



Copyright: Original content from this work may be used under the terms of the creative commons attributes 4.0 licence.

Some Features Of Laboratory Indicators Of Micro And Macro-Elementary Condition Of The Organism Of Female Age Women Innormality And In Iron Deficiency

Z.R. Sokhibova

Bukhara State Medical Institute, Bukhara, Uzbekistan

M.R. Turdiyev

Bukhara State Medical Institute, Bukhara, Uzbekistan

ABSTRACT

Using unified and developed methods, some hematological, biochemical, and micro-and macronutrient status indicators were studied in women of fertile age with a normal health index and iron deficiency. It is shown that there are certain pathological fluctuations in some hematological, biochemical and essential hematopoietic microelements in women of fertile age with the development of iron deficiency. In particular, there is a hypoproteinemia, hypoferremia, hypozincemia, hypocupremia and hypertransaminasemia.

KEYWORDS

Microelement status, anemia, deficiency, fertile age

INTRODUCTION

Iron deficiency States-latent and manifest iron deficiency have a high prevalence in various

regions of the country and in General significantly exceed the critical threshold of

30% of the population, when it is necessary to implement national programs for mass prevention and control of anemia [1,2,3,6]. It was found that low iron content in the body leads to a weakening of the immune system, decreases the saturation of tissues with granulocytes and macrophages, inhibits phagocytosis, reduces the response of lymphocytes to stimulation with antigens, as well as the formation of antibodies due to the low activity of enzymes, proteins, and the receptor apparatus of cells that contain iron [4,6].

Despite its name, iron deficiency anemia (IDA) is not the result of iron deficiency alone. Any trace element exerts its biological functions in the context of many other trace elements. They are part of enzymes, vitamins, hormones, and other biologically active substances. Essential trace elements are: iron, iodine, copper, manganese, zinc, cobalt, molybdenum, selenium, chromium, fluorine

As we noted above, one of the main reasons for the development and widespread prevalence of IDA among women of fertile age (VF) is alimentary iron deficiency. At the same time, as practice shows in real life, i.e. in the clinic of diseases, disorders of normal development, conditions for the occurrence of any monodeficiency simply do not exist [4,7]. Even if we can imagine the existence of such a deficiency, for example, iodine deficiency in endemic areas, it is already very soon will interfere monodeficiency state in the absorption and metabolism of other nutrients and nondeficit sure to turn into

group or complex. In relation to iron deficiency, according to the literature data, the parallel detection of insufficient provision for other trace elements, vitamins C, PP, B6, folic acid, and vitamin B12 is quite natural [4,6].

Because of this, the cooperative study of various nutrients, primarily those directly related to hematopoiesis, is of great scientific and practical importance.

PURPOSE OF THE STUDY

to study a number of biochemical parameters in healthy women of fertile age and women with iron deficiency.

MATERIAL AND METHODS OF RESEARCH

In order to characterize the biochemical status of healthy women of fertile age with normal hemoglobin health, 48 women aged 20 to 35 years (average age - 23.6 years) and 46 women with iron deficiency aged 20 to 40 years (average age - 31.7 years) permanently residing in the Gijduvan region of Bukhara state were examined. The studied hematological and biochemical parameters were determined by unified methods, as described [5]. The micro-and macronutrient status of the body was analyzed USING quantitative colorimetric methods. The results were processed by methods of variation statistics.

THE RESULTS OF THE STUDY AND THEIR DISCUSSION

The results are shown in table 1.

Table 1 Hematological and biochemical indicators of the nutritional status of VF in normal and iron deficiency

