

СУЧАСНА ПЕДАГОГІЧНА ОСВІТА: ПРОБЛЕМИ ТА ПЕРСПЕКТИВИ

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PECULIARITIES OF NEUROPSYCHOLOGICAL CORRECTION OF ALALIA AT DIFFERENT STAGES OF INTERACTION WITH A CHILD

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The article presents the main directions of correctional work with non-speaking children who have symptoms of alalia. Depending on the form of alalia, certain correctional programs are effective. The main differences between the forms of alalia and the general etymology of their occurrence are characterized. The main attention is paid to speech therapy and neuropsychological correction of alalia, but the effectiveness of the work lies in cooperation with doctors of the relevant profiles.

In the motor alalia, the formation of the expressive word, the praxis of the word is impaired, and the articulation, the fluidity of the word, while the understanding of the other's word is not impaired. In neurologic condition, motor alalia may be combined with focal symptoms. Left-handedness is common in children with motor alalia. Regional deceleration or epileptiform activity can be revealed on an electroencephalogram. Sensorial alalia is a disorder of speech understanding with preserved elementary hearing, a secondary underdevelopment of one's own speech. Sensory alalia mainly affects speech gnosis, i.e. analysis of sounds, including audible speech, is impaired, and the connection between the sound image and the object it denotes is not formed – the child hears but does not understand the addressed speech (auditory agnosia).

Correctional work is aimed not only at the development of speech, but primarily at the active development of the corresponding areas of the brain through sensory and speech therapy exercises. Taking into account the neuroplasticity of the children's brain, the effectiveness of the early start of corrective exercises has been proven.

Key words:

children with special speech needs; sensory alalia; motor alalia; language development in children; speech therapy; neuropsychology; speech correction in children.

Анотація:

Ковальова Ольга, Мартинова-Ганецька Тетяна. Особливості нейропсихологічної корекції алалії на різних етапах взаємодії з дитиною.

У статті представлено основні напрямки корекційної роботи з немовленнєвими дітьми, котрі мають симптоми алалії. В залежності від форми алалії ефективними є ті, чи інші корекційні програми. Охарактеризовано основні відмінності між формами алалії й загальна етіологія їх виникнення. Основну увагу приділено логопедичній та нейропсихологічній корекції алалій, проте ефективність роботи є у співпраці з лікарями відповідних профілів.

Корекційна робота спрямовується не лише на розвиток мовлення, а в першу чергу на активний розвиток відповідних зон мозку через сенсорні та логопедичні вправи. Враховуючи нейропластичність дитячого мозку, доведена ефективність раннього початку корекційних вправ.

Ключові слова:

діти з особливими мовленнєвими потребами; сенсорна алалія; моторна алалія; мовний розвиток у дітей; логопедія; нейропсихологія; корекція мовлення у дітей.

Problem statement. Speech disorders are various disorders of speech activity that can lead to an inability to fully communicate and interact with other people. These disorders occur when speech mechanisms do not work properly, and speech development does not meet the age-related norms of speech development; speech deficiencies are not overcome on their own and can negatively affect the mental development of an individual. The study and overcoming of speech disorders in children and adults is the subject of research and correction of speech therapy, as well as such sciences as psychology, neuropsychology, neurophysiology, neurology, otolaryngology, dentistry, etc.

The article discusses one of the most common speech problems in young children – alalia. This is a deep underdevelopment of the speech function caused by organic damage to the speech areas of the cerebral cortex.

The main problem in the correction of alalia is its timely diagnosis and appropriate correctional work in early childhood. When all factors coincide, there is a positive trend in restoring not only speech function, but also preventing mental retardation.

Analysis of recent studies and publications. In recent years, thanks to fMRI and positron emission tomography (PET), it has been possible to identify favorable conditions for recovery of the speech system when it is damaged. These include restoration due to involvement of perifocal areas, as well as areas of the tertiary associative cortex of the dominant hemisphere. Transcranial magnetic stimulation (TMS) was also actively used, which allows to actively influence neuroplastic processes, providing functional reorganization of the damaged functional system and compensation of the speech deficit (Belopasova A.V., Kadykov A.S., Chervyakov A.V., Belopasov V.V., 2015).

