



## Iron-Deficiency Anemia in Children

1. Gaibieva Shakhnoz Abdullaevna

2. Karomatova Fazolat

Abdikahgorovna

Received 19<sup>th</sup> Feb 2022,

Accepted 18<sup>th</sup> Mar 2022,

Online 22<sup>th</sup> Apr 2022

**Annotation:** This article discusses iron deficiency anemia in children, its causes, malnutrition, the development of iron deficiency anemia in the human body and its prevention.

**Key words:** Anemia, iron deficiency, medicine, iron deficiency, diet, anemia.

<sup>1,2</sup> Assistant of the Bukhara State Medical Institute

shahnozgaybiyeva@gmail.com

karomatovafazolat@gmail.com

The prosperity of our independent state depends on the physical, mental, spiritual and spiritual development of young people, their health. One can imagine the future of our country with physically healthy, energetic, mentally active and intelligent young people.

Raising a healthy generation is one of the most important tasks of our time. This includes, first of all, the formation of a healthy lifestyle, the creation of various living conditions, the creation of a material base for raising a healthy generation, that is, economic and financial support from the state. It is impossible to think about a healthy life, a healthy mind, a prosperous and happy life without ensuring the health of people. Protection and promotion of public health, prevention and treatment of various diseases, ensuring the cleanliness of the environment, water, air and food are one of the key factors in the formation of a healthy generation.

Timely nutrition, timely medical examination, clean and tidy clothes, washing hands with soap before eating, timely sleep, rest, personal hygiene, exercise and exercise in the morning - all this is important for human health.

Anemia is a clinical and hematological syndrome. That is, this concept is characterized by a decrease in the concentration of hemoglobin in the blood. Anemia is not a specific disease, but a symptom of a disease associated or not associated with damage to the blood system. In modern conditions, the main cause of anemia is iron deficiency. Iron deficiency anemia affects more than 5-6 people worldwide. From a third to a quarter of children in the world, iron deficiency anemia develops in the second half of life (50%) and during puberty (30-40%).

According to WHO statistics, iron deficiency anemia is diagnosed in 25% of cases in infants, up to 43% in children under 4 years old, 37% in children aged 5-12 years and 30% in adolescents.

The state of anemia is assessed by most parents as not serious. They just think that we have found a solution to the problem by introducing more iron-containing foods into the diet. In fact, anemia is a sign of changes in the hematopoietic system of the child, which can subsequently lead to serious complications.

Based on these factors, the causes of diseases in medicine are conditionally divided into 4 main groups. These:

- insufficient intake of iron in the body;
- excessive excretion of iron from the body; - impaired absorption of this substance into the body;
- Wrong hunting.

The development of iron deficiency in the human body takes place in several stages. There are prelatent, latent, early period of iron deficiency anemia, long or late period of iron deficiency anemia. In children, anemia leads to physical and mental retardation. They are often tired and have difficulty in learning the sciences. His brain is distracted. What he reads quickly comes to mind.

It should be noted that chronic dermatitis, eczema and other skin conditions can be caused by iron deficiency or anemia. With iron deficiency, the risk of gastrointestinal diseases and respiratory infections increases by 2-3 times. It has been proven that the cause of most diseases is malnutrition. If left unchecked, it can lead to various diseases, including diseases of the stomach, duodenum, esophagus, and even anemia.

Diseases such as gastritis and inflammation of the esophagus are caused by bloating and malnutrition. Anemia in children is caused by a low intake of iron-rich foods and an unhealthy diet. A proper diet can help prevent iron deficiency. In other words, eating foods high in iron, and not eating the same food throughout the week, improves the functioning of the heart in the human body, normalizes the functioning of the liver and stomach. This in itself prevents anemia. Timely nutrition can be of great help to the body. Children practically don't. In addition, the calories consumed should be equal to the energy expended. It is especially important to include foods that are easier to digest in the dinner menu. Deficiency - low hemoglobin in the blood - is one of the most common pathologies. Many young mothers are well aware of this pathology, because every second of them faced this condition during pregnancy. In children, anemia occurs not as an independent disease, but as a complication of another disease. Therefore, it is necessary to find the factor causing anemia and eliminate it.