Изученный показатель	ЖФВ здоровые	ЖФВ с дефицитом железа
Гемоглобин, г/л	120.0 -143.0	98.0-118.0
	(128.6 ±1.04)	(110.8 ± 1.01)
Эритроциты, x 10 ¹² /л	3.1 -4.4	3.4-5.0
	(3.9 ± 0.04)	(4.0 ± 0.05)
Лейкоциты, x 10 ⁹ /л	3.9-7.4	3.4-7.2
	(5.6 ±0.36)	(5.0 ±0.32)
Тромбоциты, x 10 ⁹ /л	200.0-275.0	200.0-275.0
	(240.6 ± 4.56)	(218.0 ±4.12)
Цветной показатель	0.81-1.1	0.70-0.90
	(0.96 ± 0.01)	(0.80 ±0.01)
Билирубин, мкмоль/л	8.9-14.3	9.0-12.3
	(11.4 ±0.21)	(10.8 ±0.15)
Общий белок, г/л	67.0-85.0	60.0-72.0
	(75.3 ± 0.93)	(65.8 ± 0.56)
АлТ, мкмоль/л	13.0-28.0	11.0-36.0
	(19.6 ±0.55)	(18.3 ±0.86)
АСТ, мкмоль/л	15.3-28.3	16.6-31.0
	(21.5 ±0.53)	(22.6 ± 0.65)
Железо, мкмоль/л	13.6-25.6	8.7-13.9
	(18.0 ±1.18)	(11.5 ±0.24)
Цинк, мкмоль/л	14.1-25.9	9.4-15.6
	(19.4 ± 0.47)	(13.3 ±0.21)
Медь, мкмоль/л	10.2-19.0	6.4-12.4
	(14.9 ± 0.35)	(9.3 ± 0.30)
Кальций, ммоль/л	1.97-2.74	1.16-2.20
	(2.59 ±0.13)	(2.50 ± 0.03)
Магний, мкмоль/л	0.50-1.15	0.61-1.10
	(0.765 ± 0.02)	(0.755 ±0.015)
Трансферрин, г/л	3.00-3.60	3.65-4.24
	(3.27 ± 0.01)	(3.97 ± 0.03)
КНТ, %	15.3-34.6	8.0-15.5
	(22.6 ± 0.71)	(11.9 ±0.34)

As can be seen from the table below, the average total hemoglobin index in healthy VFS was 128.6 ± 1.04 g / l with a range of fluctuations in this indicator from 120.0 g/l (min) to 143.0 g / l (max). The average level of total hemoglobin was significantly lower ($p < 0.001$) and was 110.8 ± 1.01 g/l for the range of fluctuations of this indicator -98.0 g/l (min) to 118.0 g/l (max).

We did not find a statistically significant difference between other morphological parameters of peripheral blood in the examined healthy VF AND VF with iron deficiency-the number of white blood cells and platelets ($p > 0.05$).

As expected, there is a statistically significant difference between such an important indicator as the color indicator reflecting hypochromia in the examined healthy VFS and VFS with iron deficiency. Thus, in healthy VFS, this indicator is on average 0.96 ± 0.01 with a range of fluctuations of this indicator from 0.81 (min) to 1.1 (max), while in VFS with iron deficiency, this indicator is on average only 0.80 ± 0.01 with a range of fluctuations of this indicator from 0.80 (min) to 0.90 (max) ($p < 0.001$).

The study of biochemical parameters reflecting the functional state of the liver of the examined healthy VFS and VFS with iron deficiency showed that VFS with iron deficiency have bilirubinemia and hypoproteinemia in comparison with healthy VFS. Thus, the average content of the examined GFV iron deficiency bilirubin was 10.8 ± 0.86 $\mu\text{mol/l}$ in the fluctuation of this index from 9.0 $\mu\text{mol/l}$ (min) to 12.3 $\mu\text{mol/l}$ (max), whereas normal, this indicator averaged 11.4 ± 0.21 $\mu\text{mol/l}$ in the fluctuation of

this indicator from 8.9 $\mu\text{mol/l}$ (min) to 14.3 $\mu\text{mol/l}$ (max) ($p < 0.05$).

The level of total protein in the blood serum of the examined iron-deficient women averaged only 65.8 ± 0.56 g / l, with the range of fluctuations in this indicator in the examined women 60.0 g/l (min) to 72.0 g / l (max), which indicates the phenomenon of hypoproteinemia in iron-deficient women. The average level of total protein in healthy examined VFS is 75.3 ± 0.93 g/l on average, with the range of fluctuations of this biochemical indicator from 67.0 g/l (min) to 85.0 g / l (max) ($p < 0.001$).

A comparative analysis of serum enzyme parameters in healthy VFS and VFS with iron deficiency did not reveal statistically significant differences between them ($p > 0.05$).

Analysis of the microelement status in healthy GFW and GFW with iron deficiency showed a clear hypoferrremia, hypozincemia and hypocupremia have JFW with iron deficiency. Thus, the level of serum iron in FAT with iron deficiency is significantly reduced to an average of 11.5 ± 0.24 mmol/l with a range of fluctuations of this indicator from 8.7 mmol/l (min) to 13.9 mmol/l (max) in comparison with the level of serum iron in healthy FAT-on average 18.0 ± 1.18 mmol/l with a range of fluctuations of this indicator from 13.6 mmol/l (min) to 25.6 mmol/l (max) ($p < 0.001$). The level of serum zinc is also significantly reduced on average to 13.3 ± 0.21 mmol/l with a range of fluctuations of this indicator from 9.4 mmol/l (min) to 15.6 mmol/l (max) in comparison with the level of zinc in the blood serum of healthy VFS-on average 19.4 ± 0.47 mmol/l with a range of fluctuations of this

indicator from 14.1 mmol/l (min) to 25.9 mmol/l (max) ($p < 0.001$).

