

CLINICAL, NEUROLOGICAL AND COGNITIVE MANIFESTATIONS IN DIFFERENT FORMS OF CEREBRAL PALSY

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Abstract: *The article presents the results of a study of 52 children with various forms of cerebral palsy. The analysis of risk factors for the development of cerebral palsy. The diagnosis of cognitive impairment, including memory impairment in children with cerebral palsy, is one of most significant tasks, since it determines the characteristics and prognosis of both medical and social rehabilitation, while the differentiation of retardation of mental retardation and marked retardation is extremely significant.*

Keywords: children, cerebral palsy, memory, risk factor.

Introduction: An organic cerebral defect that forms the basis of cerebral palsy occurs early, during the incomplete process of the formation of the main structures and mechanisms of the brain, which causes a complex combined structure of neurological and mental disorders. Mental disorders range from mild emotional disturbances to severe intellectual disabilities. A feature of mental development in cerebral palsy is not only its slow pace, but also its uneven nature. Epileptic seizures, perception and learning difficulties may occur. Sometimes there are pathological changes in sight, hearing, which aggravate the degree of delay in psycho-motor development [6] The definition of cerebral palsy excludes progressive hereditary diseases of the nervous system, including various metabolic defects, lesions of the spinal cord and peripheral nerves [3, 4, 7] ...

The issues of correct assessment of the motor abilities of children with cerebral palsy and their dynamics against the background of the treatment remain the most urgent, since the disorders not only determine the clinical picture, but also significantly affect the development of the child. The variability

of disorders and their severity are determined by the form of infantile cerebral palsy [1, 2, 5, 8].

Early manifestations of cerebral palsy are: delayed motor and psychoverbal development, absence or delay in the reduction of congenital and tonic reflexes, as well as a delay in the formation of set reflexes, muscle tone disorders, increased tendon reflexes, the appearance of pathological attitudes and synkinesis [1,2]. Impaired muscle tone is one of the early signs of developing cerebral palsy [8]. Muscle hypertonicity persisting after 4 months, asymmetric posture are observed with the consequences of perinatal lesions of the central nervous system (CNS), the threat of cerebral palsy (its spastic forms). The “spread frog” pose is observed in diffuse muscular hypotension in premature infants, in hereditary diseases, perinatal lesions of the central nervous system, the threat of atonic-astatic cerebral palsy [1, 2, 7].

Objective of the study: to determine the risk factors for development, clinical, neurological and cognitive characteristics of children with various forms of cerebral palsy.

Objectives: 1. To study the etiopathogenetic and clinical features of various forms of cerebral palsy; 2. To study the characteristic decrease in cognitive functions in various forms of cerebral palsy.

Materials and research methods. The research materials were the data of a survey of 52 children with cerebral palsy at the age from 5 to 10 years. The control group consisted of 30 children of the same age without neurological diseases.

Research methods: generally accepted clinical, neurological and statistical research methods were used in the work. AR Luria's “memorizing 10 words” technique was used to study the volume of short-term memory. The “Memorizing 10 Words” technique is one of the most frequently used. The technique proposed by A.R. Luria is used to assess the state of memory of the subjects, fatigue, attention activity. The technique allows you to explore the processes of memory, memorization, preservation and reproduction. Before starting the experiment, the experimenter must write down a number of short (monosyllabic and two-syllable) words in one line. Words need to be simple, varied and have no connection with each other. After repeating the words five times, the experimenter proceeds to other experiments, and at the end of the study, after 50-60 minutes, he again asks the subject for these words (without a reminder). Based on the data obtained, a “Memorization Curve” is drawn up, which may indicate a weakening of active attention and its exhaustion, and a pronounced fatigue of the subjects.

According to the ICD-10 classification (1994), children were divided into 3 groups depending on the form of cerebral palsy. In most cases, in our study, spastic diplopia (36; 65.5%, DM) was encountered, followed by dyskinesia cerebral palsy (6; 16.4%, DysPlus), childhood hemiplegia (6; 10.9%, DG) and spastic cerebral palsy. paralysis (4; 7.3%, SPs).

Results and discussion: The average age of mothers was 26.5 ± 3.1 years. An analysis of the obstetric history showed that children were born from 1-2 pregnancies (72.7%) and 1-2 births (77.3%). Multiparous women accounted for 22.7%. Mothers of children with cerebral palsy of the main group suffered such somatic diseases as anemia ($70.5 \pm 4.8\%$), kidney diseases ($31.8 \pm 4.9\%$), gastrointestinal diseases ($22.7 \pm 4.5\%$). Endocrine pathology was recorded in $27.3 \pm 4.4\%$ of cases and was represented by thyroid pathology ($50 \pm 11.7\%$; 6 mothers), diabetes mellitus and prediabetes ($37.5 \pm 11.4\%$; 3 mothers), obesity I and II degree ($12.5 \pm 7.4\%$).

Diseases of the cardiovascular system were noted in 7 women ($15.9 \pm 3.7\%$), in $20.5 \pm 4.3\%$ (9) - arterial hypertension.

Undoubtedly, the high incidence of somatic pathology was one of the important reasons for the decrease in the body's resistance and reactivity, contributing to the development of this pathology.

