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Specific Features of Psychomotor and Cognitive Development in Children with Severe Speech Disabilities at Preschool Age

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Abstract: The article describes the specific features of the psychomotor and cognitive development of preschool children with severe speech impairment, and provides an analysis of changes in thinking, memory, attention, and logical approaches in children with this speech impairment from the scientific research of many scientists.

Keywords: Cognitive development, severe speech impairment, memory, attention, logical approach, fine motor skills, general motor skills, motor alalia, subtle differential movements, visual gnosis.

Introduction: Disturbances in the motor function of children with severe speech impairment can manifest themselves as problems in articulatory, fine and general motor skills.

Studies conducted by G.V. Matsievskaya emphasize that the locomotor function of children with motor alalia develops later than in other children. Differentiating between kinetic (efferent) motor alalia, the author shows that certain disorders occur in the muscles of articulatory and general motor skills during the execution of tasks such as performing sequential movements and transitions from one movement to another. Apraxias, expressed in kinesthetic (afferent) motor alalia, proceed without pronounced paralysis and paresis. Difficulties in performing fine differential movements, a long search for the desired articulatory position, and unstable replacement of sounds are observed. During the execution of movements, their

inaccuracy and involuntary additional movements of the lips, tongue, lower jaw and mimic muscles are detected. Maintaining the desired position is significantly more difficult.

Articulatory motor disorders are also noted in the studies conducted by R.A. Belova-David. She draws attention to the incomplete development of deep proprioceptive sensations, problems in the organization and differentiation of speech movements. Movement disorders, in addition to changes in the strength and volume of movement, are also expressed in its unclear and inconsistent implementation, which is noted as a pathology of motor coordination and is associated with disorders in the function of the vestibular apparatus and the cerebellum [3].

V.M. Bekhterev concludes that there is a close connection between the hand and speech. The connection between finger motor skills and speech function was also confirmed by a number of researchers working at the Institute of Physiology of Children and Adolescents of the Russian Federation (A.V. Antakova-Fomina, Ye.I. Isenina, M.I. Koltsova). It was found that in most children with severe speech impairment, there is a lack of finger mobility, insufficient differentiation and inconsistency of fine motor skills. Since speech is part of general motor skills, it is formed together with the functional system that controls speech movements. The development of speech and motor skills is interconnected, and these processes are largely associated with the activity of the frontal parts of the brain [8].

Examination of the psychomotor skills of children with severe speech impairment of older preschool age using the N.I. Ozeretsky tests showed that in this group of children, performing most of the test tasks causes certain difficulties. Inaccuracy and coarseness of movements, difficulties in repeating the position of the hands and fingers are detected. These problems are especially pronounced in the performance of sequential and voluntary movements. In this case, a violation of the kinetic and kinesthetic organization of the movement process is noted. The sequence of movement elements is disrupted, its components are omitted. There are cases of slowing down the pace of movement, inability to switch from one movement to another. V.P. Dudyev, N.S. Zhukova, E.M. Mastyukova, E.F. Sobotovich, T.B. Filicheva, G.V. Chirkina and others separately highlight similar features recorded in motor memory.

Motor deficiencies negatively affect the development of visual activity in children, and this condition is expressed in problems with drawing simple lines, depicting small details of the picture, and subsequently causes difficulties in mastering the writing process.

Disturbances in the coordination of muscle movements on both sides of the body may be associated primarily with the lateralization of functions, that is, lagging behind the period of separation of the leading hemisphere of the brain.

Thus, specific manifestations of defects in general, fine and articulatory motor skills of preschool children with severe speech impairment (according to N.A. Bernstein) are noted at all levels of the sphere of movement organization. They arise as a result of functional insufficiency and indicate the presence of weakly expressed residual organic pathologies [4].

The mental development of children with severe speech impairment is characterized by a disproportionate course of cognitive and speech development and causes the manifestation of a mental image with specific features. At the same time, there is a number of data indicating a mosaic expression of intellectual disabilities.

In the process of psychological and pedagogical study of children with severe speech defects, the relationship between the structure of the speech defect and primary, secondary, tertiary, etc. defects is determined.

The phenomena of secondary underdevelopment of higher mental functions have been theoretically discussed since the time of L.S. Vygotsky.

At the present stage of scientific development, various specialists are engaged in the problems of mental dysontogenesis: psychiatrists, defectologists, psychologists.

In general, many authors (I.T. Vlasenko, T.V. Rozanova, etc.) emphasize that cognitive and speech disorders are simultaneously noted in children with severe speech disorders. In this case, a close relationship is often found between the degree of expressiveness of the speech defect and cognitive activity.

The cognitive processes of non-speaking children suffering from the speech defect of alalia were first systematically analyzed by R.E. Levina. She noted that in alalia, there is an underdevelopment of sensory functions: impaired auditory and visual perception, impaired pitch and rhythmic perception, instability of attention, optical-spatial praxis, visual and auditory memory, and thinking disorders, among others[9].

Visual perception in preschool children with severe speech impairment lags behind in development and is characterized by the inability to fully perceive the holistic image of the object. L.S. Svetkova found that children in this category differ from their normally developing peers in the volume of visual perception and

the stability of visual representations.

A.P. Voronova noted that in most cases, due to the insufficient level of development of letter gnosis, most children are not ready to master the writing process. They have difficulty distinguishing the concepts of "right" and "left". They cannot distinguish individual parameters of size (length, width, height, thickness). A number of difficulties are identified in the process of analytical perception: children cannot distinguish the main components of the object, ignore small details, and problems with orientation in their own body and space are noted [5].

