INFORMATION ABOUT THE LEVEL III OF ANEMIA DISEASE

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https://doi.org/10.5281/zenodo.11396167

ARTICLE INFO

Qabul qilindi: 20-May 2024 yil
Ma'qullandi: 25- May 2024 yil
Nashr qilindi: 30- May 2024 yil

KEY WORDS

IDA, starch, Asthenoneurotic syndrome, rickets, ARVI, lethargy, asthenia, apathy.

ABSTRACT

This article studied patients with IDA, determined the mild degree of the disease in children and highlighted the general condition of the examined patients. It is explained that it causes anemia, gastrointestinal tract problems, rickets, and frequent colds.

Quantitative indicators of peripheral erythron in IDA of III severity, which was detected in 6 children (11.5%) are shown in Table 1.

Table 1.

Indicators	**Contingent**		**P***
	II stage. IDA (n=26)	**III stage. IDA (n=6)**	
Red blood cells, 10.2/l	3,0±0,26	2,60±0,25	>0,1
Hemoglobin, g/l	81,174=2,37	60,33±1,56	<0,001
Fet. hemoglobin,%	14,71±1,05	18,24±1,46	>0,1
Hematocrit	0,32±0,03	0,24±0,02	<0,02
Reticulocytes. %O	12,12±0,26	16,21±0,34	<0,001
SDE μm	7,11±0,02	5,39±0,13	<0,001
PVE, days	64,34±1,64	58,60±1,14	<0,01

** Note: - reliability of P in comparison with children of the II degree. severity of IDA.*

Quantitative indicators of red blood in IDA stage III (M±m)

For severe IDA, along with a significant decrease in the level of hemoglobin, hematocrit EDS and PVE, quantitative indicators of red blood are characterized by a slight increase in the level of HbF and a significant increase in reticulocytes-erythrocytes with substance granulofilamentosa. The predominant erythrocytes are microcytic in nature. The hemoglobin content in the erythrocyte remains similar to that of stage II IDA (P>0.1), while the hemoglobin concentration in the erythrocyte decreases significantly.

Qualitative indicators of red blood in IDA III degree (M±m)

An increase in the average volume of an erythrocyte with a decrease in the concentration of hemoglobin in an erythrocyte may serve a compensatory function.

Table 2.

Indicators	Contingent		P*
	II stage. IDA (n=26)	III stage. IDA (n=6)	
SSGE, pg	23,38±0,28	23,22±0,47	>0,01
SKGE, %	27,15±0,67	25,03±0,31	<0,01
ESR, µm3	86,11±1,33	92,69±1,49	<0,002

Note: - reliability of P in comparison with children of the II degree. severity of IDA

Indicators of total protein and its fraction in IDA III degree (M±m)

In case of grade III IDA, the level of blood proteins is of no small importance. Data on the indicators of total protein and its fractions are given in Table 3.

The level of total protein in stage III IDA decreased by 45% from the level of a healthy child. At the same time, albumins decreased by more than 19%. Consequently, with severe iron deficiency anemia, a deficiency of blood proteins is observed mainly due to a decrease in albumin, which must be taken into account during therapy.