The problem of studying children's speech development disorders is widely reflected in correctional and pedagogical experience. In the scientific developments of L. Vavina, L. Volkova, M. Zemtsova, S. Konoplyasta, S. Korobko, B. Kovalenko, N. Krylova, L. Logvinova, O. Ruska, E. Sobotovych, V. Tarasun, N. Cherednychenko, M. Sheremet and others, the problems of diagnosing speech development, identifying general and specific features of this process are raised. The peculiarities of speech development of children with phonetic-phonemic and general underdevelopment of speech were studied (L. Vavina, O. Zhylytsova, R. Levina, E. Sobotovych, L. Spirova, V. Tarasun, L. Trofymenko, M. Shevchenko, etc.), issues of formation and improvement of the lexical and grammatical side of speech (L. Barteneva, L. Didkova, L. Zhurova, N. Nikashyna, N. Orlanova, G. Chirkina, M. Sheremet, etc.)

Summary of the main material. The impressive increase in the number of children with complex psychophysical developmental disabilities from birth, which lead to severe speech disorders, necessitates the implementation of an interdisciplinary approach to the organization of psychological and pedagogical support for a special child. In view of the above, it is quite clear that today the methodology of correctional work needs to be expanded and deepened in terms of introducing modern neuropsychological and psychophysiological methods of rehabilitation, including for severe speech disorders in young children. It is important to implement close interaction of speech therapists with neurologists, neuropsychologists, psychophysiologicals and child psychiatrists both to improve timely diagnosis of verbal function disorders and to develop pathogenetically oriented corrective measures.

Work with speech disorders in neuropsychological rehabilitation has always received increased attention. According to some data, from 15 to 20% of the survivors of an acute impairment of cerebral circulation subsequently suffer from aphasia (Shklovsky V.M., Wiesel T.G., 2000).

Unlike the restoration of other higher mental functions, work on the return or improvement of patients' speech has a long and rich history.

The first methods of restoration of speech were originally borrowed from the experience of work in the education of the deaf-mute (the optic-tactile method) and methods of work with children of preschool age according to the «mother method» using I.G. Pestalozzi's «physiological alphabet» (Shokhor-Trotskaya M.K., 2001).

In the 40's of the 20th century the neuropsychological stage in the development of ideas about the ways of methods of restoration of speech began. In the works of A.R. Luria, B.G. Ananyev, E.S. Bain, V.M. Kogan, the emphasis was made on

the psychological mechanisms of various types of aphasia (references).

In the course of scientific research, several concepts of allergy mechanisms are distinguished:

1. Motor concept. In 1877, A. Kussmaul considered alalia to be congenital aphasia, and in 1888, R. Cohen considered alalia to be «idiopathic deafness». He believed that the main thing in alalia is the absolute inability of children to pronounce sounds and syllables.

2. Psychological concept. This approach was considered by such researchers of the late XIX century as A. Liebmann, M.V. Bogdanov-Berezovsky, according to their theory, the main cause of alalia is a psychological factor: impaired thinking, emotional and volitional sphere, memory, attention, etc.

3. Sensory concept. The idea belongs to the Soviet neurophysiologist, psychologist, and educator N.M. Traugott, and it consisted in the fact that in case of alalia, language acquisition is always impaired.

4. Language concept. According to this concept, a child with alalia does not develop the «language ability» that is given to a person by birth. Today it is considered the most relevant concept.

In case of alalia, the underdevelopment of speech is systemic, i.e., all its components – phonetic-phonemic and lexical-grammatical – are affected. In contrast to aphasia, in which the previously existing language is lost, alalia is characterized by the initial absence or sharp restriction of expressive or expressive language. Thus, this condition is spoken of if organic damage to the speech centers occurred in the prenatal, intrauterine or early (up to 3 years) period of a child's development.

Alalia is diagnosed in about 1% of preschoolers and 0.6-0.2% of school-age children; this speech disorder is 2 times more common in boys. Alalia is a clinical diagnosis, which in speech therapy corresponds to the concept of GPR (generalized underdevelopment of speech).

The factors that provoke the development of alalia can be diverse and act at different periods of early ontogeny. For example, in the antenatal period, fetal hypoxia, intrauterine infection, threat of spontaneous abortion, toxicosis, falls of a pregnant woman with fetal trauma, chronic somatic diseases of the expectant mother (arterial hypotension or hypertension, heart or lung failure) can lead to organic damage to the speech centers of the cerebral cortex.

