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## ПРОБЛЕМА ЖЕЛЕЗОДЕФИЦИТНОЙ АНЕМИИ У ДЕТЕЙ И ПОДРОСТКОВ

**Резюме:** Хроническое недосыпание, нарушение режима труда, питания и других факторов, связанных с образом жизни, приводят к нервно-психических заболеваний, нарушению иммуногенеза. Информационная перегрузка головного мозга вследствие эмоциональных интеллектуальных нарушений приводит информационным неврозам]. Эти патологические состояния вследствие умственного, физического, нервного перенапряжения вызывают соматические и вегетативные изменения. Не последнее место в этом звене принадлежит железодефицитной анемии (ЖДА), которая может приводить к выраженному нарушению качества жизни пациента. На приеме у гематолога неоднократно от родителей пациента с ЖДА можно услышать, что данное заболевание носит семейный характер и рассматривается как привычное состояние, не требующее лечения, как «наследственное». Поэтому дети с ЖДА нередко описывают свой анамнез как многолетний (это касается детей старшего возраста) и обращаются к врачу, когда анемия носит уже среднетяжелую и тяжелую степень. Родителей пугает не многолетнее плохое самочувствие (так как дебютирует анемия с сидеропенического синдрома у детей старшего возраста), а низкие цифры гемоглобина. Проблема заключается и в том, что ЖДА – это заболевание, которое приводит к выраженному нарушению качества жизни пациента.

*Ключевые слова:* дети, недоношенные дети, железодефицитные состояния, железодефицитная анемия, беременные женщины, сульфат железа, препараты железа (III) на основе гидроксид полимальтозного комплекса.

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## THE PROBLEM OF IRON DEFICIENCY ANEMIA IN CHILDREN AND ADOLESCENTS

**Resume:** Chronic lack of sleep, violation of the work regime, nutrition and other factors related to the lifestyle, lead to the development of neuropsychiatric diseases, disruption of the processes of immunogenesis. Information overload of the brain due to emotional and intellectual disorders leads to information neurosis]. These pathological conditions due to mental, physical, nervous overstrain cause somatic and autonomic changes. Not the last place in this link belongs to iron deficiency anemia (IDA), which can lead to a pronounced violation of the patient's quality of life. At the appointment with the hematologist, you can hear repeatedly from the parents of the patient with IDA that this disease is family-like and is considered as a familiar condition that does not require treatment, as a "hereditary" one. Therefore, children with IDA often describe their history as long-term (this applies to older children) and consult a doctor when anemia is already moderate and severe. Parents are not afraid of long-term poor health (since anemia will debut with sideropenic syndrome in older children), but low hemoglobin numbers. The problem lies in the fact that IDA is a disease that leads to a pronounced violation of the patient's quality of life.

*Key words:* infants, premature infants, iron deficiency conditions, iron deficiency anemia, pregnant women, iron sulfate, iron (III) preparations based on polymaltose hydroxide complex.

**Introduction** An important part of preventing iron deficiency anemia in children is regular medical examinations and blood tests. Iron deficiency is easily detected even in the very early stages, when it is easiest to eliminate

[2,4,7]. Particular attention is required to children born prematurely or with a lack of body weight, as well as children of mothers suffering from anemia during pregnancy. To avoid the development of anemia, you need to strictly monitor the nutrition of the child, including iron-containing products on the menu, as well as fruits and vegetables. The more diverse the diet, the less likely that the child will lack a particular vitamin or mineral [3,5,6]. Whether your children have faced such a problem as anemia or not, in any case, for the full development of the child, it is necessary to encourage active games and physical activity, even if for this you have to be strict and restrict the baby's access to TV, game consoles and the Internet. For many parents, cartoons or video games seem like a simple way to keep their child busy, however, thanks to the development of technology, about 30% of modern children lead a sedentary lifestyle. This is fraught not only with anemia, but also with gaining excess weight, slowing down physical development, problems with the spine, eyesight and blood circulation [1,7,8].