A decrease in the speed of perceptual operations of the target-research activity is noted (Ye.M. Mastyukova). Preschool children do not know how to study objects, do not show any activity and use practical methods for studying the properties of the object for a long time.

In children with severe speech defects of preschool age, a low level of development of the main signs of attention is noted (Yu.F. Garkusha, O.N. Usanova, T.A. Fotekova, etc.). A lack of attention stability, rapid distraction, and limited ability to distribute attention are detected. Children with attention deficit disorder have difficulty putting objects back in their place after they have been moved, do not notice small errors in pictures, do not always distinguish objects or words by their given symbols, etc.

Insufficient goal-directedness of activity, its impulsiveness or stagnation are clearly visible. A tendency to reproductive types of activity is determined, all types of control, especially preliminary control and current control, are not fully formed (Yu.F. Garkusha, O.N. Usanova). In this case, children have difficulty completing educational tasks, cannot fully perceive verbal material presented without visual aids.

Memory disorders are expressed in a variety of ways and are not always associated with organic brain damage. According to the data provided by I.T. Vlasenko, G.S. Gumennaya, L.S. Volkova, E.G. Krutikova, L.M. Shipitsyna, semantic memory in children is relatively preserved, but a decrease in verbal memory, a decrease in the efficiency of memorization are observed, and a rigid and fading type of memorization prevails[6]. Significant changes in the functional state of the left hemisphere cause these disorders (E.M. Mastyukova). According to E.M. Mastyukova, the pronounced manifestation of memory disorders in children with severe speech impairment depends on the severity and characteristics of the organic disorder. In addition, a close relationship is established between verbal memory and incomplete speech development. Short-term memory deficits are analyzed by a number of foreign authors (Kamhi; Kircher, Klatzky, Cannon). They emphasize that problems such as overwork, neurotic states, general asthenia resulting from various infections can cause memory disorders. According to scientists, children with severe speech impairments have a reduced volume of visual and tactile memory, such children do not fully perceive rhythm and have difficulty remembering optical-spatial relationships.

It is noted that visual gnosis has its own characteristics against the background of severe speech impairment. In children with severe speech impairment, the process of recognizing overlapping pictures becomes more complicated. A decrease in the number of informative signs leads to an increase in the number of errors. Simultaneous, successive, and optical-spatial gnosis deficiencies are noted in all examined children.

The volume of verbal memory in children with motor alalia is much lower than visual memory. Preschool children often forget complex instructions, omit some of their elements, and confuse the sequence of tasks given. Children relatively well remember vivid emotional impressions at an involuntary level. The dominance of mechanical visual-figurative memory is noted.

In relatively weak children, such conditions as low recall activity can be observed along with limited opportunities for the development of cognitive activity. The incomplete formation of verbal-logical thinking is manifested as one of the various etiopathogenetic disorders.

The state of thinking and its connection with the level of speech development gives rise to a number of contradictory opinions. According to the views based on R.E. Levina and developed in the studies of a number of scientists (I.T. Vlasenko, B.M. Grinshpun, S.N. Shakhovskaya), secondary disorders of thinking occupy a special place in the structure of intellectual deficiencies noted in children suffering from severe forms of severe speech deficiency.

A number of works conducted by child psychiatrists (V.V. Kovalev, Ye.O. Kirichenko, Ye.M. Mastyukova, R.A. Belova-David, etc.) and aimed at studying the relationship between speech impairment and the general mental development of the child serve as a basis for confirming this assumption.

A number of authors (I.T. Vlasenko, G.V. Gurovets, L.R. Davidovich, L.A. Zaytseva, V.A. Kovshikov, A.N. Kornev, Ye.M. Mastyukova, Ye.F. Sobotovich, O.N. Usanova, T.B. Filicheva, G.V. Chirkina, Yu.A. Elkonin, etc.) have established that there are specific features in the thinking of this category of preschool children. Children who have a foundation that plays an important role in

mastering thinking operations lag behind in the development of verbal-logical thinking, they master the operations of analysis and synthesis, comparison and generalization with difficulty.

Specific features of spatial thinking are noted, children spend more time than healthy peers during tests of imaginary rotation of objects (Johnston & E. Weismer), incomplete development of symbolic functions is revealed when performing cross-modal tasks (Kamhi). They have deficiencies in hierarchical planning (Cromer), symbolic functions (Morehead), auditory processing of information (Eisenson; Tallal & Piercy; Frumkin & Rapin, etc.), difficulties in sequential counting are identified and are expressed in such cases as omission, repetition, and disruption of the order, while the process of re-counting objects causes the child to become even more confused, they lag behind in mastering quantitative operations by 1 to 5 years (Kamhi, Cannon).

E.F. Sobotovich, while analyzing the specific features observed in children with severe speech impairment, notes a decrease in the rate of formation of mental processes from the norm. The author pays special attention to such situations as the insufficiently dynamic nature of thinking processes in children with motor alalia, the slow pace of mastering certain patterns, and insufficiently conscious thinking. He believes that linguistic deficiencies play a major role in the development of the above-mentioned thinking disorders.

The cognitive development of children with severe speech impairment has its own characteristics, which is explained by the inextricable link between speech and thinking. According to the teachings of L.S. Vygotsky, speech and thinking processes are closely related and mutually conditioned. Therefore, speech impairment necessarily affects cognitive processes to a certain extent [7].

CONCLUSION

In conclusion, it can be said that the dynamics of cognitive development in children with severe speech impairments is closely related to the dynamics of speech development. Therefore, in correctional speech therapy, it is important to pay attention not only to speech components, but also to the development of cognitive processes. In particular, the development of executive functions such as working memory, phonological processing ability, attention control, and cognitive flexibility also has a positive effect on speech development.

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