The natural result of a complicated pregnancy is labour complications and prenatal disease. Alalia can be the result of newborn asphyxia, prematurity, intracranial birth trauma in premature, rapid or prolonged labor, and the use of instrumental obstetric techniques.

Among the pathogenetic factors of alalia that act in the first years of a child's life are encephalitis,

meningitis, traumatic brain injury (TBI), and somatic diseases that lead to CNS depletion (hypotrophy). Some researchers point to a hereditary, familial predisposition to alalia. Frequent and prolonged illnesses of children in the first years of life (ARVI, pneumonia, endocrinopathies, rickets, etc.), surgeries under anesthesia, unfavorable social conditions (pedagogical neglect, hospitalization syndrome, lack of language contacts) increase the impact of the leading causes of allergy.

As a rule, the history of such children shows the involvement of not one, but a whole range of factors leading to minimal brain dysfunction. Organic brain damage causes slow maturation of nerve cells, which remain at the stage of young immature neuroblasts. This is accompanied by a decrease in neuronal excitability, inertia of the main nervous processes, and functional exhaustion of CNS cells. Cerebral cortex lesions in alalia are pronounced, but multiple and bilateral, which limits independent compensatory capabilities of language development.

The features that should be taken into account when suspecting symptoms of alalia, which will help in the early detection and timely correction of this disorder. Such children have an active cognitive interest, a lively look, behavior interested in the presence of others, complementing speech deficiencies with gestures and expressive facial expressions. The intellectual delay is partial in nature, and with the development of speech, the intellectual delay is smoothed out.

As for the speech symptoms, all aspects of speech are affected, with any form of alalia affecting expressive and expressive speech, even if speech does develop, it does not fit into the system and the child learns only individual fragments. The vocabulary of such children is replenished slowly and word substitutions are characterized by various features. Word formation and the use of simple phrases are slowly and imperfectly mastered, as well as a gross distortion of the sound-syllable structure of words and the differentiation of sounds.

Depending on the mechanisms, manifestations and severity of speech underdevelopment, the following classification of alalia is proposed

- expressive (motor);
- Impressive (sensory);
- mixed (sensory-motor) alalia with a predominance of impaired development of expressive or expressive speech).

The motor form of alalia is based on early organic damage to the cortical part of the speech-motor analyzer. In this case, the child does not develop his or her own speech, but the understanding of other people's speech remains preserved. Sensory allergy occurs when the cortical part of the speech and auditory analyzer is affected. In this case, the higher cortical analysis and synthesis of speech sounds is

impaired and, despite the preserved physical hearing, the child does not understand the speech of others.

Symptoms of motor alalia. Motor alalia has characteristic non-verbal (neurological, psychological) and speech manifestations. Neurological symptoms in the motor type are mainly represented by motor disorders: clumsiness, insufficient coordination of movements, poor development of finger motor skills. Children have difficulties with mastering self-care skills (buttoning buttons, lacing shoes, etc.), performing fine motor operations (assembling mosaics, puzzles, etc.).

Considering the psychological characteristics of children with motor alalia, one cannot but note impaired memory (especially auditory speech), attention, perception, and emotional and volitional spheres. In terms of behavior, children can be hyperactive, uninhibited or sedentary, inhibited. Most children have reduced performance, high fatigue, and speech negativism. The intellectual development of children with alalia is secondary to speech deficiencies. As speech develops, intellectual disability is gradually compensated for.

In case of motor alalia, there is a pronounced dissociation between the state of expressive and expressive speech, i.e., speech understanding remains relatively unchanged, and the child's own speech develops with gross deviations or does not develop at all. All stages of speech skills formation (walking, babbling, babbling monologue, words, phrases, contextual speech) occur late, and the speech reactions themselves are significantly reduced.

Despite the fact that a child with afferent motor alalia can potentially perform any articulatory movements (unlike dysarthria), sound reproduction is severely impaired. In this case, there are persistent substitutions and mixing of articulatory contradictory phonemes, which leads to the inability to reproduce or repeat the sound image of a word.

In case of efferent motor alalia, the leading speech defect is the inability to perform a series of consecutive articulatory movements, accompanied by a gross distortion of the word structure. The lack of a dynamic speech stereotype can lead to stuttering in the setting of motor allergy.