Anemia - manifests itself in various forms. This condition manifests itself as a complication of many diseases, is accompanied by a variety of symptoms, and the outcome of each condition is unique. With this in mind, several different classifications of anemia have been developed in the medical field to make it easier to diagnose and treat.

By color - the color indicator shows how erythrocytes are saturated with hemoglobin. Normally, this indicator ranges from 0.8 to 1.1.

Hypochromic anemia - The most common pathology in children - with hypochromic anemia, the color index is less than 0.8. This form of anemia includes:

- Iron deficiency anemia - a decrease in hemoglobin synthesis as a result of iron deficiency in the body, which leads to excessive blood loss without iron deficiency in the diet. This type of anemia is more common in children;
- Thalassemia (ash anemia) - a hereditary mutation in the hemoglobin gene, such children lag behind in mental and physical development.

Normochromic anemia - With normochromic anemia, the color index is in the range of 0.8-1.1. This type of anemia includes:

- Hemolytic anemia - in which red blood cells are destroyed faster than they are synthesized;
- Posthemorrhagic - anemia caused by excessive blood loss;
- Anemia caused by low synthesis of erythropoietin (this hormone)
- synthesized in the kidneys and is involved in the regulation of the formation of red blood cells);
- Tumor formation in neoplastic bone marrow;
- Aplastic - a condition that causes serious changes in the child's bone marrow and often ends in death, which makes it very difficult to treat;
- Hypoplastic - slight changes in the bone marrow, of the above safer than

Causes of hypoplastic anemia in children include:

**Table 1**

<b>External factors</b>	<b>Internal factors</b>
Physics: radiation, high frequency current, vibration	Genetic: mutations, conditions of unknown cause
Mechanical: injury	Endocrine: diseases of the thyroid gland or ovaries, diabetes
Chemicals: various poisons, some drugs	Systemic diseases of connective tissue: systemic lupus erythematosus, rheumatoid arthritis
Biological: viruses, herpes. fungi intracellular bacteria	Malnutrition: Insufficient nutrients in blood formation

Hyperchromic anemia In hyperchromic anemia, the color index is higher than 1.1. This type of anemia includes:

- V12 vitamin deficiency anemia or poor quality anemia, or Addison Birmer disease - decreased blood production due to vitamin B12 deficiency, which damages the bone marrow and nervous system;
- Folide deficiency anemia is a hematological pathology caused by insufficient intake of folic acid in the child. At the same time the formation of erythrocytes in the bone marrow slows down, turns into a megaloblast;
- Myelodysplastic syndrome (MDS) is one of the problematic pathologies in the field of hematology. A condition that results in bone marrow dysplasia leading to leukemia, however, is less common among children.

The classification of severity is based on the amount of hemoglobin in the child's blood:

- Slight, grade 1 anemia - below normal, up to 90 g / l
- Medium grade 2 anemia - in the range of 90-70 g / l
- Severe grade 3 anemia - less than 70 g / l.

Table 2

Child age	Amount of hemoglobin (g / l).
1-2 days	145-225
3-7 days	135-215
8-14 days	125-205
15-30 days	100-180
2 month	90-140
3-6 month	95-135
6-12 month	100-140
1-2 old	105-145
3-6 old	110-150
7-12 old	115-150
16-18 old	120-160

When there is a small amount of hemoglobin in the bone, the bone marrow tries to overcome this condition. At the same time, the number of reticulocytes increases (new erythrocytes are normally 0.5-2%). Depending on the number of reticulocytes, the following forms of anemia are distinguished:

- Regenerator (aplast) - their complete absence;
- hyporegenerator (vitamin B12 deficiency, iron deficiency) - less than 0.5%;
- Normoregenerator (posthemorrhagic) - 0.5-2% (normal);
- hyperregenerators (hemolytics) - more than 2%;

Pathogenetic classification is a classification based on the pathology associated with hematopoiesis and is classified as follows:

- Autoimmune hemolytic anemia - body of red blood cells
- the breakdown of the immune system's own antibodies;
- Posthemorrhagic - due to blood loss;
- dyshemopoietic - anemia with dysfunction of the red bone marrow; the most common type - congenital Diamond-Blackfan anemia - is detected in 90% of cases immediately after the birth of children;
- Deficiency anemia (deficiency of vitamin B12, folic acid) - lack of essential substances.

