of auditory perception in patients before treatment							
	Up to 30 dB		31-50 dB		51-70 dB		More than 70 dB	
	125-3000 Hz	4000-8000 Hz	125-3000 Hz	4000-8000 Hz	125-3000 Hz	4000-8000 Hz	125-3000 Hz	4000-8000 Hz
Airconductivity	23	11	16	18	11	20	10	11
Boneconductivity	24	11	15	18	14	21	7	10
Studiedindicators	Thresholds of auditory perception in patients before treatment							
	Up to 30 dB		31-50 dB		51-70 dB		More than 70 dB	
	125-3000 Hz	4000-8000 Hz	125-3000 Hz	4000-8000 Hz	125-3000 Hz	4000-8000 Hz	125-3000 Hz	4000-8000 Hz
Airconductivity	23	11	16	18	11	20	10	11
Boneconductivity	24	11	15	18	14	21	7	10

In the presence of osteochondrosis of the cervical spine, patients were recommended physical therapy(physical therapy), massage of the cervical-thoracic spine up to 10-20 sessions (taking into account blood pressure). Persons with a tendency to increase blood pressure and hypertensive type of REG curves, along with antispasmodics, were prescribed massage along the spine, and at the end of it - Darsonval currents along the cervical-thoracic spine for up to 12 sessions. Diazole, which reduces diastolic pressure and improves venous outflow of brain vessels and reduces venous and intracranial pressure, was administered to patients who had difficulty in venous outflow or 62 venous congestion in the vessels of the brain. After the therapy, all patients showed an improvement in the perception of whispering and colloquial speech. So, if before the treatment, no one heard whispered speech at a distance of more than 5 m, then after it, whispered speech at a distance of more than 5 m was perceived by 5 people, and spoken speech more than 5 m – 25 (before the treatment-13). In a number of individuals, there was an improvement in hearing by air and bone conduction so, if before treatment a small degree of hearing loss in the speech zone (125- 3000 Hz) was detected in 19 people, then after treatment in 23. The number of patients with hearing loss of more than 70 dB also decreased (before treatment - 14, after treatment-10). Similar dynamics were revealed after treatment and according to bone conduction, in 40% of patients, 100% intelligibility of the word test according to the Zinder-Greenberg tables was not achieved before treatment, and after it, in 20 persons from this group, intelligibility was restored. comparison of the results of REG before and after therapy showed a significant improvement in blood filling, a decrease in DCI in the internal carotid artery basin, and a decrease in CA.

3. Conclusions

This, the analysis of the REG data allowed us to establish that in patients with sensorineural hearing loss occurring against the background of atherosclerosis and osteochondrosis of the spine, after complex treatment, there is a decrease in the tone of small and medium-sized vessels in the internal carotid artery basin, a decrease in CA and an improvement in blood filling in both basins, but not all of the detected changes in the parameters of encephalography were dynamic. For example, the time of narcotic ascent and the speed of pulse wave propagation did not differ from the initial data, the pathogen etic treatment of patients with sensorineural hearing loss indicates that the improvement of auditory function occurs in parallel with the stabilization of cerebral circulation. The criteria for the effectiveness of treatment of elderly people suffering from atherosclerosis and spinal osteochondrosis are such REG indicators as the amplitude of DKI, which characterize the blood filling of the brain vessels and the tone of the vessels of medium small caliber. The lack of dynamics of such indicators as the time of narcotic ascent and the time of pulse wave propagation indicates the need for additional outpatient treatment of such patients by a therapist and neurologist together with an otolaryngologist under the control of REG indicators and audiometry.

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