Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 4, Issue 6, June 2023

CHARACTERISTICS OF THE EXCHANGE OF MICROELEMENTS - COPPER, IRON, ZINC FOR ACUTE INTESTINAL INFECTIONS OF VARIOUS GENESIS ON THE BACKGROUND OF CHRONIC NUTRITIONAL DISORDERS OF VARIOUS SEVERITY IN CHILDREN OF THE FIRST TWO YEARS OF LIFE

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Annotation:
A variety of pathology of newborns, associated with their intrauterine development, with the peculiarity of the course of childbirth, and giving severe complications in the neonatal period and in subsequent periods of childhood, dictates the need to improve the system of medical care. It is necessary to clearly deal not only with newborns, but also by studying the characteristics of the course of pregnancy, the nutrition of pregnant women and the impact of various diseases of the mother on the development of the fetus, it is possible to predict in advance the possibility of a child being born with certain diseases, in particular, intrauterine chronic eating disorders, and also to draw up an action plan for the prevention of expected pathologies associated with adverse factors in the antenatal, intranatal and neonatal periods of fetal and child development.

Keywords: children, trace elements, acute intestinal infections.

The purpose of our work was to clarify the degree of violation of vital microelements (copper, iron, zinc), depending on the severity of forms of chronic eating disorders and the addition of intercurrent diseases to them.
Material and methods of research: Under our supervision there were
The content of copper in whole, formed elements and blood serum and its excretion with daily urine was studied in 21 healthy children and 73 sick children with acute intestinal upset on the background of chronic malnutrition of 1,2,3 degrees.

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ISSN: 2776-1010 Volume 4, Issue 6, June 2023

Table 1 The content of copper in whole, formed elements and blood serum and its excretion from daily urine.

Clinical forms of dystrophy	Pure form				Complicated pneumonia			
	Whole blood	Shaped elements	Serum	Daily urine	Whole blood	Formed elements	Serum	Daily urine
Hypotrophy 1 degree	116±6 122±5	41±4 42±5	75±4 73±4	6,7±1,0 6,4±0,5	182±4 162±6	82±3 162±6	128±6 104±5	27,2±1,8 19,6±1,5
Hypotrophy 2 degrees	107±8 118±7	39±4 42±4	68±4 65±5	8,3±0,9 7,6±04	194±5 181±6	80±2 59±4	130±8 105±5	31,3±1,8 22,1±1,5
Hypotrophy 3 degrees	84±7 96±6	34±3 39±4	50±4 51±5	9,2±0,7 8,7±0,6	201±5 150±8	88±3 55±4	134±8 96±6	33,8±2,1 24,3±2,5
Healthy	132±7	44,5±4	87,2±4	5,1±1,0	-	-	-	-

Note: The numerators are indicators at, in the denominator - before discharge (in a complicated form - after the inflammatory process subsides)

As can be seen from the table, patients with uncomplicated form of chronic eating disorders were characterized by hypocupremia and hypercupremia. Significantly pronounced hypocupremia was observed in patients with grade 3 hypotrophy.

It should be noted that the intensity of the increase in copper in these patients was more pronounced in the formed elements than in the blood serum, as evidenced by the distribution coefficient of copper between the formed elements and the blood serum (from 0.61 to 0.67, at a norm of -0, 53)

The study of the content of copper in blood cells and blood serum, as well as its excretion with daily urine after clinical recovery of oka occurring against the background of malnutrition, showed a significantly high content of it. Long-term hypercupremia and hypercupuria in acute intestinal infections on the background of chronic malnutrition and hypocupremia and hypercupuria in the pure form can lead to rapid depletion of copper reserves in depot organs and depletion of the body as a whole with this microelement. These elements make it expedient to use copper salts in the complex treatment of chronic eating disorders in young children.

Table 2 The content of iron (mg%), cobalt, zinc, antimony and scandium (mg%) in whole blood in healthy children and patients with eating disorders pure (uncomplicated) form

Clinical forms of dystrophy	trace elements				
	iron	cobalt	zinc	antimony	scandium
1	2	3	4	5	6
Hypotrophy 1 degree	45,8±0,84 48,6±0,82	4,5±0,25 5,1±0,32	505±30 612±17,7	5,7±0,27 4,6±0,22	3,9±0,1 2,8±0,1
Hypotrophy 2 degrees	45,2±0,8 46,7±0,7	4,8±0,3 4,9±0,31	560±17 633±16	3,9±0,17 2,8±0,13	3,3±0,5 2,6±0,5
Hypotrophy 3 degrees	48,3±0,78 45,3±0,8	4,3±0,3 4,7±0,33	318±12 527±17,3	3,3±0,3 3,1±0,18	1,7±0,1 2,1±0,1
Healthy	53,2±1,1	6,1±0,27	752±17	2,8±0,06	0,22±0,01

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ISSN: 2776-1010 Volume 4, Issue 6, June 2023

Табл.3
Form complicated by pneumonia

1	2	3	4	5	6
Hypotrophy 1 degree	46,9±0,78 45,8±0,82	4,1±0,24 4,5±0,22	427±5,8 460±7,0	6,8±0,26 5,2±0,16	4,2±0,24 3,8±0,18
Hypotrophy 2 degrees	46,3±0,9 44,7±0,84	3,9±0,21 3,8±0,28	408±7,3 448±7,5	7,1±0,33 5,1±0,25	4,8±0,3 3,4±0,25
Hypotrophy 3 degrees	43,7±1,0 42,9±0,7	4,8±0,31 3,2±0,28	322±7,9 402±8,4	5,3±0,31 6,2±0,37	5,2±0,39 4,7±0,34

Note: The numerators show the indicators at admission, the denominator - before discharge (in a complicated form - after the inflammatory process subsides).

The study of the content of iron in whole blood showed that in the pure form of chronic eating disorders there is a significant decrease in it. It also took place before discharge from the hospital. An even more pronounced and persistent decrease in the iron content in whole blood is observed with a form of dystrophy complicated by pneumonia. This indicates that the addition of intercurrent diseases to chronic eating disorders leads to a change in iron metabolism.

A similar picture was observed in the study of the content of zinc in whole blood. The decrease in zinc was especially pronounced in the pure form of malnutrition of the 3rd degree and in the form of eating disorders complicated by pneumonia, and was persistent, because normalization of its level in whole blood was observed both after the inflammatory process had subsided and before the patients were discharged from the hospital.

Conclusions

Thus, with eating disorders in young children, dysmicroelementosis occurs, i.e. a decrease in the level of some microelements (iron, zinc) is accompanied by an increase in others (copper) in whole blood. It is possible that dysmicroelementosis observed in eating disorders leads to a decrease in the level of specific metalloproteins that play a certain role in the regulation of metabolic processes in the body. This phenomenon indicates the need to include in the complex treatment of young children with malnutrition, drugs and food products containing the above microelements.

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