**Etiological classification.** Anemia is not an independent disease, it is the result of a disease. Based on this, the following classification is carried out:

**Infectious anemia:** tuberculosis; bacterial endocarditis; bronchiectasis; lung abscess; brucellosis; pyelonephritis; osteomyelitis; mycosis

**Collagen anemias:** systemic lupus erythematosus; rheumatoid arthritis; nodular polyarthritis; Horton's disease.

When a baby is born, the composition of his blood changes as he develops. His circulatory system adapts to new conditions. The amount of hemoglobin and red blood cells is constantly changing, especially in the period up to 1 year. This is why anemia also has age-related aspects. Anemic

conditions in young children are due to severe pregnancy or a congenital genetic factor. Anemia in premature babies has been described since the 20th century and can take many forms.

**Table 3**

Type of anemia	The reason	Maximum detection time (in weeks)
Early	Delay in erythropoiesis blood volume increase	4-8
Interval	The process of erythropoiesis is not sufficient to increase blood volume	4-16
Last	Disruption of erythrocyte synthesis as a result of decreased iron reserves	16 and more
Megaloblast	Folic acid deficiency, as a result of infection	6-8
Hemolytic	Increased tendency of erythrocytes to oxidize due to vitamin E deficiency	6-10

Acquired anemia in young children is more common in children with weakened immune systems or malnutrition (early transition to artificial feeding).

Treatment at this stage presents certain difficulties, since there is no way to change baby food. On the advice of a doctor, only special artificial iron-rich artificial nutrients (transition) can be used in children.

In most cases, anemia is detected in early childhood and the difficult-to-treat and severe form of anemia is diagnosed. Genetic mutations, hereditary factors, pathologies during pregnancy - all this is determined during this period. By the age of 3, these children show changes in the blood system due to changes in lifestyle and eating habits.

The development of anemia in children is due to a number of factors - external and internal, hereditary and acquired, pathological and major factors during pregnancy and the postpartum period. It is very important for parents to know the factors that can lead their children to anemia. The causes of anemia can be divided into the following types:

**Causes during pregnancy:** low blood pressure of the mother during pregnancy, measles; malformation of the umbilical system and placenta; smoking; rhesus conflict.

**Postpartum causes:** trauma during childbirth; premature birth; low body weight; hereditary diseases that cause the breakdown of red blood cells; nutritional reasons; the same diet vegetarianism; vitamin deficiency; no mode.

**Disease-causing conditions:** emetic invasion; rickets; oncological diseases; intestinal diseases; hepatitis; infectious diseases, tuberculosis; lung abscess; bacterial endocarditis, brucellosis, pyelonephritis, osteomyelitis, mycosis; systemic lupus erythematosus; Horton's disease.

If aplastic anemia develops due to hepatitis, the child is less likely to survive. They can be overcome with nutritional problems. In addition, red blood cells are not produced in vain, even if the children are inactive, tightly dressed, constantly lie in one position, so it is necessary to ensure the active movement of the child.

In most cases, anemia is asymptomatic. Parents accidentally find out when the child's blood is taken for analysis. However, with careful care of the child, symptoms specific to each type of anemia may be felt. General condition weakness, increased fatigue, decreased concentration, increased fatigue, headaches; insomnia, agitation, tinnitus, arterial hypotension in the cardiovascular system, functional

systolic murmur, tachycardia; changes such as dryness of the oral mucosa, loss or decrease in appetite, constipation/diarrhea, cracks in the oral mucosa, flatulence, frequent vomiting in infants

Anemia can also cause changes in the appearance of the skin, mucous membranes, and nails, hair loss, brittle nails, swelling, and weight loss.

All of the above symptoms are symptoms of the disease. Therefore, it is necessary to identify the disease that causes anemia and eliminate it.

