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RESULTS OF COMPLEX TREATMENT OF ACUTE SENSORINEURAL HEARING LOSS OF DIFFERENT GENESIS

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Abstract

This article presents the complex treatment of patients with acute sensorineural hearing loss of various origins. Actually, the very diversity and multiplicity of the ingredients of the proposed complexes indicate that the development of therapeutic measures for patients with sensorineural hearing loss did not go beyond the search and tests, and the absence of noticeable positive results indicates the irrationality of the empirical approach to the problem. In any case, it is hardly possible to consider the observance of the pathogenetic principle, the use of drugs on the basis of properties so general and far from the specificity of auditory processes as the effect on metabolic activity, blood circulation dynamics, excitability and conductivity of nerve formations and other manifestations of the body's vital activity. Treatment of various forms of acute and sudden sensorineural hearing loss should be etiopathogenetic, complex and timely (emergency), which allows to achieve an objective improvement in auditory function in 86% of patients.

Keywords: acute sensorineural hearing loss,

Introduction

One of the main problems of modern clinical audiology is sensorineural hearing loss - a hearing pathology associated with damage to the sound-receiving apparatus, when, for one reason or another, the process of converting mechanical vibrations into the energy of nerve impulses and its further transportation from the auditory receptors to the corresponding centers of the cerebral cortex is disrupted [1,2].

As evidenced by numerous publications in the world and domestic literature, sensorineural hearing loss occurs quite often and occupies a rather large proportion among diseases of the ENT organs [3]. According to the World Health Organization, the population with socially significant hearing impairments in 2018. is from 0.9 to 23%, in particular in Europe the number of such patients is close to 13 million, of which 800 thousand are children, and in Asia sensorineural hearing loss is up to 42.8% of the pathology of the organ of hearing [4].

Despite the intensive development of the problem and the significant results obtained, the issues related to the etiology, pathogenesis, diagnosis, nature and topic of lesions in the auditory system are still unclear; there are no pathogenetic agents for the treatment of sensorineural hearing loss, and the clinical classification of sensorineural hearing loss remains imperfect and largely unclear [5]. It should be noted that the discussion and intensive study of these issues especially increased at the end of the last century, and now the interest in this problem in scientific publications is growing, which reflects its relevance [6,7].

Of particular importance, both medical and social, is the problem of acute sensorineural hearing loss, since the latter is a widespread disease that disables people of young and most working age [8,9]. Modern statistical data indicate a steady trend towards an increase in the incidence of acute sensorineural hearing loss throughout the world [9].

According to the data of the population seeking medical care, the incidence of acute sensorineural hearing loss varies depending on the age of patients and amounts to 0.8% of the total number of patients with hearing pathology [10].

Acute sensorineural hearing loss requires immediate treatment, which is sometimes only etiological, and most often empirical, polypragmatic in nature, without sufficient scientific evidence and theoretical prerequisites [11]. First of all, this is due to the fact that the search for pathogenetic therapy is carried out in relation to polyetiological and heterogeneous in clinical manifestations of the disease [12]. In this regard, there is a need for a more specific and substantiated identification of individual forms of acute sensorineural hearing loss as independent nosological units according to etiological, anamnestic, clinical and audiological, immuno-allergological and other characteristics. An important place in solving the problem of sensorineural hearing loss is occupied by the development of a classification based on specific clinical and etiopathogenetic approaches [13,14]. The above would make it possible not only to determine the nature of the lesion of the auditory analyzer, but also to establish the cause of the occurrence of certain disorders of the auditory function, the mechanism of their development, and also to develop pathogenetic therapy for acute sensorineural hearing loss.

The aim of this work is to study the increase in the effectiveness of complex treatment of patients with acute sensorineural hearing loss of various origins.

In accordance with the purpose of the study and to fulfill the assigned tasks, clinical studies were carried out in 40 patients with acute sensorineural hearing loss of various origins who were hospitalized in the ENT department of the TMA multidisciplinary clinic in 2018-2020. All patients underwent a comprehensive examination, including the collection of complaints, examination of the ENT organs, otomicroscopy of the ear and audiological studies.