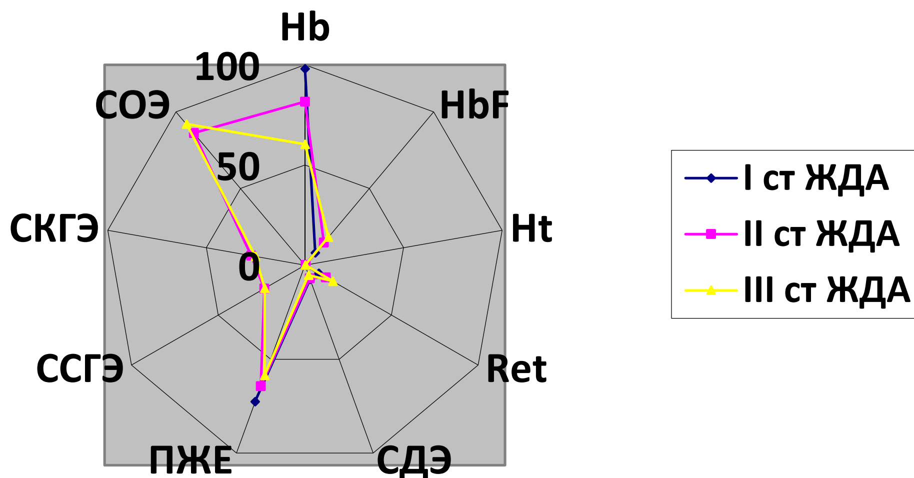
Table 3

Indicators	Contingent		P*
	II stage. IDA (n=26)	III stage. IDA (n=6)	
Total protein, g/l	39,23±1,64	30.34±1.79	<0,002
Albumin, g/l	45,26±2,33	32.64±1.24	<0,001
Globulins, %	27,85±1,93	23.55±2.02	<0,1
a-1	3,33±0,26	2.21±0.18	>0,1
a-2	18,11±2,38	15.42±1.17	>0,1
β	20,46±1,33	29.44±0.69	<0,001
γ	12,84±1,65	12.91±0.83	>0,1
A/G coefficient	0,82±0,11	0.74±0.15	<0,001

** Note: - reliability of P compared with patients II. severity of IDA.*

In Fig.1. illustrates the dynamics of changes in quantitative and qualitative indicators of

peripheral erythron depending on the severity of IDA.



Picture. 1. Red blood with IDA I, II and III degrees

Some indicators of iron metabolism in grade III IDA are shown in Table 4.

Table 4

Indicators	**Contingent**		P*
	II stage. IDA (n=26)	**III stage. IDA (n=6)**	
Serum iron, µmol/l	8,91±0,57	6,66±0,54	<0,002
CST, %	9,43±0,43	5,70±0,70	<0,001

** Note: - reliability of P compared with patients of stage II. severity of IDA.*

Some indicators of iron metabolism in patients with grade III IDA (M±m)

As can be seen from the table, the level of serum iron decreased by more than 1.6 times, mainly due to a decrease in the coefficient of transferrin saturation with iron.

Severe sideropenia, hypoproteinemia and quantitative disturbances in red blood parameters aggravate the morphofunctional parameters of erythrocytes. These data are shown in Table 5.

Thus, with grade III IDA there are significantly more pathologically destructive, deformed red blood cells than with grades I-II anemia. This morphostructure of erythrocytes correlates with clinical symptoms. The general condition of the children depended on the degree of IDA and the morphophysiology of erythrocytes.

Thus, a decrease in erythrocyte pulsation of more than 10 per minute, a decrease in

hemoglobin of less than 65 g/l, is characteristic of a more severe condition of the child. In this case, the correlation coefficient became significantly positive, r = +0.5 (P < 0.001). In such situations, the only method of choosing therapy is replacement, that is, hemotransfusion of freshly washed red blood cells, after an increase in hemoglobin levels, corresponding to the second degree of anemia, correction of sideropenia was carried out with a mixture consisting of ferrum-lek in syrup mixed with grape juice

Table 5.

Indicators	**Contingent**		**p-**
	II stage. IDA (n=26)	**III stage. IDA (n=6)**	
Discocytes, %	71,27±1,52	64,46±1,74	<0,02
Spheroids, %	9,21 ±0,59	10,64±0,37	<0,1
Echinocytes, %	2,36±0,07	3,54±0,54	<0,05
Stomatocytes, %	5,62±0,14	6,29±0,31	<0,05
Spherocytes, %	3,13±0,09	5,51±0,17	<0,001
Deformed cells,%	8,41±0,15	9,66±0,43	<0,01
PE, min	41,67±1,22	37,52±1,62	<0,05

** Note: - reliability of P compared with patients of stage II. severity of IDA.*

Morphofunctional features of erythrocytes in IDA III degree (M±m)

The clinical picture of acute pneumonia in sick children with grade III deficiency anemia was erased, the symptoms of respiratory failure were mild. Symptoms of disorders of the central nervous system (adynamia, extinction of reflexes, meningism), cardiovascular system (deafness of heart sounds, rhythm disturbances, systolic murmur at all points, hepatosplenomegaly, edema), pallor of the skin with a marbled tint, dryness and pallor mucous membranes, general muscle hypotonia came to the fore. However, physical data from the pulmonary system were insignificant.

A study of the erythrocyte system in children with grade III deficiency anemia revealed a significant decrease in the number of erythrocytes and hemoglobin (p <0.001). The content of fetal hemoglobin increased by almost 2.5 times, the SDE was reduced (56.84 + 1.32 days) and varied in direct proportion to the period and severity of the disease. Analysis of the distribution of erythrocytes and the content of thiol groups in them at the height of the disease made it possible to establish that 22% of erythrocytes were distributed by cells with a concentration of SH groups of 0.15 - 0.2 arb. units, and only 9% of cells were characterized by a concentration of S1I groups in the range of 0.3-0.4 arb. units The distribution of erythrocytes according to the concentration of lipoproteins in them in grade HI deficiency anemia differed sharply from children in the control group. At the same time, 76% of the cells were represented by erythrocytes with a lipoprotein concentration in the range of 0.1-0.3 conventional units, 22% of erythrocytes - with a substrate concentration of 0.4-0.5

conventional units. and 3% erythrocytes - with a lipoprotein concentration of 0.6-0.7 conventional units.

