

**IRON DEFICIENCY ANEMIA IN CHILDREN WITH CHRONIC
GASTRODUODENAL PATHOLOGY****Bekchanov Bakhtiyor Gafurovich¹, Ubaydullaeva Gulshoda Axmatovna²****¹Associate Professor of the Department of Pediatrics, Urgench Branch of the Tashkent Medical Academy****²Head of the Department, 1- Republican College of Public Health named after Abu Ali ibn Sino**

***Annotation.** Children and adolescents' diagnosis and treatment of the chronic gastroduodenal disease on time, determination of iron deficiency anemia in children chronic gastroduodenal pathology is relevant problem in our region now on.*

***Key words:** children, gastritis, gastroduodenitis, anemia, functional gastroenterology of children.*

The choice of a more effective method of treating anemia, taking into account the type and severity of pathology, changes from year to year, as the dominant factors in the pathogenesis of the disease change. One of the important reasons for the development of IDA in CGDP is a violation of the processes of iron absorption in the duodenum and proximal jejunum (enterogenic anemia). At the same time, it should be taken into account that anemia against the background of CGDP is often accompanied by a deficiency of not only iron, but also vitamin B12, folic acid, proteins, which gives them a mixed character. At the same time, in the practice of a doctor, iron deficiency, B12 - and folate deficiency anemia are most often encountered. The pathogenesis of anemia in chronic diseases is complex, it is associated with defective iron reutilization, in which macrophages are unable to release iron into the circulating pool on the transport protein transferrin. Iron deficiency states may arise as a result of insufficient iron intake with food, due to a sharp restriction of iron-rich food consumption when following a diet due to the underlying gastroenterological disease. At the same time, the presence of iron deficiency anemia was a negative premorbid factor for the development of all clinical variants of gastroduodenal pathology (chronic gastroduodenitis without erosions and with erosions). It should be noted that with IDA of any nature, widespread processes of dystrophy and atrophy develop in all sections of the alimentary canal. These changes are associated with iron deficiency in the cells of the mucous membrane of the digestive organs, which has a triggering value in the formation of gastritis.

In the future, iron deficiency contributes to the deepening of structural changes in the glandular elements of the stomach.

The aim of the study is to study the effectiveness of iron deficiency anemia correction in children and adolescents with chronic gastroduodenal pathology.

Materials and methods of research. Based on a randomized controlled study, including clear criteria for selecting patients, 118 school-age children with various forms of chronic gastroduodenal pathology (CGDP) in the remission period, with clinically and laboratory diagnosed iron deficiency anemia were examined. The average age of the subjects was 12.4 ± 1.3 years. Of these, chronic gastroduodenitis (CGD) was diagnosed in 87 schoolchildren (73.7%), and chronic gastritis (CG) of various forms was diagnosed in 31 (26.3%). The clinical and laboratory study included a comprehensive blood test, determination of serum iron concentration, ferritin and transferrin levels in the blood serum.

Results and discussion. Many chronic diseases of the digestive system in children and adolescents are accompanied by the development of clinical anemia of varying forms and severity. At the same time, anemia can be not only a complication of the underlying disease, but also the first obvious sign of CGDP.

As our studies have shown, 118 out of 251 (47%) children and adolescents with CGDP received clinical and laboratory confirmation of mild to moderate iron deficiency anemia. The remaining children were found to have other types of anemia, mainly B12 deficiency anemia (49%). When analyzing the clinical manifestation of IDA in children with CGDP, the majority of patients had pale skin (48.3%), manifestations of asthenovegetative disorders in the form of increased fatigue (49.1%), sleep disorders (33%), periodic headaches (29.7%), the presence of a specific sideropenic syndrome (35.6%), manifested by dryness and thinning of the skin. After identifying IDA in children with CGDP, we began complex therapy of the disease, including non-drug and drug treatment of the underlying disease and anemia.