The vocabulary of motor alalia lags far behind the age norm. New words are difficult to learn, and the active vocabulary contains mostly everyday terms. A small vocabulary leads to an inaccurate understanding of the meanings of words, inappropriate use of them in speech, and substitutions based on semantic and sound similarity. A characteristic feature of motor alalia is the absolute predominance of nouns in the nominative case in the vocabulary, a sharp limitation of other parts of speech, difficulties in the formation and differentiation of grammatical forms.

Phrase speech in motor alalia is represented by simple short sentences (one- or two-syllable). As a result, there is a gross impairment in the formation of coherent speech. Children are unable to sequence events, distinguish between the main and secondary, determine temporal relationships, cause and effect, and convey the meaning of phenomena and events.

Unlike motor alalia, the symptoms of sensory alalia are of a different nature.

In case of sensory alalia, the main defect is impaired perception and understanding of the meaning of reverse speech. At the same time, the physical hearing of sensory alalia is preserved, and they often suffer from hyperacusis, which is an increased sensitivity to various sounds.

Against the background of auditory agnosia, the speech activity of children with sensory allergy is increased. However, their speech is a set of meaningless sound combinations and fragments of words, echolalia (unconscious repetition of other people's words). In general, with sensory allergy, speech is incoherent, meaningless and incomprehensible to others (logorrhea). In the speech of children with sensory allergy, there are numerous perseverations (obsessive repetitions of sounds, syllables), syllable elision (gaps), paraphasia (sound substitutions), contamination (combining parts of different words with each other). Children with sensory alalia are not critical of their own speech; facial expressions and gestures are widely used for communication.

In severe forms of sensory alalia, there is no understanding of speech at all; in other cases, it is situational. But even if the meaning of the phrase is available to the child in a certain context, when the word form, word order in the sentence, or speech rate changes, understanding is lost. Often, «lip reading» of the speaker helps children with sensory alalia to understand speech.

Insufficiency of phonemic hearing in sensory alalia leads to indistinguishability of paronyms; unformed correlation of the heard and spoken word with a certain object or phenomenon.

A gross distortion of speech development in sensory alalia leads to secondary personality and behavioral disorders, and intellectual disabilities. The psychological characteristics of children with sensory alalia are characterized by difficulties in paying and sustaining attention, increased distraction and exhaustion, and unstable auditory perception and memory. Children with sensory alalia may have impulsivity, chaotic behavior or, on the contrary, inertia, withdrawal.

Pure sensory alalia is rarely observed; mixed sensorimotor alalia is usually found, which indicates the functional continuity of the speech-auditory and speech-motor analyzers.

Table 1: Comparative characteristics of motor and sensory alalia

Criteria of comparison	Motor alalia	Sensory alalia
Speech perception	Preserved at the preceptive level	Grossly violated
Speech understanding	Age-appropriate, possible without relying on visual perception of articulation	Violated, it can be slightly improved by visual perception of the speaker's articulation.
Auditory attention	Saved	Violated
Echolalia	Missing	Available
Repeating what you heard	Difficulties with repeating a word or phrase	Repetition without understanding the meaning of the word
Communication	There is a desire for speech communication (verbal and non-verbal)	Unwillingness (and inability) to communicate
Mimicry and gestural language	Active use of gestures, expressive facial expressions	Lack of gestures, amygdala or inexpressive facial expressions
Availability of compensatory means	Melody, sound imitation, and sound gestures are used as compensatory means	Lack of compensatory means
Dynamics of language improvement	The dynamics of language acquisition in its spontaneous and directed formation is noted	Extremely slow pace with directed speech formation

During the diagnosis, it is also important to distinguish between alalia and autism spectrum disorders. In case of alalia, there is a speech initiative and a need to communicate with others, such children use gestural and mimetic means to communicate. However, in ASD, there is no reaction to the addressed speech, it is possible to talk to oneself, simultaneous use of babbling and complexly

organized words, lack of use of "I", persistent agrammatism in unfamiliar surroundings.

From the point of view of diagnosis, it is also necessary to clearly differentiate the difference between alalia and hearing loss. The main criterion is that in case of alalia, there are no physical hearing impairments, they hear speech, but do not distinguish, do not recognize its units, do not understand their meaning (similar to the way we perceive foreigners). – The differential diagnosis between deafness and sensory alalia is extremely important, as the treatment and education of a deaf child will be fundamentally different from that of a child with allergy. Children with dysarthria also have similar symptoms at first glance, but in case of alalia, there are no paralysis or paresis of the speech organs.

