TREATMENT OF CHILDREN WITH CONSEQUENCES OF PERINATAL DAMAGE TO THE NERVOUS SYSTEM, TAKING INTO ACCOUNT THE PROCESSES OF LIPID PEROXIDATION

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Annotation: *In healthy infants, the activity of lipid peroxidation processes has its own characteristics and can serve as a control for diagnosing disorders and evaluating the effectiveness of treating pathological conditions. In children with consequences of perinatal damage to the nervous system, the processes of lipid peroxidation are characterized by both increased and decreased activity, which requires the appointment of corrective therapy. Treatment with oxybral in children suffering from CPDNS, along with the normalization of biochemical parameters, improves clinical parameters and reduces the length of stay in the hospital.*

Keywords: *consequences of perinatal damage to the nervous system, children, oxybral, LPO.*

Relevance. Perinatal brain damage accounts for more than 60% of the entire pathology of the nervous system of childhood, and is directly involved in the development of diseases such as cerebral palsy, epilepsy, and minimal brain dysfunction [2,5].

Currently, the main hypothesis of the pathogenesis of the consequences of perinatal damage to the nervous system is cerebrovascular, which focuses on the real fact of the existence of "linkage" of cerebral blood flow with brain metabolism [1]. It is known that under conditions of hypoxia, lipid peroxidation (LPO) is disturbed with the accumulation of aggressive free radicals, hydroperoxides, which have a destructive effect on neuronal membranes [4].

To correct microcirculation disorders and metabolic disorders in perinatal CNS injuries, a number of drugs are used, the action of which is aimed at normalizing the functional state of cells [3].

Recently, a number of studies have appeared indicating the beneficial effect of the herbal preparation oxybral on circulatory and metabolic cerebral disorders.

However, there are no works that would study the effect of oxybral in perinatal injuries of the nervous system in children of the first year of life, the issues of optimal dosage and duration of its use have not been sufficiently studied.

Purpose of the study: to substantiate the treatment of infants with the consequences of perinatal damage to the nervous system with oxybral by taking into account changes in the processes of lipid peroxidation.

Materials and research methods. The paper analyzes the results of clinical and biochemical studies in 70 children of the first year of life. The main group consisted of 44 infants with CPDNS. The control group included 26 children with CPDNS who were not prescribed the drug tested by us. We also studied the state of LPO processes in 20 healthy children.

The state of lipid peroxidation in erythrocytes was assessed by the following indicators: the degree of hemolysis of erythrocytes before and after incubation, the content of MDA in erythrocytes, the coefficient of MDA/hemolysis after incubation, the intensity of degradation of MDA in erythrocytes.

Children with consequences of perinatal damage to the nervous system were born to mothers suffering from chronic diseases of the cardiovascular system, endocrine system, nasopharynx, kidneys, digestive organs, and genitals.

In the neurological status, 42.8% of children had hypertensive-hydrocephalic syndrome, vegetative-visceral dysfunctions - in 38.5%, increased neuro-reflex excitability - in 11.4%, syndrome of delayed psychomotor development - in 7.1% of children. In the department, the children of the control group underwent complex therapy: drugs that improve cerebral circulation (vinpocetine), piracetam were used, and post-syndrome therapy was performed. Disorders caused by background diseases were also corrected.

Research results and discussion. The results of the studies showed that children with consequences of perinatal damage to the nervous system showed significant disturbances in the LPO processes, which were characterized as a decrease, and in some cases their imbalance. This was evidenced by a significant

increase in the content of MDA before and after incubation, the ratio of MDA / hemolysis after incubation, an increase in hemolysis of erythrocytes after incubation, and a decrease in the percentage of hemolysis growth compared with data in healthy children.

In children of the control group, against the background of conventional treatment, hemolysis of erythrocytes before and after incubation tends to decrease compared to the data before treatment, but there is no normalization. The percentage of increase in erythrocyte hemolysis in children of this group was significantly reduced compared to healthy children. The content of MDA before and after incubation remained high. The ratio of MDA/hemolysis after incubation was higher, and the intensity of MDA degradation significantly increased compared to the initial data.

He presence of changes in LPO processes in children with CPDNS dictates the need to include new drugs in the treatment complex, the action of which is more effective. We used oxybral. Due to the fact that oxybral was administered to infants for the first time, it became necessary to scientifically substantiate the use of this drug, to select the dose and duration of treatment based on the study of the effect on the state of LPO in erythrocytes.

To determine the dose and duration of the course of treatment, oxybral was initially prescribed at a dose of 7.5 mg/day. Complete normalization of indicators in most children was observed between 7 and 10 days. The most effective was the treatment with oxybral when applied for 10 days. For an objective assessment of the therapeutic effect of oxybral, the results of LPO indicators were compared with the corresponding data in children in the control group.

Hemolysis of erythrocytes before incubation in children of the main group did not differ from the data obtained in healthy children and was significantly lower than in the control (1.4±0.05% and 1.17±0.12%, respectively). Oxybral contributed to the normalization of erythrocyte hemolysis after incubation (2.37±0.16% and 2.3±0.03%, respectively). The percentage of increase in hemolysis in children of the main group

did not differ from those of healthy children and was significantly higher than in the control group (99.7% and 64%, respectively).

The content of MDA before incubation in children of the main group significantly decreased compared with the initial data (2.7±0.04 nmol\10^6 erythrocytes, against 3.3±0.03 nmol\10^6 erythrocytes). Oxybral contributed to a significant decrease in the content of MDA after incubation to normal, while in children of the control group this indicator was significantly higher (1.6±0.18 nmol\10^6 erythrocytes and 2.0±.0.17 nmol\10^6 erythrocytes, respectively).

The ratio of MDA/hemolysis after incubation when receiving oxybral did not differ from the data of the control group and was significantly higher than normal values (0.9±0.2, 1.0±0.07 and 0.5±0.1, respectively).

Clinical symptoms also had a pronounced positive trend: the children became calm, active, sleep normalized. Intracranial pressure against the background of the use of oxybral decreased significantly faster (in 7-10 days, versus 10-15 days in the control group). The pulse and breathing became rhythmic, the activity of the gastrointestinal tract stabilized, the children began to gain weight. Children began to be actively interested in others, a tendency to develop motor skills began to appear. In general, a pronounced clinical effect was observed on days 6-10 of therapy.

Findings: Thus, studies have shown that the appointment of oxybral to children with consequences of perinatal damage to the nervous system, along with the normalization of LPO indicators, contributes to a more rapid improvement in neurological symptoms. The possibility of correcting neurological disorders with oxybral opens up the prospect of rehabilitation and contributes to a significant reduction in the percentage of children with residual effects of perinatal damage to the nervous system.

LITERATURE

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