Results.

Analyzing the clinical-audiological, vestibulometric and immuno-allergological data, we have established that with ASHL and SSHL of various etiologies, profound changes occur in the auditory and vestibular analyzer. Various options for complex treatment in these patients are described in the available literature, and this leads to the unjustified prescription of most drugs, and often the authors treat ASHL and SSHL with the same drugs, regardless of the characteristics of the onset of the disease. In this regard, we have set ourselves the goal of developing a comprehensive pathogenetic treatment of patients with ASHL and SSHL based on the analysis of the features of clinical-audiological, vestibulometric and immuno-allergological studies.

For the period 2018-2020. in the ENT department of the TMA multidisciplinary clinic, we examined and treated 40 patients with various forms of ASHL and SSHL.

The results of treatment of 246 patients with ASHL and SSHL showed that improvement occurred in 215 (86%) patients. In 19 (9%) patients, the improvement was subjective, patients noted a decrease in the intensity of ear noise, a slight improvement in auditory function, although threshold tone audiometry did not reflect this, patients indicated an improvement in speech intelligibility, as well as an improvement in general condition. Hearing research deserves special attention. Threshold tone audiometry indices normalized in

138 (55.2%), improved in 79 (31.6%), remained at the initial level in 33 (13.2%) (tab. 1,2,3).

Patients with ASHL and TSA of infectious etiology were prescribed antibiotics, excluding ototoxic and sulfa drugs. In addition, vitamins of group B, cocarboxylase, ATP were used for treatment. Along with this, intravenous infusions of hemodez, reopolyglucin, which have a detoxifying effect, were prescribed, as well as antihistamines (suprastin, tavegil, diazolin, fenkarol). Diuretics (hypothiazide, diacarb, veroshpiron) were recommended as dehydration. To improve the microcirculation of the inner ear and brain, Cavinton was administered intravenously as a drop infusion: on the first day 2 ml (10 mg), on the second day 4 ml (20 mg), on the remaining days, 6 ml. (60 mg) in saline (0.9%) - 200.0 or glucose solution (5% - 200.0), diphenhydramine 1% - 1.0, ascorbic acid solution 5% - 4.0, ATP 1% - 2.0. The expediency of intravenous administration of ATP is justified by the fact that this drug, when administered intramuscularly, is rapidly absorbed in the muscles and therefore is not effective. Intravenous infusion was prescribed 8 to 12 times, then Cavinton was prescribed for 30 days, 1 tablet 3 times a day, or Betaserc, 8 mg, 3 times a day for 3 weeks. Every day, patients were prescribed anemization of the nasal passages, blowing the ears according to the Police, as well as vibrating the tympanic membranes and iontophoresis with potassium iodide on the area of the mastoid processes 8-10 times per course of treatment.

Table 1

The use of drugs in patients with ASHL and SSHL of various etiologies

№	Medications	Infectious	Vascular, except for cheetah and independent	Allergy	Medicamentous	Traumatic	Hearing loss due to osteochondrosis of the cervical vertebra
1.	Cavinton	+	+	+	+	+	+
2.	Vitamins B	+	+	+	+	+	+
3.	Adenosine triphosphoric acid or cocarboxylase	+	+	+	+	+	+
4.	Vitamin C	+	+	+	+	+	+
5.	Aloe or FiBS vitreous humor, placenta extract	+	+	+	+	+	+
6.	Anemization of the nose	+	+	+	+	+	+
7.	Physiotherapy procedures	+	+	+	+	+	+
8.	Meatotimpanic blockade according to I.B. Soldatov	+	+	+	+	+	+
9.	Hyperbaric oxygenation	+	+	+	+	+	+
10.	Desensitizing therapy	+	+	+	+	+	+
11.	Antibiotics	+	-	-	-	-	-
12.	Glucose 5% or saline 0.9%	+	+	+	+	+	+