At this stage, it is also important to reject the hypothesis that mental retardation and alalia are related. In case of alalia, children actively walk and babble, learn elementary non-verbal concepts (have an idea of quantity, space and time), show bright emotions and joy when meeting with relatives, buying a new toy, etc. Interest in everything new. However, it is extremely important to note that if left untreated, alalia will lead to mental retardation, as speech is an indicator of intellectual development.

And finally, a few important differences between alalia and aphasia, as these are similar but not identical diagnoses. Children under 2.5 years of age have not yet formed those speech areas that can be destroyed by lesions. After the age of 2.5 years, brain areas acquire speech specialization, which is why their localized damage can lead to childhood dysphasia. Children's dysphasia differs from «adult» aphasia in its instability and rapid compensation of the speech defect due to the plasticity of the child's brain. [2].

For high-quality correction of alalia, it is necessary to understand not only the essence of the developmental feature, but also the compensation algorithms that can be used to build a correction program.

The main task of the specialist is to bypass the main connection between the temporal lobes of the right and left hemispheres. To do this, it is necessary to develop

- letter-articulatory connections in sound imitations;
- articulatory-graphic connections (reading words);
- articulatory-acoustic connections in sound imitations;
- articulatory-acoustic connections;

Correction of sensory and motor alalia. When correcting alalia, parents should remember that this is primarily a neuropsychiatric disease. It is very important to provide the child with psychological comfort so that he or she does not feel inferior –

otherwise, this can lead to the development of even more severe pathologies.

1. At all stages of neuropsychological rehabilitation, it is important to keep in mind that patients feel powerless due to difficulties in overcoming their speech impairment and abrupt change of social status. For this reason, the primary task of the specialist is to form an attitude of coping with the problems that have arisen.

2. All forms of alalia require work on all aspects of speech, regardless of which primary disorder defines the form of alalia. Since the secondary and tertiary left hemisphere fields in right-handed individuals are actively involved in speech comprehension, reading, writing, and arithmetic, it is necessary to rely on them to provide a restructuring of speech function.

3. The tactics of rehabilitation training is determined by the timing of its beginning and the prognosis of overcoming alalia.

4. The training tasks change as the patient's speech abilities are restored. For example, as the pronunciation side of speech improves, the neuropsychologist begins to work on restoring phrase structure.

5. When the posterior (paradigmatic) parts of the second structural-functional unit of the brain are affected, it is necessary to rely on the preserved multi-unit rhythmic-melodic automorphisms of the anterior parts and functions of the right hemisphere.

6. In the case of lesions of the anterior (syntagmatic) departments, the neuropsychologist can rely both on the use of an externally set plan of action and on the retained phraseological automatisms including sounds, syllables, words and word combinations.

7. One of the main links of reorganization in all forms of alalia is the reliance on the semantic side of language.

8. Formation of the personal attitude of the patient is one of the basic conditions of success of restoration of speech. According to the majority of experts, the affective side of the patient's speech is the most stable and preserved (Luria A.).

The course of correction includes observation by several doctors. If alalia is caused by infections, it is necessary to get rid of them. A neurologist is responsible for restoring nerve connections between the brain and speech organs. A speech therapist and a neuropsychologist are responsible for restoring speech with the help of special exercises, and parents should play a greater role in this, as they need to work with the child at home.

The most difficult to tolerate is alalia, as it affects several parts of the brain at once. All types are caused by disturbances in the transmission of nerve impulses from the speech center of the brain to the organs of the speech apparatus and vice versa. In the most

severe forms of alalia, the child is unable to perceive the speech of others. Hearing, reflexes and speech organs remain normal, but the area of visual perception of images is impaired.

The key to the success of correctional work in case of alalia is its early (from 3-4 years) beginning, complex nature, systemic impact on all components of speech, formation of speech processes in unity with the development of mental functions. In case of motor alalia, the speech prognosis is more favorable; in case of sensory and sensory-motor alalia, it is uncertain. To a large extent, the prognosis is influenced by the degree of organic brain damage. In the process of schooling, children with alalia may develop written language disorders (dysgraphia and dyslexia).