The aim of the study was to optimize the treatment of IDA in children and adolescents by choosing the most effective therapeutic plan based on evidence-based medicine methods.

**Materials and research methods:** Under observation were 94 children with IDA aged 5 months to 17 years, including: up to 1 year - 16 children (17.0%), 1-3 years - 64 children (68.1%), 4-12 years old - 4 people (4.3%) and over 12 years old - 10 adolescents (10.6%).

The results of the study. When analyzing the ante and the in-natal causes of IDA in the observed children, it was revealed that pregnant hyposiderosis and gestosis were observed in 51.6 and 59.4%, respectively, the threat of termination of pregnancy - in 48.4%, cesarean section - in 31.3%, plentiful menstruation - in 23.4%, the presence of a mother with more than 5 pregnancies -14.1%, a break between pregnancies of less than 3 years - 20.3%, sports - 12.5%, chronic infections - 10.9%, multiple pregnancy 6.3%, vegetarianism 6.3% and donation

6.3%.

31.0% of children were born prematurely, who subsequently observed excessive weight gain, leading to an increased need for iron in the body. 24.1% of children had a large birth weight Alimentary iron deficiency as a result of unbalanced nutrition (early artificial feeding, including unadapted milk mixtures, late introduction or lack of meat products in the diet) was detected in 39.1% of children. More than 1/3 of the children were from prosperous families with a low material income. Menstrual irregularities were detected in 100% of girls.

Intensive growth was observed in 40% of adolescents, exercise in 20%, nutritional factor in 20%. All patients with IDA showed a combination of several of the above reasons.

The study suggests that IDA in young children is caused by a complex of reasons, including both an unfavorable course of pregnancy and childbirth, a burdened obstetric and gynecological and social history, as well as an alimentary factor and increased iron needs of the child during periods of intensive growth.

Feeding defects were observed in less than half of children, which allows us to join the opinion of many domestic researchers about the more significant role of maternal health, the pathological course of pregnancy and pregnant anemia in the development of IDA in infants and young children than nutritional failure. In adolescents, the causes of IDA are high growth rates, sports, and menstrual irregularities in girls.

Analysis of the clinical manifestations of IDA showed that children have a variety of anemic and sidropenic symptoms, the frequency and severity of which depends on the age of the patients, the severity and duration of anemia.

The only symptom we observed in the clinical picture of all the children examined was pale skin and mucous membranes. Another symptom identified in most patients was lethargy or weakness. These anemic symptoms are associated with insufficient oxygen supply to the tissues. Sleep disturbance and emotional

lability occurred in about half of children, regardless of age. The child's brain is very sensitive to iron deficiency and identified behavioral disorders are primarily due to sideropenia. Physical development was below average in 10 children.

Typical manifestations of sideropenia in children of the first three years of life were a decrease and / or distortion of appetite, tachycardia and functional systolic murmur, intestinal dyspepsia, muscle hypotension, including hypotension of the muscles of the abdominal sphincter and diaphragm. The latter led to a relatively low location of the liver and spleen and in some cases created a false impression of their increase. Hepatomegaly and splenomegaly, which we identified in more than half of the children, were characteristic signs of this age.

Half of the patients had dry skin, hair, their fragility and loss, less often - angular stomatitis and glossitis. Trophic changes in the gastrointestinal tract, skin, its appendages, as well as muscle weakness, including myocardial, are due to tissue deficiency of iron, leading to metabolic disorders in the cells.

**Conclusions.** The leading significance of nutritional factor was observed in less than half of children. In adolescents, the causes of IDA are high growth rates, sports, as well as menstrual irregularities in girls.

In young children in modern conditions, an important role as risk factors for the development of IDA is played by the state of maternal health, the pathological course of pregnancy, anemia during pregnancy and a burdened social history.

In young children with IDA, the concentration of zinc in the blood serum was normal (in 46.7%) or increased (in 50.0%). The serum copper content in 70.0% of patients did not differ from healthy children, was significantly reduced in 16.7% and increased in 13.3% of patients. No significant difference was found in the content of zinc and copper in children with mild to moderate anemia.

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