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## **THE EFFECT OF MAGNESIUM B6 IN THE TREATMENT OF CHILDREN WITH PERINATAL ENCEPHALOPATHY**

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**Abstract:** Magnesium is the second most important intracellular element in the body. About 20% of magnesium is in muscle tissue, the remaining 20% is in the blood and other tissues of the body. 93 children of the first year of life were examined, who had manifestations of perinatal encephalopathy against the background of the underlying disease. Magne B-6 was administered orally once a day at a dose of 6-8 mg / kg of body weight. The criterion of effectiveness was the clinical improvement of the condition of patients, reduction of intracranial hypertension, improvement of sleep, acceleration of the pace of psychomotor development.

**Keywords:** perinatal encephalopathy, Magne B-6, infants, treatment.

**Relevance.** Perinatal brain injuries have been the focus of attention of scientific researchers and practitioners for many years. This relentless interest can be explained by the frequency of pathology, high mortality in the newborn period, as well as subsequent disability from childhood [3,5]. The frequency of reported cases of neurological changes in children of the first years of life has increased. Their share is currently 27-60% and so far has no downward trend. The list of neuropsychiatric disorders associated with hypoxic brain damage is extremely wide: from delayed psychomotor development to severe forms of cerebral palsy, accompanied by mental insufficiency, motor disorders, seizures [2,8].

According to the WHO Committee of Experts, 10% of children can be diagnosed with neuropsychiatric diseases, 80% of which, according to pediatric neuropathologists, are associated with perinatal brain lesions [1,7]. According to modern ideas, the causes of encephalopathy are the following factors: hypoxia (oxygen starvation during pregnancy or during childbirth), traumatic (exposure to damaging factors during labor), toxic: alcohol, narcotic substances and other toxic agents and, finally, a large group of infectious diseases that entail complications from the nervous system fetal and newborn systems.

The causes of disorders of the development of the nervous system are rooted in the perinatal period of a child's life. Perinatal hypoxia and asphyxia are accompanied by changes in cerebral hemodynamics, which is currently the dominant hypothesis of the pathogenesis of perinatal encephalopathy (PEP) in newborns. The above implies the need for early posthypoxic therapy aimed at normalizing general and cerebral circulation, as well as neurotrophic – stimulating reparative processes in the brain [1]. And this, in turn, leads to prolonged administration of certain drugs and medicinal substances that are injected into the body parenterally. It is known that each injection

causes physical and psychological trauma to the child, especially if these injections are painful. Vitamin B-6 and magnesium sulfate are just related to the above drugs, and children are forced to receive these drugs in parallel and for a long time. Hence, there is a need to choose the most affordable and painless medications. In this regard, Magne B-6 is the most optimal, since it combines "two drugs in one" [2,10].

Magnesium is the second most important intracellular element in the body. About 20% of magnesium is in muscle tissue, the remaining 20% is in the blood and other tissues of the body [4].

75-80% of magnesium in the blood serum is in the form of ions, and the rest is in the form of binding with special proteins. In recent years, the role of magnesium ion in more than 200 enzymatic reactions has been studied. Magnesium activates enzymes, mainly regulates carbohydrate metabolism, stimulates the formation of proteins. It reduces the excitability of nerve cells and relaxes the heart muscle. Magnesium deficiency is manifested by a decrease in the electrical activity of cells [7.9]. With an increase in the excitability of skeletal muscle cells, the patient has tremors, convulsions, pain in the muscles of the legs and neck, there is also an increase in the excitability of cardiomyocytes, which can lead to tachycardia and ectopic arrhythmias. Hyperexcitability of vascular smooth muscle cells is accompanied by high blood pressure and headache. Increased excitability of smooth muscles of internal organs is manifested by symptoms of unstable stools (constipation, loose stools, abdominal pain), stomach pains.

According to WHO recommendations, the amount of magnesium in the blood serum of children is 0.74 - 1.15 mol / l, its decrease from 0.5 mmol / l indicates a severe deficiency of magnesium in the organs [5].

Magnesium together with vitamin B-6 improves cerebral circulation, has a neurometabolic effect. The most important participation of magnesium ions in bioenergetic processes is that it affects excitability and conductivity, as well as the transmission of impulses along nerve endings [3,7].

Women's milk contains an average of 30 mg / l of magnesium, and cow's milk contains 120 mg / l, however, when feeding a child with cow's milk and milk mixtures based on it, the absorption of magnesium from the intestine is limited. This is evidenced by the fact that during breastfeeding, the level of magnesium in the blood serum is significantly higher than during artificial feeding [5,10].

Common manifestations of magnesium deficiency in the body are a decrease in physical activity of the child, fatigue or depression, sleep disorders, convulsive states (in newborns), muscle spasms, cardiac arrhythmias. Magnesium deficiency increases pain sensitivity, enhances the processes of lipid peroxidation.

**The purpose of our study** was to study the effect of Magne B-6 on the condition of infants with manifestations of PEP.

**Materials and methods of research.** We examined 93 children of the first year of life who had manifestations of perinatal encephalopathy against the background of the underlying disease. As a result of physical examination of sick children, the



sagittal suture was revealed, the small fontanel in all children was open, the size of the large fontanel turned out to be over 3x3 cm, unstable horizontal nystagmus, the syndrome of the "setting sun" was revealed.

We prescribed Magne B-6 orally once a day at a dose of 6-8 mg / kg of body weight. The course of treatment was 15-20 days. The administration of the oral form of magnesium and vitamin B-6 preparations was chosen, as mentioned above, from an ethical point of view. Against the background of the ongoing treatment, the condition of the children improved significantly, positive dynamics was noted already on the 5-7 day of hospital stay.

**The results obtained and their discussion.** The criterion of effectiveness was the clinical improvement of the condition of patients, reduction of intracranial hypertension, improvement of sleep, acceleration of the pace of psychomotor development. The results of control studies – neurosonography, the state of lipid peroxidation showed that the administration of oral forms of magnesium and vitamin B-6 preparations turned out to be no worse, and even more effective than their parenteral forms.

Magne-B6 belongs to the new, second generation of magnesium preparations in the composition of organic salts. In combination with vitamin B-6, magnesium is better absorbed in the intestinal tract, penetrates and is retained inside the cell. The advantage of this drug is good tolerability, pronounced clinical effect and, most importantly, does not injure the child's psyche.

**Conclusions:** All of the above makes it possible to use gentle methods of treatment in the rehabilitation of children with perinatal encephalopathy at an early stage, namely, magne- 6.

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