

FEATURES OF FOOD, CONTENT OF MICROELEMENTS IN FOOD AND ENVIRONMENT IN FAMILIES LIVING IN UZBEKISTAN

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ABSTRACT

Purpose of the study: to study the characteristics of nutrition, the content of microelements in the diet in order to clarify the etiology of IDA, the role of microelementosis in its development with the study of red blood indicators in families living in the Karaulbazar district of the Bukhara region.

Methods: 10 families were surveyed: husband, wife and female children. In order to facilitate the analysis of the results obtained, the husbands and wives were between the ages of 30 and 45, the girls' children were between the ages of 12 and 17. Determined the content of trace elements in erythrocytes and blood serum, in tap water, ditch water.

Results: Thus, only men showed a relatively favorable picture. Grade II-III IDA with almost the same frequency was observed both in mothers and their daughters, respectively: 75-78.5%, 20-21.4%. The volume of consumption per week was rather roughly estimated and divided into 7 days and the number of family members. Despite this, the deficit turned out to be significant for such products as meat, milk, bread, eggs, fruits. This served as the basis for convincing them of the need for proper nutrition and the appointment of micronutrients containing Vitrum Prenatal Forte preparations.

Conclusion. Thus, in order to exclude the intake of toxic microelements into the body, it is advisable to recommend the use of mineral waters for food instead of tap water, especially during pregnancy. The foregoing provides a basis for the need to correct the microelements of the body composition with the necessary microelements, not only by increasing the volume and quality of food, but also by using medications containing microelements.

KEY WORDS: microelements, nutrition, family, deficiency, iron deficiency anemia.

INTRODUCTION

According to researchers, the etiological factors causing iron deficiency anemia (IDA) are different [6,7]. Anemia can occur in an ecologically unfavorable region, due to increased consumption of trace elements, impaired resorption of iron in the gastrointestinal tract, due to a lack of exogenous trace elements (ME), including iron [1, 4].

Environmental disasters, technogenic pollution of the environment, and poor nutrition lead to significant changes in the content of ME in the human body, while toxic MEs accumulate, which displace essential MEs [5]. Thus, iron deficiency anemia belongs to polymicroelementoses of a biogeochemical nature. For the prevention and treatment of IDA, along with traditional methods of treatment, ME containing drugs are used [8, 9].

It is known that certain regions have their own specificity of ME content, which distinguishes them from others. [2]. Hence, the traditional approach to the prevention and treatment of IDA is not justified. Literature data indicate the need to develop ME-containing preparations for a certain region based on the ME content in air, soil, and water [3]. This study is devoted to the study of the ME of

the blood composition in families living in the Karaulbazar district of the Bukhara region, where a large oil refinery is located, which has a technogenic impact on the region. In addition, for the first time, the family's diet was studied with an assessment of the intake of ME. The data obtained will make it possible to clarify the pathogenesis of the development of IDA in adolescent girls from the point of view of microelementosis and to develop a substantiated complex of therapeutic and prophylactic measures.

Purpose of the study was to research the characteristics of nutrition, the content of ME in the diet in order to clarify the etiology of IDA, the role of microelementosis in its development with the study of red blood parameters in families living in the Karaulbazar district of the Bukhara region.

MATERIALS AND METHODS

10 families were examined: husband, wife and female children. In order to facilitate the analysis of the results obtained, the husbands and wives were between the ages of 30 and 45, the girls' children were between the ages of 12 and 17. Studied their anamnesis, past disease, which can affect the ME blood composition, blood levels of Hb, erythrocytes, CP, ESR. The families were identical in social origin - employees and workers, medical history and previous illnesses. Family members with acute inflammatory diseases or their exacerbations were excluded from the analysis.

Determined the content of ME in erythrocytes and blood serum, in tap water, ditch water.

Since the main source of ME entering the human body is food, we studied the daily diet in families and calculated the daily requirement for them depending on the range of food. The basis for comparison was the standard indicators of the ME content in 100 g of the product (I.M.Skurikhina, A.I. Volgareva, 1987).

Based on the results of such an analysis, we gave recommendations on proper nutrition and a microelement containing the drug "Vitrum".