The level of another essential hematopoietic trace element copper in iron-deficient VFS is also reduced compared to the same indicator in healthy VFS. So, on average, GFW with iron deficiency, the serum copper is 9.3 ± 0.3 $\mu\text{mol/l}$ in the fluctuation of this indicator from 6.4 mmol/l (min) to 12.4 $\mu\text{mol/l}$ (max), while healthy GFW the level of serum copper average of 14.9 ± 0.35 $\mu\text{mol/l}$ in the fluctuation of this indicator from 10.2 $\mu\text{mol/l}$ (min) to 19.0 $\mu\text{mol/l}$ (max) ($p < 0.001$).

Comparative analysis of the content of essential hematopoietic micronutrients in GFW leads to the conclusion that the average level of zinc in serum prevails over iron levels, and the level of and zinc and iron prevails over the level of copper in serum.

In the content of another trace element magnesium, we did not find statistically significant differences between healthy VFS and VFS with iron deficiency ($p > 0.05$).

The content of the important macronutrient calcium in the blood serum also showed no significant differences in the content of this macronutrient ($p > 0.05$).

Hypertransferrinemia, i.e. compensatory increase in the content of iron-transport protein in the blood serum against the background of hypoferrinemia, is a characteristic phenomenon for VF with iron deficiency.

So, on average, the content of this protein in the blood serum of VFS with iron deficiency is 3.65 ± 0.03 g/l with a range of fluctuations of this indicator from 3.65 g/l (min) to 4.24 g/l (max), while in healthy VFS this indicator is on

average 3.27 ± 0.01 g/l with a range of fluctuations of this indicator from 3.00 g/l (min) to 3.60 g/l (max) ($p < 0.001$).

The saturation of the total pool of serum transferrin with iron in iron-deficient VFS is clearly reduced and averages only $11.9 \pm 0.34\%$ with a range of fluctuations of this indicator from 8.0% (min) to 15.5% (max), while in healthy VFS the indicator of transferrin saturation with iron on average is $22.6 \pm 0.71\%$ with a range of fluctuations of this indicator from 15.3% (min) to 34.6% (max) ($p < 0.001$).

CONCLUSIONS

Thus, a comparative study of some hematological, biochemical parameters and indicators of micro - and macronutrient status of the body GFW shows that the development of iron deficiency in the body, objectively leads to significant changes in some indicators reflecting the state of the blood, the functional state of the liver and microelement status of the organism. This phenomenon can be used in monitoring the state of the body of the ZHFV, in monitoring the effectiveness of measures taken in these women against the background of developing iron deficiency

REFERENCES

1. Ataniyazova O. A. Environmental factors and the state of health of mothers and children in the Republic of Karakalpakstan.//Materials of the international seminar "Environmental factors and mother / child health in the Aral crisis region". Nukus. September 14-16, 2000. - Tashkent.
2. Borisov V. V. Microelements selenium and zinc in the body of women and men: problems and solutions.

//ConsiliumMedicum. 2018; 20 (7): 63-68.

DOI: 10.26442/2075-1753.2018.7.63-68

3. Zharilkasinova G. Zh. Age aspects of iron exchange Bulletin Of the Association of doctors of Uzbekistan. -2008. - no. 2. - p. 38-41.
4. Namazbayeva Z. I., Sabirov, J. B., Derkacheva M. A., Berzhanova R. S., A. M. Pochevalov
5. The microelement status of population of Aral sea region// Labor medicine and human ecology, 2017, no. 3 pages 37-42
6. Suleymanova D. N. Program of iron and folic acid supplementation in risk groups. Methodological guidelines. - Tashkent. - 2004.
7. World Health Organization (WHO). Use of multiple micronutrient powders for home fortification of foods consumed by infants and children 6-23 months of age. Geneva: WHO; 2011.
8. Garcia MT, Granado FS, Cardoso MA. Alimenta?acomplementar e estadonutricional de crian^asmenores de doisanosatendidas no ProgramaSaude da FamiliaemAcrelandia, Acre, Amazonia OcidentalBrasileira. Cad SaudePublica 2011; 27(2):305-316.