The tasks set by a specialist in the course of correctional work in the case of sensory allergy

- Teaching the child to extract acoustic features useful for speech from non-speech noises by means of sound imitation.

- Stimulating the child to imitate the sound and subsequently the imitated the word is associated with a specific object.

Accurate sound imitation activates the right auditory cortex and parietal areas of both hemispheres, and the heard sound connects the mental apparatus of the left frontal lobe, where the sound imitation word is understood, and the code is reformatted to the temporal area of the left hemisphere, which processes human speech words. The left temporal lobe is bypassed through the parietal and frontal regions.

In the case of motor alalia, the specialist sets the following tasks: to teach the child to read (workarounds to the letter (word) as an analog of the speech sound perceived by ear). To build a compensation mechanism: through the right visual lobe, the child is presented not with individual letters, but with whole words that are placed under the corresponding pictures (global reading). The child perceives them simultaneously, like a picture. A prerequisite is that an adult sounds out the compound word. The main goal is to build an associative connection between the word, object, action depicted in the picture, and then the connection with the sounding word.

The visual image and written words stimulate the activation of the parieto-occipital areas of both brain hemispheres, as well as the frontal lobes, which ensure understanding of what is seen. Articulatory movements (speaking) are reproduced on the basis of seen (read) words rather than heard ones. Graphic-articulatory associations arise. The first words or fragments of words uttered by the child and the teacher are delivered to the child's hearing aid and stimulate the auditory modality to function, and

articulatory acts are gradually perceived as normative auditory-linguistic support.

In general, compensation for impaired speech functions can go two ways:

- 1) successive, syntagmatic, that is, through reading and writing texts, involvement of automated speech series (ordinal counting, singing with words, etc.), restoration of phonemic hearing through context;

- 2) Simultaneous, which consists in working on the multiple meanings of words, recalling sounds by means of auditory and visual imitation. This can also include the use of superscript signs, restoration of phonemic hearing by visual perception of individual sounds with reliance on their kinesthetic analysis, that is, on individual paradigms, using diagrams and plans as a support for the construction of sentences (Shokhor-Trotskaya M.K., 2001).

The methodology of corrective intervention for any form of allergy should be comprehensive in nature, including psychological, medical and pedagogical. Children with alalia receive the necessary assistance in specialized preschools, hospitals, correctional centers, and sanatoriums. Work on speech is carried out against the background of drug therapy aimed at stimulating the maturation of brain structures; physiotherapy (laser therapy, magnetotherapy, electrophoresis, hydrotherapy, electropuncture; transcranial electrical stimulation, etc.) In case of alalia, it is important to work on the development of general and manual motor skills, mental functions (memory, attention, imagination, thinking).

Given the systemic nature of the disorder, speech therapy sessions for the correction of alalia involve work on all aspects of speech. In case of motor alalia, the child's speech activity is stimulated; work is done on the formation of active and passive vocabulary, phrasal speech, grammatical phrasing, development of coherent speech, and sound pronunciation. Logorhythmic and speech therapy massage are included in the framework of speech therapy sessions.

In sensory allergy, the tasks are to master the distinction between non-speech and speech sounds, differentiation of words, correlation of words with specific objects and actions, understanding of phrases and speech instructions, and grammatical structure of the language. As the child's vocabulary accumulates, subtle acoustic differentiations and phonemic perception are formed, the development of the child's own language becomes possible. With various forms of alalia, it is recommended to teach children to read and write at a relatively early age, as writing and reading allow for better consolidation of the material learned and control of oral speech.

In the process of correction, speech therapy massage is also used. Preparatory actions include stroking the frontal and temporal areas, as well as the

eyes. Clockwise movements are made manually or with the help of the rounded part of the spoon. Then the cheeks and eyebrows are stroked in a circular motion, and the nose is massaged with rubbing movements. After that, the specialist proceeds to massage the articulation zones.

Stimulation of fine motor skills is also possible through massage. The child's hands and fingers are stimulated manually or with the help of special massagers. A properly organized silence regime will increase the child's perception of different sounds. Children with alalia should be given the opportunity to take a break from speech and other auditory stimuli (sound toys, radio, TV and other noise). Such hours of rest are organized once a day, or a whole day is set aside once a week.

