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# Speech Defects in Children with Cerebral Palsy of Preschool and School Age and Their Elimination

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**Abstract:** This article provides information about childhood cerebral palsy, its causes, and speech disorders encountered in children affected by cerebral palsy. It also discusses the education and the process of corrective-logopedic work with children with CP. This study also emphasizes that speech disorders in children with cerebral palsy are closely connected with disturbances in the motor, sensory, and cognitive spheres, which significantly complicates the process of speech development. In preschool and school-age children, dysarthric speech disorders are most commonly observed, characterized by impaired articulation, phonation, and speech breathing. In some cases, more severe forms such as anarthria or motor alalia may also occur. The article highlights that early diagnosis and timely correctional intervention play a crucial role in improving the speech and communication abilities of children with cerebral palsy. The effectiveness of speech therapy work largely depends on an interdisciplinary approach involving neurologists, psychologists, educators, and speech therapists. Special attention is given to modern correctional technologies, including differentiated speech therapy methods, massage of articulatory muscles, breathing exercises, and neuro-rehabilitation techniques. These approaches contribute not only to the improvement of speech functions but also to the overall development of cognitive and motor skills. Furthermore, the importance of individualized correctional programs tailored to the type and severity of cerebral palsy is emphasized. Such programs help to maximize the rehabilitation potential of children, improve their social adaptation, and support their inclusion in the educational environment.

**Keywords:** Childhood cerebral palsy, central nervous system, dystonia, symmetrical, asymmetrical, paralysis, speech, correction, technology, dysarthria, alalia.

**Introduction:** Cerebral palsy (CP) is a severe disease of the central nervous system that occurs as a result of insufficient development or damage to the brain in early ontogenesis. The causes of cerebral palsy can be different. For example, chronic diseases, premature or late birth of the fetus, infectious diseases, various injuries during pregnancy, incompatibility of the mother and fetus's blood by the Rh factor and group, as well as genetic factors can also be the basis. In this case, the damage mainly affects the large hemispheres of the brain, which control voluntary movements, speech and other functions. The leading signs in the clinical picture of cerebral palsy are motor disorders, which are often accompanied by mental and speech disorders, disorders in the functions of other analyzer systems (vision, hearing, deep sensation), and seizures. Speech disorders occupy a leading place in the clinic of cerebral palsy. The frequency of speech disorders in cerebral palsy is 80%. According to the classification of K.A. Semyonova, cerebral palsy in children is divided into the following types: spastic diplegia, double hemiplegia, hemiparetic form, hyperkinetic form and atonic-astatic

form. Cerebral palsy in children is a non-progressive disease. As a result of age and treatment-corrective effects, the condition of children usually improves.

The initial stage in the system of providing assistance to children with cerebral palsy in children is diagnostics. Due to the multifaceted nature of their motor, mental, visual, hearing disorders and speech development disorders, pedagogical and speech therapy examinations are difficult and the possibility of using experimental methods is limited. It is not always possible to obtain objective information about the state of their learning and speech activity. Therefore, they should be studied comprehensively. This will help to fully understand the developmental deficiencies in learning and speech activity and determine the best ways to correct them. A comprehensive examination is carried out by specialists in the fields of medicine, psychology and pedagogy: speech therapist, defectologist, educator, neuropathologist and physiotherapist.

1. Spastic diplegia - the most common form of BSF. In some literature, it is also called “Little syndrome”. In spastic diplegia, both arms and legs are affected, the legs are more affected than the arms. The degree of damage to the arms varies - from pronounced paresis to mild motor disorders and impaired fine differential movements of the fingers. The main symptom of spastic diplegia is increased muscle tone in the limbs (spasticity), along with unreduced tonic reflexes, and a limitation of strength and movement. There is an increase in tone in the flexor muscles of the hips, as a result of which the child staggers his legs when standing, which distorts the figure, causes incorrect hardening of the bones and impaired movement. The severity of speech, mental, and movement disorders varies. In 70-80% of children with spastic diplegia, speech disorders in the form of spastic-paretic dysarthria, speech delay, and sometimes motor alalia are observed.

2. Bilateral hemiplegia. This is the most severe form of BSF, in which there is a general lesion of the brain, especially the cerebral hemispheres. Movement disorders are equally expressed in the arms and legs, or the arms are more affected than the legs. The main clinical manifestation of bilateral hemiplegia is increased muscle tone, which is further enhanced by the influence of strong tonic reflexes that persist for many years. The reflexes of the writing muscles are generally or almost undeveloped. Voluntary motor skills are absent or severely limited. Children do not sit, stand, or run. Hand function is almost undeveloped. All children have severe speech disorders, including anarthria, dysarthria (speech is completely absent or the patient pronounces individual sounds, syllables or words). The prognosis for motor, mental and speech development is not favorable.

3. Hemiparetic form. This form is characterized by paralysis of the limbs on one side of the body. The arm is usually more affected than the leg. Right-sided hemiparesis caused by damage to the left hemisphere is observed much more often than left-sided hemiparesis. It is obvious that the left hemisphere, as a phylogenetically younger area, is more affected under the influence of damaging factors, since its functions are more complex and diverse. In severe cases, unilateral restriction of spontaneous movements begins to manifest itself in the first months of life, while in mild forms, symptoms become apparent by the end of the year, when the child begins to actively move his arms.