Table 2

The effectiveness of the treatment of subjective ear noise in patients with ASHL and SSHL of various etiology according to noise measurement data

No	Etiology OST and SSHL	Total	The number of patients with subjective noise	Convalescence indolence	Improvement	Without changes
1.	Infectious	86 (34,4%)	72 (83%)	36 (50%)	30 (42%)	6 (8%)
2.	Vascular	55 (22%)	52 (95%)	33 (63%)	14 (27%)	5 (9%)
3.	Allergic	52 (20,8%)	46 (88%)	19 (41%)	25 (54%)	2 (4%)
4.	Medication	25 (10%)	16 (64%)	10 (62,5%)	4 (25%)	2 (12,5%)
5.	Traumatic	22 (8,85%)	19 (86%)	7 (36%)	10(53%)	2 (11%)
6.	On the basis of osteochondrosis of the cervical spine	10 (4%)	10 (4%)	2 (20%)	6 (60%)	2 (20%)
	Total:	250	215 (86%)	107 (50%)	89 (41%)	19 (9%)

Table 3

The effectiveness of treatment of patients with ASHL and SSHL of various etiology according to the data of threshold tone audiometry

No	Ethiology OST and SSHL	Total	Recovery	Improvement	Without changes
1.	Infectious	86 (34,4%)	50 (58%)	25 (29%)	11 (13%)
2.	Vascular	55 (22%)	36 (65%)	14 (25%)	5 (9%)
3.	Allergic	52(20,8%)	32(61,5%)	17 (33%)	3 (5,5%)
4.	Medication	25(10%)	6 (36%)	10(40%)	6 (24%)
5.	Traumatic	22 (8,85%)	6 (26%)	9 (39%)	7 (35%)
6.	On the basis of osteochondrosis of the cervical spine	10(4%)	5 (50%)	4 (40%)	1 (10%)
	Total:	250(100%)	138 (55,2%)	79 (31,8%)	33 (13%)

In case of sensorineural hearing loss of vascular origin, in addition, substances that normalize blood pressure, vasodilator drugs, and anti-coagulants were prescribed. The most severe pathology of lesions of the auditory and vestibular analyzers of vascular origin is labyrinth artery thrombosis. At the same time, patients usually, against the background of a stressful situation and an increase in blood pressure, suddenly develop unilateral deafness, accompanied by sharp dizziness, vomiting, spontaneous nystagmus. Such patients with dizziness and sudden hearing loss were hospitalized and timely prescribed complex pathogenetic treatment, which in the majority led to the restoration of auditory and vestibular functions.

In case of sudden hearing loss due to circulatory disorders in the vertebrobasilar system due to cervical osteochondrosis of the spine, in addition to the above-described therapy used for vascular disorders, massage of the cervical spine, water massage, swimming, electrophoresis along the spine with 2.4% euphilin solution were recommended.

In ASHL of traumatic etiology, which were accompanied by rupture of the tympanic membranes, in order to avoid infection in the initial period, antibiotics (not ototoxic), sulfonamides, vasodilators, vitamin therapy, and dehydration were prescribed. Patients with mine-explosive injuries, which were accompanied by damage to the tympanic membranes, along with anti-neuritic treatment, underwent a hearing-improving sparing operation.

Separately, it is necessary to highlight the issues of treatment of acute and sudden sensorineural hearing loss of allergic genesis.

As can be seen from the literature review, the authors of many scientific works analyze the results of audiological studies in great detail, however, a thorough collection of allergological anamnesis is rarely carried out, which play an important role in the diagnosis of the allergic nature of this disease in some patients.

We initially divided patients with acute sensorineural hearing loss of an allergic nature into two groups. The first group included 246 patients. Along with anti-neuritic treatment, they received antiallergic therapy, which made it possible to obtain positive results in 32 (80%) patients.