From the age of two or three, during speech therapy sessions, a specialist tries to arouse the child's interest in the sounds around him or her, encourages the child to imitate. The child is taught to distinguish sounds with the help of various objects.

In addition to professional correctional work, parental support and independent training outside of the correctional institution is extremely important. There are home methods of treating alalia, meaning that not only specialists but also parents themselves should deal with the problem. For example, it is recommended:

- use finger games at home to stimulate biologically active points on the child's fingertips.
- in case of sensory allergy, it is important to help the child associate words with their images, pictures, for this purpose it is important to read books with pictures, name objects by pointing to them.
- talk to the child often, using simple, clear words, pausing between phrases.
- teach literacy as soon as possible, it helps to "catch up" and develop mentally faster, to keep up with schoolwork.
- constantly work on the correct pronunciation of words, correct the child and ask him or her to repeat them properly.

You can also use simple speech therapy games, warm-ups, and exercises. The main thing is to turn learning into a game, not a duty, and not to overstrain the child.

In addition to rehabilitation, the issue of prevention is extremely important. Prevention of alalia in children includes ensuring conditions for a favorable course of pregnancy and childbirth, and early physical development of the child. Corrective work to overcome alalia helps prevent the onset of secondary intellectual disability.

To prevent a child from developing a disease, you need to plan your pregnancy carefully, get tested for infections in advance and treat them if necessary, avoid stress and falls while carrying the baby; try to make the birth as successful as possible – choose a

good maternity hospital and a doctor you trust, seek help in a timely manner, listen to the advice of an obstetrician, protect the baby from diseases and infections, visit a pediatrician regularly, and if you suspect nervous disorders, a neurologist or psychiatrist.

Conclusions. Neuropsychological correction of alalia at different stages of interaction with a child is an effective tool for improving speech skills in children with this problem. Early intervention is the most effective way of treating alalia, but correctional techniques can also be successfully used at later stages of a child's development.

It has been established that speech development is closely related to personal and intellectual development, contributes to the acquisition of solid and thorough knowledge and the holistic and harmonious development of the individual.

Taking into account the complexity of psychophysical developmental disorders in children with severe speech disorders (these include all forms of allergy, aphasia, and the main types of psychospeech developmental delays), which are complicated by behavioral disorders, autistic traits as well as genetic syndromes and metabolic disorders in the neuro structures of the central nervous system, it is clear that speech therapists are unable to overcome complex defectological problems and there is a need to implement an interdisciplinary approach to the diagnosis of neurosurgical pathology.

However, it is important to take into account the individual characteristics of each child with speech problems. A correctional program should be designed to meet the level of development of speech skills and the needs of a particular child.

Various neuropsychological techniques can be used to improve pronunciation, speech comprehension, and grammar skills, such as speech development therapy and speech development stimulation.

Therefore, we can conclude that neuropsychological correction of alalia can help children with this problem improve their speech skills at different stages of their development. It is important to take into account the individual characteristics of each child and use effective correction methods based on their needs and capabilities.

The prospect of further research is to implement interdisciplinary and neuropsychological approaches in the practical work of correctional teachers, which will increase the effectiveness of comprehensive diagnosis of speech development disorders in preschool children and develop targeted measures to stimulate communicative activity in severe speech disorders (the use of «acoustic neuromodulation»). Initiation of communicative activity in young children who do not have verbal means of communication through neurophysiological modulations will be a prerequisite for the further use

of classical speech therapy techniques to overcome severe speech disorders.

Thus, the work on speech restoration is complex and multilevel, and is often crucial for the patient's further social adaptation and quality of life.

In the study of speech disorders, the clinical, psychological and pedagogical approach is a priority,

and the scope of neuropsychological research methods is significantly expanding. It is noted that the use of a comprehensive diagnosis for the study of speech development disorders, which can be used by specialists in various scientific fields, will facilitate the interdisciplinary synthesis of knowledge about the nature of speech disorders.

