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MOBILE DISORDERS AND SPEECH DEVELOPMENT: IN THE EXAMPLE OF CHILDREN'S CEREBRAL PALSY

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Abstract:

This article analyzes the main clinical categories of children with musculoskeletal disorders, their causes, and the mechanisms of their influence on the general psychophysical and speech development of the child from a scientific and pedagogical point of view. In particular, the interrelationship of motor, sensory, and speech disorders associated with cerebral palsy is revealed. The study covers the clinical and pedagogical characteristics of speech disorders (dysarthria, alalia, and phonetic-phonematic disorders), their neurophysiological basis, and the scientific views of leading scientists on these conditions. It also substantiates the effectiveness of complex medical, psychological, and pedagogical approaches used in the process of education and rehabilitation. The article is intended for students, masters, and practicing specialists studying in the field of special pedagogy, speech therapy, and rehabilitation.

Keywords: musculoskeletal system, cerebral palsy, hemiplegia, spastic diplegia, dysarthria, alalia, kinesthesia, rehabilitation, poliomyelitis, achondroplasia.

Musculoskeletal defects are one of the most complex neuro-orthopedic pathologies that occur in childhood, which not only limit motor activity, but also leave a deep mark on the child's mental, cognitive and speech development. Especially in cases of cerebral palsy (CP), due to early organic damage to the central nervous system, the motor and speech systems are simultaneously disrupted. This condition is one of the urgent problems in the practice of special pedagogy and speech therapy, requiring an integrated approach.

Cerebral palsy is a disease of the central nervous system, accompanied by early organic damage to the motor areas of the brain and the nerve pathways that control movement. In this pathology, insufficient formation of the motor and speech systems is observed.

The main causes of musculoskeletal defects are:

1. Complications of poliomyelitis;
2. Congenital and acquired deformities (arthrogryposis);
3. Limb deformities;
4. Achondroplasia (chondrodystrophy) - congenital bone growth disorder;
5. Myopathies - hereditary metabolic diseases of muscle tissue;
6. Viral and bacterial diseases of the mother during pregnancy (TORCH infections, cytomegalovirus);
7. Pathological conditions during childbirth;
8. Severe neuroinfections experienced in the first year of life (meningitis, encephalitis, etc.).

Cerebral palsy (CP) occurs as a result of early organic damage to the central nervous system and is characterized by a persistent violation of motor activity. In this pathology, motor disorders do not manifest themselves in the same way, but are expressed in different clinical forms depending on the focus of brain damage, its depth and localization. In the experience of practical neurology and special pedagogy, several main clinical forms of cerebral palsy are distinguished. One of the most common forms is spastic diplegia, in which the lower extremities are mainly affected. In this case, due to the constant high muscle tone, stiffness in the legs, restriction of movements, and a violation of the stereotype of walking are observed. Spastic diplegia often makes it difficult for the child to form independent walking skills and leads to the development of secondary orthopedic deformities.

Spastic hemiplegia is characterized by a predominant lesion of the arms and legs on one side (right or left). In this form, the spastic state of the muscles is clearly manifested on one side of the body, causing asymmetric development of movements. In spastic hemiplegia, hand motor skills are especially severely limited, which negatively affects the child's ability to master self-service, writing, and practical skills.

Bilateral hemiplegia is one of the most severe forms of cerebral palsy in children. In this case, the motor activity of the body, arms, and legs is sharply limited, and the child cannot independently perform basic motor movements such as

sitting, standing, and walking. A sharp increase in muscle tone, involuntary hyperkinesis, and profound imbalance are characteristic of this form.

In paraplegia, the lower extremities are mainly affected, while hand movements are relatively preserved. However, due to pathological changes in muscle tone, coordination and balance disorders, movements are not performed accurately and in a coordinated manner. This form creates significant difficulties in the child's spatial movement and walking. Monoplegia is a relatively rare form of cerebral palsy, in which only one arm or one leg is affected. In this case, although general motor development is relatively preserved, muscle tone disorders, decreased accuracy of movement, and kinesthetic perception are observed in the affected limb.

- One of the forms that deserves special attention is the atonic-astatic syndrome, which is characterized by a decrease in muscle tone and a sharp violation of balance and coordination. In such children, the processes of sitting, standing and walking are unstable, and frequent falls are observed. The lack of planning and coordination of movements seriously limits the child's independent activity.
- In general, in all clinical forms of cerebral palsy, pathological changes in muscle tone, involuntary hyperkinesis, balance and coordination disorders, and deficiency of kinesthetic sensation are the main symptoms. These motor disorders directly affect the child's speech, cognitive and emotional development and require a comprehensive medical-psychological-pedagogical approach.
- Kinesthesia is the ability to perceive the spatial position and movement of the body and its parts. It is carried out through proprioceptors located in the muscles, tendons and joints. Insufficient formation of kinesthetic information in children with cerebral palsy leads to a violation of motor stereotypes, and as a result, speech-motor processes are disrupted. Movement disorders also directly affect the intellectual, emotional and communicative development of the child.
- Speech disorders in children with cerebral palsy occur in 80% of cases. The degree and form of speech disorders depend on the focus of brain damage, its depth and localization. The most common speech defects are dysarthria and alalia.
- As a result of insufficient formation of the cerebral cortex and speech-motor systems, congenital oral automatisms do not completely disappear, complex forms of articulatory movements do not develop. As a result, sound pronunciation, speech tempo-rhythm, phonemic hearing and lexical-grammatical structure are seriously impaired.
- N.N. According to Malofeev (1985), in the speech of children of primary school age with BSF, verbs and auxiliary words predominate, making up about 90% of the vocabulary, while other word groups are insufficiently formed.
- Complex rehabilitation approaches
- Rehabilitation of children with musculoskeletal disorders is not limited to one direction. To achieve an effective result, the following complex approaches are used:
- drug treatment;
- physiotherapeutic procedures;
- orthopedic correction and devices;
- therapeutic physical education, massage and gymnastics;
- speech therapy and psychological correction work.

Defects of the musculoskeletal system deeply limit not only the motor activity of children, but also their general mental development, cognitive processes and speech communication. Scientific understanding of the complex and interconnected features of these defects allows for the effective organization of medical, psychological and pedagogical assistance to children. The results of the study once again confirm the relevance and practical importance of creating modern rehabilitation and inclusive educational conditions.

One of the specific aspects of articulatory motor disorders in children with paralysis of the musculoskeletal system is the delay in the redevelopment of innate reflexes (sucking, swallowing, yawning, biting) associated with oral automatism. Organic damage to the speech-motor analyzer causes difficulty or inability to articulate speech sounds, as well as disruption of speech units such as breathing, voice, tempo, rhythm, and intonation. The earlier these types of disorders are diagnosed and the more comprehensive (medical, psychological, pedagogical, and speech therapy) approach is taken, the more effective the rehabilitation process will be. It is no exaggeration to say that this leads to higher levels of socialization in children.

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