The second group consisted of 12 people who underwent complex specific hyposensitizing therapy with pollen, household and food allergens using antiallergic drugs according to the scheme developed by J.I.A. Goryachkina et al (1983). Positive results were obtained in 83% of cases.

Reduction or disappearance of subjective ear noise occurred in 80% of cases in patients of the first group and in 83% - in the second group.

It should be especially noted that the main principle of treatment of patients with acute sensorineural hearing loss of an allergic nature, like other forms of ASHL, is that it should be complex, that is, include local therapeutic measures in combination with general means of influencing the body. The main conditions that must be met are as follows:

1. Urgency (the earlier the medication is started, the more chances of its effectiveness).
2. Improving blood circulation in the inner ear.
3. Dehydration.
4. Detoxification.
5. Desensitization.
6. Stimulation and vitaminization.
7. Complex nonspecific immunotherapy.
8. Specific hyposensitization.

The initial stage of treatment includes urgent hospitalization, complete rest of the patient, bed rest, exclusion of contact with the allergen, limitation of fluid and salt intake.

Medication is aimed at improving blood flow to the brain and inner ear. Since cerebral circulation to some extent has autonomous regulation, drugs should be used that mainly act on cerebral vessels and peripheral circulation. The drugs used were cinnarizine (stugerone), cavinton. Patients with acute sensorineural hearing loss of an allergic nature received Cavinton

from the moment they were admitted to the hospital according to the scheme: Cavinton solution was injected intravenously on the first day of 2 ml and on the following days - 4 ml (20 mg) in saline or glucose 200 ml, with 5% ascorbic acid - 5.0 ml, cocarboxylase 100 mg.

Along with this, desensitizing therapy with antihistamines was carried out: diphenhydramine, 1 tablet 3 times a day, or tavegil, suprastin, diazolin, pipolfen, and fenkarol orally. These drugs are derived from various groups of chemicals and block the effect of histamine on tissue cells.

Patients with acute sensorineural hearing loss of an allergic nature who were individually prescribed a separate group of antihistamines, the duration of treatment ranged from one week to three (7-21 days) and a positive effect was achieved. No addiction to these drugs was observed, and no complications were noted.

The results of treatment of patients with acute sensorineural hearing loss of an allergic nature are shown in Table 4.

Table 4

Results of treatment of patients with acute and sudden sensorineural hearing loss of an allergic nature

Patient groups	Stage diseases	Treatment results			Total
		excellent	good	Without changes	
1st (using non-specific therapy) Total:	Acute	22 (55%)	10 (25%)	8 (20%)	40 (100%)
		22 (33%)	10 (25%)	8 (20%)	40 (100%)
2nd (using Specific hyposensitizing therapy using immunomodulatory drugs)	Acute	8 (66,8%)	2 (16,6%)	2 (16,6%)	12 (100%)
	Total:	8 (66,8%)	2 (16,6%)	2 (16,6%)	12 (100%)

The table shows that hearing improvement occurred in 40 patients, including excellent results with nonspecific therapy were noted in 22 (55%), good - in 10 (25%), no changes - in 8 (20%) patients.

During the audiometric examination in patients of the first group on the 14-21st day of treatment, an increase in tonal hearing was recorded in 4 patients up to 15 dB, in 24 - from 11 to 35 dB. In 18 out of 24 patients with a decrease in the level of bone conduction, there was a complete restoration of auditory function. In 6 patients in this group, there was an improvement in hearing from 20 to 30 dB. In 8 (20%) patients in this group, treatment was ineffective. Upon discharge from the hospital, auditory function fully recovered in 55% of patients. In 25% of patients, there was an improvement in auditory function from 10 to 35 dB, only in 8 (20%) patients the treatment was ineffective.

Upon discharge from the hospital, the majority of patients in group 2 (10 out of 12 examined) showed a complete restoration of auditory function, subjective ear noise stopped, and the tonal threshold audiogram returned to normal in all frequency ranges. In 2 patients, there was an improvement in auditory function from 10 to 30 dB. Only two patients had no positive effect, but they noted a decrease in the intensity of subjective ear noise.