References

- Bobylova, M.Yu., Kapustina, A.A., Braudo, T.A., Abramov, M.O., Klepikov, N.I., & Panfilova, E.V. (2017). Motor and sensory alalia: Diagnostic difficulties. *Russian Journal of Child Neurology*, 12 (4), 32-42. <https://doi.org/10.17650/2073-8803-2017-12-4-32-42> [in English]
- Greene J.D. (2005). Apraxia, agnosias, and higher visual function abnormalities. *Journal of Neurology, Neurosurgery & Psychiatry* Greene JD. Apraxia, agnosias, and higher visual function abnormalities. *Journal of Neurology, Neurosurgery & Psychiatry*. Dec. 1;76(suppl 5): v 25-34. Dec 1;76(suppl 5):v25-34. [in English]
- Walton J.N., Ellis E., Court S.D. (1962). Clumsy children: developmental apraxia and agnosia. *Brain*. Sep; 85:603-12. doi: 10.1093/brain/85.3.603. PMID: 13998739. [in English]
- Borovyk, I.G. (2009). Articulation exercises are useful and interesting. *Kharkiv: "Ronok"*. 64 p. [in Ukrainian]
- Bulakhova, L.A. (2001). *Children's psychoneurology*. Kyiv. 243 p. [in Ukrainian]
- Gaivan, T. Ya., & Makarova, S.M. (2008). *Speech therapy work with children (with general underdevelopment of speech level 3)*. Kharkiv: Vesta: "Morning". 198 p. [in Ukrainian]
- Degtyarenko, T.V., & Pavlova, N.V. (2016). The relevance of interdisciplinary and neuropsychological approaches to the diagnosis of severe speech disorders in young children. *Science and education*. 8, 30–37. [in Ukrainian]
- Zhuravlyova, L.S. (2016). Modern approaches to the study of disorders of speech development of younger schoolchildren. *Current issues of correctional education (pedagogical sciences)*. Collection of scientific works, 8. [in Ukrainian]
- Maksimova, N.L., Milyutina, E.L., & Pyskun, V.M. (1996). *Basics of children's pathopsychology*. Kyiv: Perun. 464 p. [in Ukrainian]
- Methodology for diagnosing deviations in the mental development of younger schoolchildren and older preschoolers (1998). N.M. Stadnenko, T.D. Ilyashenko, L.V. Borshchevska, A.G. Obukhivska (Ed.). Kyiv. 145 p. [in Ukrainian]

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- Bobylova, M.Yu., Kapustina, A.A., Braudo, T.A., Abramov, M.O., Klepikov, N.I., & Panfilova, E.V. (2017). Motor and sensory alalia: Diagnostic difficulties. *Russian Journal of Child Neurology*, 12(4), 32-42. <https://doi.org/10.17650/2073-8803-2017-12-4-32-42>
- Greene JD. Apraxia, agnosias, and higher visual function abnormalities. *Journal of Neurology, Neurosurgery & Psychiatry* Greene JD. Apraxia, agnosias, and higher visual function abnormalities. *Journal of Neurology, Neurosurgery & Psychiatry*. 2005 Dec 1;76(suppl 5):v25-34.. 2005 Dec 1;76(suppl 5):v25-34.
- Walton J.N., Ellis E., Court S.D. Clumsy children: developmental apraxia and agnosia. *Brain*. 1962 Sep;85:603-12. doi: 10.1093/brain/85.3.603. PMID: 13998739.
- Боровик, І.Г. (2009). *Артикуляційні вправи – корисні та цікаві*. Харків: «Ранок». 64 с.
- Булахова, Л.А. (2001). *Дитяча психоневрологія*. Київ. 243 с.
- Гайван, Т.Я., & Макарова, С.М. (2008). *Логопедична робота з дітьми (із загальним недорозвиненням мовлення 3 рівень)*. Харків: Веста: «Ранок». 198 с.
- Дегтяренко, Т.В., & Павлова, Н.В. (2016). Актуальність міждисциплінарного та нейропсихологічного підходів до діагностики тяжких порушень мовлення у дітей раннього віку. *Наука і освіта*. 8, 30–37.
- Журавльова, Л.С. (2016). Сучасні підходи до вивчення порушень мовленнєвого розвитку молодших школярів. *Актуальні питання корекційної освіти (педагогічні науки)*. Збірник наукових праць, 8.
- Максимова, Н.Л., Мілютіна, Е.Л., & Пискун, В.М. (1996). *Основи дитячої патопсихології*. Київ: Перун. 464 с.
- Методика діагностики відхилень у розумовому розвитку молодших школярів та старших дошкільників* (1998). Н.М. Стадненко, Т.Д. Іляшенко, Л.В. Боршевська, А.Г. Обухівська (Ред.). Київ. 145 с.

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