Analyzing the gynecological diseases of mothers, newborns with this pathology, it was noticed that in the structure of gynecological morbidity, nonspecific inflammatory diseases of the lower genital organs and pelvic organs are of great importance. The studies revealed gynecological diseases in the form of cervical erosion in 4 (13.3 ± 3.6), chronic adenitis in 3 (10.0 ± 3.3), and TORCH in 35 (67.3 ± 3.2) - infections in the form of carriage of CMV and HSV. These data show how much gynecological pathology affects the development of placental insufficiency, chronic intrauterine fetal hypoxia, the formation of hemorrhagic and ischemic brain lesions in newborns in the perinatal period.

When examining the obstetric anamnesis in mothers examined, there was an inferiority of the cervix (29.5 ± 4.9), infertility up to 3 years (11.4%), previous medical abortions (20.5 ± 4.3). It was also found that $15.9 \pm 3.9\%$ of mothers had spontaneous miscarriages, $25 \pm 2.9\%$ had placental abruption.

The most frequent complication of the first half of pregnancy was the threat of termination of pregnancy (27.3 ± 4.7), preeclampsia of I-III degrees ($34.1 \pm 5.1\%$), early toxicosis ($36.4 \pm 5.2\%$). In half of women, pregnancy was accompanied by preeclampsia ($52.3 \pm 5.3\%$), acute infection was observed in 16 ($36.4 \pm 5.2\%$) women. $53.8 \pm 5.2\%$ (28) of mothers had preterm birth, $9.1 \pm 3.3\%$ (4) - late. Chronic intrauterine hypoxia was observed in $76.9 \pm 3.8\%$ of newborns, in 67.3 ± 3.2 - fetoplacental circulation disorders.

An important role in the development of cerebral palsy is played by such intranatal factors as early rupture of amniotic fluid (15, $34.1 \pm 5.1\%$), polluted waters ($57.6 \pm 4.5\%$), entanglement of the umbilical cord around the neck - 16 (30, $7 \pm 3.3\%$) children. Rapid delivery took place in 15 ($34.1 \pm 5.1\%$) women, breech presentation - in 6 ($13.6 \pm 3.7\%$), leg presentation - in 3 ($6.8 \pm 2.9\%$) women. Various pathological factors that adversely affect the intrauterine development of the fetus, the somatic state of mothers, a severe obstetric history, affected the outcomes of pregnancy and childbirth and subsequently contributed to the development of cerebral palsy.

The clinical picture of patients with cerebral palsy is well covered in all literary sources, so we will not dwell on a detailed description of the neurological status of children, we will only touch on some of the features: motor, speech and mental.

Of the total number of children we observed (52): 2 children could not hold their heads - 3.6%, 3 children could not crawl - 5.5%, 8 children could not sit on their own - 14.5%, 18 children did not stand on their own - 32.7%, 21 children did not move independently - 41.8%.

In recent years, there has been an increase in the number of children with speech disorders. This fact can be explained by the lack of speech therapy assistance in the regions and the severity of the underlying pathology. It should also be noted that locally all speech disorders are limited to the diagnosis of “dysarthria” and other speech disorders, such as anarthria, general speech deficiency or alalia, dyslalia, were not diagnosed.

Of 55 children, 78.2% were found to have various speech disorders, which corresponds to the literature data indicating 80% of pathological changes in speech in the structure of disorders in patients with cerebral palsy [31].

In 70.9% of the patients we observed, mental retardation (PD) and mental retardation of varying severity were revealed: 1) mild degree of PD of 1 level was registered in 30.9%; 2) CRA level 2-3 - moderate was observed in 20.0% of children; 3) rough CRA - III-IV level was in 12.7%; 4) mental retardation was observed in 7.3% of patients. So, in 29.1% of cases, the mental development of children corresponded to age.

In 69.1% of the patients we observed, it was noted, characteristic for them, slowness of thinking, inertia, as well as a low level of visual-effective thinking. The mental development of children was characterized by a violation of the formation of cognitive activity, emotional-volitional sphere and personality. Problems of emotional contact between children and their parents were noted.

The patients studied both short-term and long-term memory according to the test “Memorization of 10 words”. The data obtained indicate that most often mild and moderate short-term memory impairments (36.1% and 55.4%, respectively) were found in patients with SPs and DysSP.

Severe disorders were observed in children with DH and DM forms of cerebral palsy. Mild impairments to long-term memory prevailed in children with cerebral palsy, moderate disorders with diabetes, and severe ones with DH. Among the variety of cognitive impairments in preschool children with cerebral palsy, memory impairments and speech impairments are the leading ones.

Diagnosis of cognitive impairments, including memory impairment in children with cerebral palsy, is one of the most significant tasks, since it determines the characteristics and prognosis of both medical and social rehabilitation, while the differentiation of mental retardation and mental retardation is of exceptional importance.

Conclusions: 1. Study of the etiopathogenetic and clinical features of cerebral palsy made it possible to establish that the main harmful factors were anemia in mothers, the threat of miscarriage and gestosis, as well as a combination of various hazards in the pre- and perinatal periods; **2.** A characteristic decrease in cognitive functions (short-term and long-term memory) was established in children with various variants of cerebral palsy, depending on the form of the disease. Mild and moderate short-term memory impairments (36.1% and 55.4%, respectively) were found in patients with SPP and DysSP. Slight impairments of long-term memory prevailed in children with cerebral palsy, moderate - with diabetes, pronounced - with DH;

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