In addition, as a result of the treatment, the conductive component of the hearing loss was removed from the patients due to the removal of exudate, with the normalization of the tympanometric curve.

During the examination in dynamics (from 1 to 3 years) in patients with acute sensorineural hearing loss of an allergic nature, complete restoration of auditory function was noted in 67%, improvement - in 29% of patients.

Specific hyposensitizing treatment using pollen, household and food allergens in combination with immunomodulatory drugs, significantly increases the effectiveness of treatment in patients of this group.

Thus, it becomes obvious that acute and sudden sensorineural hearing loss are different nosological forms of the indicated pathology of the hearing organ in the presence of a common etiopathogenesis of the indicated disease, which should be taken into account in clinical practice when treating it.

Discussion.

Considering that with OST and SSSL there are profound changes in the auditory and vestibular analyzer, there is an urgent need to find new aspects of rational therapy for this pathology. From these positions, the study of the drug cavinton attracts the attention of many scientists. The drug Cavinton is a white crystalline powder, used parenterally in the form

of tablets (5 mg and vinpocetine in each tablet) and in solution (10 mg of vinpocetine in 20 mg of solution). According to the numerous observations available, Cavinton does not interact with other drugs, therefore it is also suitable for combined treatment. The injection solution is incompatible with heparin. Contraindications: severe heart disease (ischemic), severe heart rhythm disorders, pregnancy.

Our goal was to study the therapeutic activity of the vasoactive drug Cavinton in ASHL and SSHL of various etiologies based on the analysis of clinical, audiological, vestibulometric, and allergological studies.

The ampouled drug was prescribed parenterally, only in drip infusion as a combination treatment with other drugs. Treatment with Cavinton was carried out taking into account the individual characteristics of the patient strictly according to the scheme proposed by Hungarian specialists.

All patients were hospitalized in the department and pathogenetic drug treatment began in a timely manner. Before, during and at the end of the course of treatment, audiologic, vestibulometric, otoneurological, allergic and general somatic examinations of patients were carried out. It should be especially noted that the main principle of treatment of patients with ASHL and SSHL is that it should be comprehensive, that is, include local therapeutic measures with general means of influencing the body.

The initial stage of treatment includes urgent hospitalization, complete rest of the patient, bed rest, exclusion of contact with allergens, restriction of fluid and salt intake. Drug treatment is aimed at improving the blood flow to the brain and inner ear, that is, drugs are prescribed that act on the cerebral vessels and peripheral circulation. The course of treatment with Cavinton lasted in most cases one month. If necessary, the course of treatment was repeated every 3 months, 29 patients underwent 2 courses, 12 - 3 courses each. Patients with ASHL and SSHL were treated for a month, regardless of whether there was vestibular dysfunction or not. Depending on the etiopathogenesis of the disease, along with other drugs, Cavinton was administered intravenously as a drop infusion in physiological saline or 5% glucose solution - 200 ml. On the first day, 2 ml (10 mg), on the following days, 4 ml (20 mg) with a solution of ascorbic acid 5% - 4 ml, ATP 1% - 2.0, a solution of diphenhydramine 1% - 1.0. once a day 8 to 12 intravenous infusions. Subsequently, Cavinton continued to be administered orally, 2 tablets (10 mg) three times a day for 20 days. Before the appointment of Cavinton, all patients underwent a blood test for Shelley's test and leukocyte lysis for Cavinton. Those patients who had positive reactions were not prescribed Cavinton. No side effects were observed.

Along with the use of Cavinton, patients with ASHL and SSHL, depending on the etiological factor, were usually prescribed other drugs: B vitamins, ATP or cocarboxylase, ascorbic acid, aloe or FiBS, vitreous body, antibiotics, diphenhydramine, glucose 5% or saline 0.9%. In addition, the following were carried out: anemization of the nose, blowing out the ears, physiotherapeutic procedures: electrophoresis with KJ and 2.4% aminophylline solution in the area of the mastoid

processes; meato-tympanic blockade according to I.B. Soldatov, massage of the neck-collar zone, hyperbaric oxygenation, desensitizing therapy, acupuncture.