Diagnosis of anemia in children is determined by the following methods:

If anemia is suspected in children, a pediatrician, internist or hematologist should be consulted. The basis of diagnosis is a blood test. In this case,

- Complete blood count - hemoglobin, number and color of red blood cells:
- Biochemical blood test - to determine the amount of vitamins, bilirubin and iron
- In rare cases, bone marrow puncture.

It is advisable to carry out such an analysis.

When diagnosing anemia, based on the results of the analysis of children, he examines a narrow circle of gastroenterologists, rheumatologists, nephrologists, cardiologists and other specialists.

Comprehensive treatment of anemia is based on four principles: improving nutrition and improving the quality of life, taking special drugs to treat the underlying disease, and careful use of traditional medicine. All this is prescribed by a doctor. There is no single cure for anemia as there are many diseases that cause anemia. First of all, it is necessary to eliminate these diseases. However, there are useful treatments. Common treatments include:

- Blood transfusion;
- bone marrow transplantation;
- Blood transfusion: Iron preparations in tablet or injectable form (Ferrumlek, Sorbifer.

Hemostimulin, Ferroplex, Tardiferon, Ferbitol, Ektofer);

- Folic acid
- Vitamin B12
- Glucocorticoids and anabolic hormones, spa treatment, holidays in mountainous areas: in such conditions, the body tries to synthesize more hemoglobin.

With iron deficiency anemia, folk remedies can be used to treat children as prescribed by a doctor. Usually, with the help of traditional medicine, it is possible to cure latent anemia. Infusions made from namataka fruits are widely used in folk medicine to treat anemia. This tincture is rich in vitamin C, which promotes the absorption of iron from food. Its dried fruits are used to make namatak tinctures. A tablespoon of fruits is poured into a glass of water and boiled for 10 minutes over low heat. Then infused for half an hour, drunk before meals. In addition, honey, dried fruits, beets, sugar beets are cleaned by boiling in water, cut into cubes and put in a bowl. It can be consumed by mixing a small amount of sour cream.

Anemia in children under one year of age is mainly treated with diet. It is recommended to include foods rich in iron in the diet. Of course, the diet is selected depending on the individual characteristics and age of the child.



The best food for treating anemia in children is breast milk. From the age of 8 months, you can give complementary foods with meat, buckwheat porridge. From 12 months - fish, fruits and vegetables. Sometimes hematologists recommend table N° 11 for anemic children (5 meals a day). This table consists of the following products: bread, pasta, flour products, soup, fish, meat, liver, cottage cheese, butter, cheese, eggs, nuts, buckwheat, peas, beans, vegetables, fruits and berries.

Prevention of anemia involves reducing the amount of hemoglobin in the blood and protecting against its complications. District pediatricians and parents themselves should worry about preventive measures immediately after the birth of a child.

- Regular blood tests;
- Iron-deficient drugs are prescribed for premature babies from 3 months to 2 years;
- improvement of food quality;
- Formation of a healthy lifestyle;
- Outdoor travel;
- play various exercises, games;
- Recreation in mountainous areas.

Anemia in children should not be ignored. This pathology exacerbates any other disease and, as a complication, can lead to serious changes in the child's later life. Therefore, it is important to prevent anemia in a timely manner, since it is better and easier to prevent than to treat.

#### List of used literature:

1. Akbarova D. Sh. Influence of iron deficiency anemia on liver function // Actual problems of rheumatology: Tez. scientific-practice. conf. - Tashkent, 2004. -S. 9-10.
2. Akbarova D. Sh., Babadzhanova Sh. A. On the study of liver damage in iron deficiency anemia // Days of young scientists. Materials of scientific-practical.conf. graduate students, masters and students. – Tashkent, 2004. – p. 51.
3. Akbarova D. Sh., Inoyatova F. IKS. The significance of changes in hemoprotein metabolism in the development of detoxification disorders in iron deficiency anemia. Vrach.case. - Kyiv 2005. - No. 5-6. - S. 64-65.
4. <http://library.ziyonet.uz/>
5. <https://biologo.ru/>
6. Daminov T.A., B/T/Khalmatova, U/R/Boboeva - Pediatrics. "Garden of thought" Tashkent-2012
7. S.A.Rakhimov, A.R.Isroilov - Hospital Pediatrics - Tashkent-2010