The non-drug treatment course consisted of diet and physiotherapy. Diet therapy was based on the clinical picture of the underlying disease with a predominance of iron-containing foods (meat dishes, cereals, some types of vegetables and fruits). It should be noted that the main principles of drug treatment of IDA are - therapy of the underlying disease of the digestive organs, as well as compensation for iron deficiency in the blood and tissues and achieving complete clinical and hematological remission. Iron preparations (ferrotherapy) are used as replacement therapy for IDA. For this purpose, we chose the antianemic drug Ferlatum. The drug contains iron-protein succinylate 800 mg (equivalent to 40 mg Fe^{3+}), which is a complex compound where trivalent iron atoms (Fe^{3+}) are surrounded by a semi-synthetic protein carrier that prevents damage to the gastric mucosa. Schoolchildren were prescribed 1 bottle (15 ml) per day (40 mg Fe^{3+}) in 2

doses, which corresponds to the daily dosage of the drug - 1.5 ml / kg / day (in an amount equivalent to 4 mg / kg / day Fe³⁺).

The choice of this drug was due not only to the presence of a protective protein shell, eliminating the irritating effect of iron on the gastric mucosa, which causes a minimum number of side effects and an increase in the clinical picture of the inflammatory process in the gastrointestinal tract, but also some indicators affecting the effectiveness of treatment:

- high bioavailability (> 68%) and rapid absorption that does not require absorption enhancers;

- the absence of oxidative stress associated with the transition of Fe²⁺ to Fe³⁺, as well as its damaging effects;

- the absence of peaks in concentration and pathological deposition of iron. Considering that antacids, calcium preparations, and cimetidine reduce the absorption of iron preparations, we recommended taking Ferlatum 1 hour before or 2 hours after taking these preparations.

Complex treatment of the underlying disease and anemia in schoolchildren with CGDP was carried out for 2 months (9 weeks). Against the background of complex treatment, the disappearance of a number of clinical signs of CGDP and anemia was noted. After the course of treatment, a repeated laboratory and clinical study was carried out. It was found that in children with CGDP, the hemogram indices change depending on the form of gastroduodenal pathology. In particular, more obvious changes in the hemogram are characteristic of CGD. It should be noted that erythrocyte indices are calculated values that allow quantitative characterization of important indicators of the state of erythrocytes.

An integral part of studying iron metabolism in the blood is the analysis of ferritin and transferrin levels. In the observed children with CGDP, a decrease in ferritin levels was determined. Ferritin itself is the main indicator of intracellular iron depots in the body, playing an important role in maintaining iron in a biologically useful form. In children with CG, the ferritin level decreased to 10 µg / l, while in children with CGD this indicator decreased to 9 µg / l. After a course of antianemic treatment, the ferritin indicator increased on average by 1.8 times, reaching normal values, which indicates the effectiveness of the complex therapy. All the above-mentioned differences between the CG and CGD indicators are directly related to the physiology of the small intestine and its role in the process of iron metabolism. Consequently, in children with CGD, due to chronic inflammatory processes occurring in the small intestine, not only iron absorption is disrupted, but also its deposition, which we noted during the interpretation of the obtained study results. In particular, in children with CGD, the transferrin content was 5.4% higher than in children with CG.

One molecule of transferrin binds two atoms of iron - the ion Fe^{3+} , and 1 g of transferrin, respectively, about 1.25 mg of iron. Knowing this ratio, it is possible to calculate the amount of iron that can bind serum transferrin, it approaches the value of the total iron-binding capacity of serum (TIBC). Thus, in children with CGDP, TIBC increased to 84 $\mu\text{mol} / \text{l}$, which reflects the degree of serum starvation and saturation of transferrin with iron. Therefore, rational administration of iron preparations, in particular, Ferlatum, to children with IDA against the background of CGDP, is an integral part of complex anti-inflammatory therapy. But at the same time, it is imperative to exclude children with gastric ulcer and duodenal ulcer, as well as other types of anemia. Conclusions. The obtained data show that in children with chronic gastroduodenal pathology, depending on the type of disease, the clinical and laboratory picture of IDA changes, so in children with CGDP it is more pronounced in relation to CG. All children with laboratory-detected IDA against the background of CGDP should be prescribed ferrotherapy taking into account drug therapy of the underlying disease.

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