The result of treatment of 250 patients with ASHL and SSHL with Cavinton showed that complete hearing recovery occurred in 217 (86.8%) patients and 33 (13.2%) patients, the improvement was subjective, patients noted a decrease in the intensity of ear noise, insignificant improvement of auditory function, although this was not noted with tone-threshold audiometry. Patients reported an improvement in speech intelligibility and an improvement in their general condition. Special attention is drawn to the study of hearing with tone-threshold audiometry, which showed excellent results in 138 (55.2%), good - in 19 (31.8%), no changes - in 33 (13%) patients.

In 208 (83.2%), subjective ear noise of various nature and intensity was revealed. After the treatment, in 107 (51.4%) patients, tinnitus completely stopped, and in 99 (47.5%) patients, the noise intensity decreased from 50-60 dB to 10-15 dB, with a second course of treatment after a month, the noise completely stopped, 19 (9%) patients showed a slight decrease in noise intensity. Speech audiometry in 220 (88%) of 250 patients normalized speech intelligibility and perception of ultrasound to normal numbers - 1-2 volts in 30 (12%) patients.

Along with hearing impairment in patients with ASHL and SSHL, we revealed dysfunction of the vestibular analyzer of varying degrees in the form of dizziness, nausea, vomiting, nystagmus, impaired statokinetic function, coordination of movements and autonomic disorders in 156 (91.7%) of 170 examined patients. vestibular disorders.

As a result of the course of pathogenetic therapy in these patients, positive results were obtained, which was confirmed by the normalization of the functions of the vestibular apparatus.

Thus, in conclusion, let us state the conviction that acute and sudden sensorineural hearing loss are independent nosological forms of cochlear analyzer pathology and, depending on the etiopathogenesis, have their own clinical course, presenting an important problem of modern clinical audiology, which has great prospects for further study..

Conclusion.

For the treatment of patients with sudden and acute sensorineural hearing loss with a burdened allergic history, dehydrating and hyposensitizing medications must be included in the complex of anti-neuritic therapy. Treatment of various forms of acute and sudden sensorineural hearing loss should be etiopathogenetic, complex and timely (emergency), which allows to achieve an objective improvement in auditory function in 86% of patients.

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БЕРЕМЕННОСТЬ И КОРОНАВИРУСНАЯ ИНФЕКЦИЯ SARS Co-V-2

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PREGNANCY AND SARS Co-V-2 CORONAVIRUS INFECTION

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Аннотация

В статье проведен анализ особенностей течения беременности у 110 женщин, госпитализированных в УЗ «6 Городская клиническая больница» г. Минска по поводу коронавирусной инфекции SARS CoV-2 в апреле-октябре 2020г. Авторами изучены анамнестические данные беременных женщин, проанализированы клинические данные и данные инструментальных и лабораторных обследований беременных с коронавирусной инфекцией SARS CoV-2 в Республике Беларусь. Проведен сравнительный анализ лечения беременных коронавирусной инфекцией SARS CoV-2 в условиях стационара.

Abstract

The article analyzes the features of the course of pregnancy in 110 women hospitalized at the Healthcare Institution "6 City Clinical Hospital" in Minsk due to SARS CoV-2 coronavirus infection in April-October 2020. The authors studied the anamnestic data of pregnant women, analyzed clinical data and data from instrumental and laboratory examinations of pregnant women with SARS CoV-2 coronavirus infection in the Republic of Belarus. A comparative analysis of the treatment of pregnant women for coronavirus infection with SARS CoV-2 in a hospital setting was carried out.

Ключевые слова: беременные с коронавирусной инфекцией SARS CoV-2, пневмония, анализ крови, коагулограмма.

Keywords: pregnant women with coronavirus infection SARS CoV-2, pneumonia, blood test, coagulogram.