4. Hyperkinetic form of BSF. The hyperkinetic form of BSF is associated with damage to the subcortical regions of the brain. The cause may be bilirubin encephalopathy (Rhesus factor incompatibility), as well as hemorrhage into the coccyx area resulting from birth trauma. Movement disorders manifest themselves in the form of involuntary involuntary movements - hyperkinesis. Hyperkinesis occurs involuntarily, increases during movement and excitement, as well as when tired and when trying to perform any movement. Hyperkinesis decreases at rest and almost disappears during sleep. They can be observed in the muscles of the face, tongue, head, neck, body, legs, arms.

5. Atonic-astatic form of BSF. This form of BSF is accompanied by damage to the cerebellum. From the motor sphere, the following are observed: low muscle tone, impaired body balance at rest and walking, impaired sense of balance and movements, tremor, hypermetria (imbalance of body parts, involuntary jerky movements). Many children have a delay in speech development, speech disorders in the form of ataxic dysarthria, alalia may appear.

Correctional impact should be organized in accordance with the ontogenetic sequence of age-related, gradual stimulation of the development of motor, mental and

speech functions. K.A.Semenova, E.F.Arhipova, E.M.Mastyukova, P.Ya.Fishenko, L.A.Danilova pay special attention to the early organization of diagnostic work and, in turn, the effectiveness of early correction of developmental disorders in a child in the pre-speech period through speech therapy and pedagogical influence. E.F.Arhipova developed a system of gradual correctional and pedagogical work starting from the first months of a child's life. This system is aimed at the formation of all impaired functions, such as the motor skills of the articulatory apparatus, sensory functions, visual-motor coordination, stimulation of babbling and babbling. At the beginning of the experimental educational work conducted by M.V.Ippolitova, special attention was paid to sensory education and the formation of simple and complex motor skills. The subsequent educational system includes activities such as enriching the perception of the environment, forming and clarifying spatial-temporal representations, preparing for reading, writing and counting.

A number of scientists note the difficulties in correcting speech disorders in children with cerebral palsy. A. Posniak, P. Saturen, S. Tobis, H. Wallake found that speech disorders were observed in all patients with cerebral palsy (53 patients aged 5 to 21 years). As a result of therapeutic physical education and speech therapy, positive results were noted in the motor sphere of all patients, but speech disorders remained.

The combined use of drug therapy and goal-oriented, strictly individual speech therapy exercises for the treatment of pseudobulbar palsy is much more effective.

K.A.Semenova, E.M.Mastyukova and M.Ya.Smuglin explained the further improvement of speech as a result of exposure to the distal parts of the limbs with pulsed current. In addition, they noted the activation of intellectual processes as a result of speech improvement.

The high importance of organizing differential speech therapy in the correction of dysarthria is emphasized. I.I.Panchenko pays special attention to the leading movement defect in the speech apparatus. He developed the methods, structure and main tasks of differential speech therapy with school-age children who are experiencing the late residual stage of BSF and have spastic paresis, hyperkinesis and ataxia in the muscles of the articulation apparatus. The effectiveness of speech therapy work in dysarthria depends on the correct determination of the type of dysarthria and the correct use of differential methods of correction.

For the effective organization of speech therapy work with children with severe dysarthria disorders, the use of speech therapy physical education and massage tools in the normalization of speech motor skills is of great importance. Differential speech therapy massage methods and differential active and passive exercise methods have been developed based on the nature of the disorder of the articulatory muscle tone.

During the work carried out to correct dysarthria, emphasis should be placed on the development of general and articulatory motor skills, as well as speech breathing and reducing salivation.

Breathing and voice exercises are of great importance when organizing speech therapy for children with cerebral palsy.

Along with the restoration of speech, it is necessary to carry out work aimed at developing the function of the motor system, that is, developing correct breathing movements, controlling laryngeal reflexes, and relaxing tension in the muscles of the neck and head. The movements of the articulatory organs should be associated with the process of phonation.

A new methodology has been developed that pays special attention to articulation, tongue movements, and body position. In this case, body positions that facilitate the process of performing head movements and articulatory movements are selected. K. and B. Bobath, Ye.F. Arkhipova, K.A. Semenova, and Ye.M. Mastyukova recommend the use of “reflex-inhibiting positions” in order to normalize muscle tone by inhibiting pathological tonic reflexes. Work on relaxing the muscles of the articulatory apparatus begins with the individual selection of body positions for each child that contribute to the absence or minimal manifestation of pathological tonic reflexes.

To correct speech motor disorders in BSF, the method of artificial local hypothermia is used, which helps reduce muscle spasticity, hyperkinesis, hypersalivation, and synkinetic involvement of other muscle groups.

Work aimed at developing articulatory motor skills should be carried out in harmony with work aimed at

developing hand functions and eliminating their disorders.

Methodological methods aimed at eliminating motor alalia observed in children with movement disorders are presented in the works of N.N. Traugott and S.I. Kaydinova. In this work, it is especially noted that speech therapy work aimed at developing the vocabulary of children with alalia and eliminating agrammatisms is of great importance.

When studying the experiences of raising children with cerebral palsy, the speech therapist should pay special attention to such tasks as cultivating goal-directed attention, setting the main goal during the game, and controlling each subject or game activity with the help of speech.

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