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CEREBRAL PALSY: THE STATE OF KNOWLEDGE OF THE PROBLEM

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Abstract
Based on the results of the analysis of scientific data, the understanding of the prevalence of cerebral palsy in Uzbekistan and abroad has been updated. The review describes the risk factors associated with the development of this pathology, indicates the main approaches to the classification of cerebral palsy, the characteristic clinical picture, and issues of diagnosis and treatment. Despite the presence of a large number of studies devoted to this issue, at this stage there is no consensus on the etiology and issues of early diagnosis remain unresolved to the end.

Keywords: Cerebral palsy, prevalence of pathology, risk factors, clinical picture.

Introduction

The prevalence of this disease, according to different authors, ranges from 1.5 to more than 10 per 1000 newborns [1]. According to foreign sources, population estimates of the prevalence of cerebral palsy vary widely. Thus, in Australia and Europe this indicator ranges from 1.5 to 2.5 per 1000 live births. At the same time, in the United States of America, Egypt and Taiwan, a higher prevalence of this disease is noted (more than 3 per 1000 live births) [2]. The prevalence of cerebral palsy in Egypt, according to H.N. El-Tallawy et al., is 3.06 per 1000 live births [3]. At the same time, domestic scientists have noted that the prevalence rates of the disease differ in different regions of the country.. According to V.B. Zafirova and K.R. Amlaev, in Stavropol Krai there has been a 12.3% increase in the incidence of cerebral palsy [4].

MATERIALS AND METHODS

Cerebral palsy (CP) is a group of stable syndromes with different clinical manifestations that arise as a result of brain dysontogenesis or damage in the early postnatal period of ontogenesis. The clinical picture of the disease is characterized by a violation of motor function associated with abnormal development of statokinetic reflexes, pathology of tone, and paresis. In addition, changes in nerve and muscle fibers, joints, ligaments, and cartilage occur secondarily during life. Various neurological and mental disorders are also often observed [1]. The severity of mental disorders can vary from mild deviations in the

emotional sphere to severe intellectual disabilities. Thus, motor disorders in CP can be combined with mental retardation, epileptic seizures, and difficulties in perception and learning. Sometimes pathological changes in vision, hearing, sensitivity and various pathologies of the internal organs are observed, which aggravate the degree of delay in psychomotor development [2]. And, although the term “cerebral palsy” does not reflect the diversity of neurological disorders associated with this disease, it is used in world literature, since no other term has yet been proposed [3].

RESULTS AND DISCUSSION

Cerebral palsy is typically non-progressive. However, as the child grows and develops, the clinical picture may change and create the impression that the process is progressing. This is due to increasing decompensation caused by an ever-increasing discrepancy between the capabilities of the nervous system and the demands of the environment on the growing organism. All this leads to limitations of life activities: difficulties in self-care, movement, psychological problems and problems associated with communication among peers and with others, difficulties in implementing the educational process and work in the future. As a consequence of all of the above, there is inevitably a significant decrease in the quality of life of children with cerebral palsy and their immediate environment [4]. According to the International Classification (ICD–10), the following are distinguished: G80.0 Spastic cerebral palsy; G80.1 Spastic diplegia; G80.2 Infantile hemiplegia; G80.3 Dyskinetic cerebral palsy; G80.fi Ataxic cerebral palsy; G80.8 Other type of cerebral palsy. There are also a significant number of author's clinical and functional classifications of cerebral palsy. In Russia, the most widely used classifications are those of K.A. Semenova (1972) and L.O. Badalyan et al. (1988) [5]. Thus, according to the clinical classification developed by K.A. Semenova, the following forms of cerebral palsy are distinguished: double hemiplegia; hyperkinetic form; atonic-astatic form; hemiplegic form. The following stages of cerebral palsy development are also distinguished: early - up to fi-5 months; initial residual stage – from 6 months to 3 years; late residual stage – over 3 years.

Classification of L.O. Badalyan et al. consists of distribution of CP forms by age groups:

1. Early age: spastic forms (hemiplegia, diplegia, bilateral hemiplegia); dystonic form; hypotonic form;
2. Older age: spastic forms (hemiplegia, diplegia, bilateral hemiplegia); hyperkinetic form; ataxic form; atonic-astatic form; mixed forms (spastic-ataxic, spastic-hyperkinetic, atactic-hyperkinetic).

Functional classification of CP – GMFCS (Gross Motor Function Classification System), proposed by R. Palisano et al. (1997), consists of taking into account the degree of motor development and movement limitations in everyday life for 5 age groups of patients with cerebral palsy: up to 2 years; from 2 to 11 years; from 11 to 6 years; from 6 to 12 years; from 12 to 18 years [3fi]. According to this classification, 5 levels of development of gross motor functions are distinguished:

– Level I – walking without limitations;
– Level II – walking with limitations;
– Level III – walking with the use of manual mobility devices;
– Level IV – independent movement is limited, motorized mobility devices can be used;
– Level V – complete dependence of the child on others – transportation in a stroller/wheelchair.

There is still no consensus regarding the etiology of cerebral palsy. Among the possible causes of cerebral palsy, doctors name premature birth, fetal asphyxia during childbirth caused by the umbilical cord wrapping around the baby's neck or amniotic fluid entering the child's airways; birth trauma and cerebral hemorrhage. In addition, numerous observations by scientists have shown that, in addition to the above-mentioned causes, fetal intoxication during pregnancy as a result of maternal illness, nutritional disorders, stress, the presence of chronic diseases or bad habits in the mother (alcoholism, drug addiction, smoking), and incompatibility of the mother and fetus in terms of the Rh factor of the blood are no less important. Epidemiological studies by some scientists have revealed a dependence of the occurrence of cerebral palsy on the age of the mother: the greatest number of mothers in labor (60.8%) were aged 19 to 30 years, 29.2% were aged 30 to 39 years, 3.1% were over 10 years old, and 6.9% of mothers were under 18 years old. In addition, a correlation was found between the incidence of cerebral palsy and low birth weight of the child [1]. Thus, the prevalence of cerebral palsy is 59.5 per 1000 children born with a birth weight below 1500 g; 6.2 per 1000 children with a birth weight from 1500 to 2fi99 g; 1.1 per 1000 children weighing 2500 g or more [2]. The role of intrauterine infection in the development of this pathology is becoming increasingly clear [3]. In addition, multiple pregnancies are considered a risk factor for the development of cerebral palsy [4]. It is reported that in singleton pregnancies the incidence of the disease is 0.2%, in twin pregnancies – 1.5%, in triplets – 8.0%, and in quadruplets the risk of developing cerebral palsy increases to 53% [5]. Also, an analysis of the causes leading to the development of cerebral palsy showed that in most cases it is not possible to single out one of them, since a combination of several unfavorable factors is often noted, both during pregnancy and childbirth [2].

CONCLUSION

Thus, despite the large number of works devoted to cerebral palsy, this problem remains relevant to this day. The issues of timely diagnosis of this pathology, and, consequently, early treatment of children with cerebral palsy, remain unresolved. Scientists do not have a clear idea of the predominant significance of one or another factor determining the development of cerebral palsy.

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