RESULTS

Table 1 shows the results of a general blood test for family members before and after treatment. As can be seen from the table, IDA of varying severity was found in the surveyed contingent. So, in girls, grade I IDA was not observed, grade II was observed in 78.5%, grade III in 21.4%, in their mothers, respectively: grade I in 5%, grade II in 75%, grade III in - 20%, their fathers: III degree IDA - absent, II degree noted - in 35% of men, I degree in 65%.

Table 1. Red blood counts in family members with complicated IDA before and during treatment

Indicator	Family with IDA, n = 10					
	Daughters with IDA n = 10		Mothers with IDA n=10		Fathers with IDA n=10	
	Before treatment	In the dynamics of treatment	Before treatment	In the dynamics of treatment	Before treatment	In the dynamics of treatment
Hb, g/l	79,8±3,4	114,5±3,6	81,8±3,5	120,4±4,4	102,2±3,8	130,2±4,6
RBC, 10 · 12/l	3,2±0,4	3,6±0,6	3,3±0,2	4,0±0,8	3,7±0,5	4,6±1,0
Blood color index	0,8±0,03	0,9±0,04	0,8±0,06	0,9±0,1	0,9±0,08	0,9±0,2
ESR	4,0±1,1	4,2±1,2	4,8±1,4	5,7±2,5	4,2±1,3	4,3±2,2

*Note. * $P < 0.05$; ** $P < 0.01$ compared with the indicators of men.*

Thus, only men showed a relatively favorable picture. Grade II-III IDA with almost the same frequency was observed both in mothers and their daughters, respectively: 75-78.5%, 20-21.4%. Thus, IDA is formed in children from an early age.

The study of the diet showed that practically in all families there is a deficit in the consumption of basic food products in comparison with the norm. This is confirmed by the presence of anemia in the male part of the surveyed.

The daily need for food products and their actual consumption in the studied families are presented in Table 2. Let's make a reservation right away that we roughly estimated the volume of consumption per week and divided it into 7 days and the number of family members. Despite this, the deficit turned out to be significant for such products as meat, milk, bread, eggs, fruits. This served as the basis for convincing them of the need for proper nutrition and the appointment of ME containing preparations "Vitrum" Prenatal Forte.

Table 2. The daily requirement for food and its actual consumption in the studied families of the Karaulbazar region

Food products	Rate daily requirement	Family with IDA of Karaulbazar region	Food scarcity
Meat	150 g	90 g	60 g
Milk	500 ml	290g	210 g
Rice	50 g	40 g	10 g
Bread	250-300 g	150 g	150 g
Chocolate	40 g	10 g	30 g
Eggs	1-2 pc.(120g)	60 g	60 g
Potato	100 g	100 g	0 g
Onion	150 g	100 g	50 g
Fruits	200-250 g	100 g	150 g
Cabbage	300-600 g	200 g	400 g
Carrot	50-100 g	80 g	20 g
Beet	100-150 g	50 g	100 g
Tomatoes	200-300 g	100 g	200 g
Honey	80-100 g	40 g	60 g

Further, we studied, based on the data obtained, the deficit in the intake of ME into the body with food. ME normative data in 100 grams of product (I.M.Skurikhina, A.I. Volgareva, 1987).

DISCUSSION

When comparing the actual consumption of food products (14 basic) with the standards of consumption and the content of ME in them, a significant deficit of both essential and conditionally essential ME was found. Due to the fact that less food is consumed, toxic MEs entered the body, correspondingly less. The same can be attributed to pregnant women, since their questionnaire survey gave the same results of consumption deficit. Attention is drawn to the fact that the water used for food contains toxic ME, such as Be, Cd, Hg, Al, Pb. Normally, toxic microelements should not be contained in the water. The fact is that they have the property of competitively binding to proteins,

enzymes, etc., vital substances and perverting their function, displacing essential and conditionally essential microelements (Avtsyn I.V. 1997). The foregoing is one of the reasons for the development of not only anemia, but also other diseases in the surveyed contingent.

CONCLUSION

Thus, in order to exclude the intake of toxic MEs into the body, it is advisable to recommend the use of mineral waters for food instead of tap water, especially during pregnancy. The foregoing provides a basis for the need to correct the ME of the body composition with the necessary ME, not only by increasing the volume and quality of food products, but also by using medications containing ME. This is evidenced by the indicators of the ME of the blood composition, both in the studied families and in pregnant women.

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