

# THE ROLE OF FERRUM IN PREVENTION AND TREATMENT IRON DEFICIENCY ANAEMIA

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**Introduction.** We are used to eating delicious food every day. However, every day you need to use the necessary amount of trace elements. Iron deficiency is the major and most common nutritional disorder in the world, leading to iron deficiency anaemia (IDA). According to WHO, the prevalence of anaemia in the general population worldwide is 24.8%, the most common in preschool children (47.4%) and pregnant women (41.8%), but 30% of non-pregnant women suffer from this pathology. Statistics on Ukraine now are as follows: in Ukraine, the prevalence of IDA is 1011.83 per 100 thousand adult population, and patients - 164.11 per 100 thousand

**Aim.** Investigate the effects of Ferrum on the human body and the prevention and treatment of iron deficiency anaemia.

**Materials and methods.** Review of scientific literature.

**Results and discussion** Iron deficiency anaemia is a pathological syndrome characterized by a decrease in the number of red blood cells and blood haemoglobin. It is the main hypoxia of tissues and organs, since little oxygen is delivered to the cells. This condition is especially dangerous for the brain. Nerve cells die in hypoxia, leading to gradual personal degradation. In the initial stages of the disease, a person experiences constant fatigue and a decrease in performance. This very common disease occurs in both adults and children. Symptoms in this disease are usually non-specific. There is a tendency to microcytosis and red blood cell hypochromia, iron reserves in the body are reduced, as evidenced by low levels of serum ferritin and iron, as well as high total iron binding capacity. While diagnostics, it should be suspected that there is hidden blood loss until the opposite is proved. Treatment includes iron replacement therapy and treatment of blood loss.

There are three stages of iron deficiency: prelatent, latent and manifest. Pre-latent iron deficiency is characterized by a decrease in micronutrient reserves without reducing iron consumption for erythropoiesis. Latent iron deficiency is observed with complete depletion of micronutrient reserves in the depot, but there are no signs of anaemia. Manifest iron deficiency, or iron deficiency anaemia (IDA), occurs with a decrease in the haemoglobin iron stock and has characteristic symptoms. In each stage, they are their own.

However, it is worth saying that in Ukraine there is an active fight against the IDA. The treatment of IDA, first, implies the prescription of iron preparations. It is impossible to make up for iron deficiency by diet alone. Rapid recovery of haemoglobin levels in response to an adequate dose of iron preparations is a characteristic feature of IDA. The daily therapeutic dose is 3-6 mg/kg elemental iron.

Currently, 2 groups of oral iron preparations are used:

- 1) preparations containing ferrous salts.
- 2) preparations containing iron (III) (CPC Fe<sup>3+</sup>) polymaltose hydroxide complex.

An advantageous difference between the preparations of the 2nd group is the content of iron in the non-ionic form, which significantly reduces the risk of adverse reactions from the gastrointestinal tract and improves the tolerability of the preparation. In addition, when iron is used in the form of a hydroxy-polymaltose complex, the risk of oversaturation of the body with iron is lower; its absorption depends little on food intake and concomitant drug therapy.

Thus, GPC-based drugs Fe<sup>3</sup> + in fuel efficiency, which is not inferior to ionic forms of ferro-containing drugs, have much better safety and tolerability indicators, which, of course, increases patients' adherence to treatment.

Examples of drugs that are most often used in Ukraine to treat iron deficiency anaemia:

- Ferroplex (0.05 g Fe<sup>2</sup> +, Vit C) - adult 1-2 tablets three times a day;
- Hemoferrone (0.0082 g Fe<sup>2</sup> +, folium acid, Vit B12) - a bottle of 200 ml with a measuring cup (grown and children from 12 years old to 15-20 ml per day), allowed for use for children from 6 months;
- Heferol (0.115 g Fe<sup>2</sup> +) - 1 capsule once a day;
- HEMSYNERAL -TD (0.08 g Fe<sup>2</sup> +, folium acid, Vit B12) - 1 capsule 2-3 times a day.

Parenteral administration of iron has no advantages in effectiveness over oral therapy, while being more expensive and much more dangerous. Therefore, parenteral, iron preparations are prescribed only in cases of malabsorption or absolute intolerance of oral forms. Blood transfusions may be required only in cases where anaemia is accompanied by congestive heart failure or is a consequence of serious blood loss.

In the foreign manual (Nelson Textbook of Pediatrics, 19th Edition, 2011), it is customary to continue ferrotherapies after normalizing haemoglobin levels in a full therapeutic dose for 8 weeks. In case of insufficient effectiveness of iron therapy, the possibility of aggravating conditions or alternative diagnoses should be considered. Power Correction Guidelines necessarily complement ferrotherapies. Girls with menstrual disorders are given appropriate treatment.

The currently recommended duration of ferrotherapy after normalizing haemoglobin levels in accordance with the Protocol adopted in Ukraine (Order of the Ministry of Health of Ukraine No. 709 of 02.11.2015) - 3-6 months in a dose half that of therapeutic.

The main measures to prevent iron deficiency in children are the preservation of breastfeeding for at least 1 year, the timely introduction of weaning with the consumption of iron-rich foods. Children on artificial feeding should receive iron-enriched (12 mg/l) adapted mixtures. Cow's milk should not be used to feed children under the age of 1 year as a drink, and after a year, its daily amount in the diet should not exceed 600-700 ml

**Conclusions.** After analysing the scientific literature, they described the effect of iron on the human body and its role in the prevention and treatment of iron deficiency anaemia. Iron deficiency is much easier and cheaper to prevent than then treating its consequences.

## THE LIPID PEROXIDATION IN THE HUMAN BLOOD TREATED BY THE LEAF EXTRACTS DERIVED FROM SOME THYMUS L. (LAMIACEAE) REPRESENTATIVES

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**Introduction.** Genus *Thymus* is one of the most widely used genera in folk medicine, consisting of approximately 215 species currently recognized. It is popular for its stimulatory action on all organism functions (Viuda-Martos et al., 2011). Plants from the genus *Thymus* are important medicinal herbs, which are known are rich in different active substances such as thymol, carvacrol,