The results of the study of the morphofunctional features of the erythrocyte system indicate that in the acute period of the disease the number of main functioning discocyte cells decreased to 41.09 + 1.46%, parallel to the severity of deficiency anemia, echinocytes, stomatocytes, spherocytes increased by 2.1 times, an increase in deformability was noted cells up to 15.17 + 1.26%. In the acute period of the disease, rare forms of erythrocytes are: codocysis - 0.21%, dacryocyte - 1.26%, thorocyte - 0.96%. which indicated a violation of the compensatory activity of the reticulohistiocytic system.

During the period of regression of clinical signs of disease, the number of histiocytes increased to 51.84 + 1.73% due to a decrease in all other forms of cells transitional from discocyte to spherocyte, but all these indicators did not return to normal (P <0.001). During this period, rare forms of erythrocytes were not identified.

In acute pneumonia against the background of deficiency anemia of the third degree, the resulting changes in the morpho-functional properties of erythrocytes persist even after clinical and hematological recovery has been established, predetermining the existence of a weakened compensatory ability of the child's body. An increase in the spheroid reaction during the repair period is a reaction to the impact of pathological processes leading to a reduction in the lifespan of erythrocytes, disruption of hemoglobin synthesis, i.e. their faster aging.

A comparative assessment of the presented data on the appearance of rare forms of erythrocytes, depending on the severity of the pathological process, is apparently associated with a pronounced change in the qualitative composition of membranes and their surface ultrastructure, which leads to functional inferiority of mature cells of the erythrocyte system, impaired hemoglobin synthesis, and a reduction in life expectancy erythrocytes, which ultimately aggravates the severity of hypoxia, which can be considered as a specific molecular phase of the compensatory-adaptive reaction of the erythrocyte system.

References:

1. 1. Асроров, А. А., & Аминжонова, Ч. А. (2021). ОИЛАВИЙ ШИФОКОР АМАЛИЁТИДА ИНСУЛЬТ ЎТКАЗГАН БЕМОРЛАРДА КОГНИТИВ БУЗИЛИШЛАР ҲОЛАТИНИ БАҲОЛАШ. ЖУРНАЛ НЕВРОЛОГИИ И НЕЙРОХИРУРГИЧЕСКИХ ИССЛЕДОВАНИЙ, (SPECIAL 1).

2. 2. Асроров, А. А., & Аминжонова, Ч. А. (2021). Оценка Состояния Когнитивных Нарушений У Пациентов Перенесших Инсульт В Практике Семейного Врача. CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES, 397-401.

3. 3. Aminjonovich, A. A., & Akmalovna, A. C. (2021, March). METHODS OF TEACHING THE SUBJECT "BIOLOGY" IN MEDICAL UNIVERSITIES. In Euro-Asia Conferences (Vol. 3, No. 1, pp. 38-40).

4. Ибрахимова, Х. Р. (2019). Нурллаев Руслон Рустамбекович, Артиков Икром Ахмеджанович Влияние паразитарных болезней на особенности развития туберкулеза у детей, проживающих в Хорезмской области. Наука, техника и образование, 9, 62.

5. Облоқулов, А. Р., Ниязова, Т. А., Мирзажанова, Д. Б., & Нуруллаев, Р. Р. (2014). Клиническая эффективность применения экдистена при первично хроническом бруцеллезе. Инфекция иммунитет и фармакология, (3-2), 32.

6. Машарипова, Ш. С., Ибрахимова, Х. Р., Нурллаев, Р. Р., & Садуллаев, С. Э. (2023).

ТЕЧЕНИЕ ВНУТРИБОЛЬНИЧНЫХ ПНЕВМОНИИ У БОЛЬНЫХ НАХОДЯЩИХСЯ НА ДЛИТЕЛЬНОМ АППАРАТЕ ИСКУССТВЕННОЙ ВЕНТИЛЯЦИИ ЛЁГКИХ. Scientific Impulse, 2(16), 1172-1178.
7. Ибрахимова, Х. Р., Нурллаев, Р. Р., & Артиков, И. А. (2020). ВЫЯВЛЕНИЕ ТУБЕРКУЛЕЗА В ХОРЕЗМСКОЙ ОБЛАСТИ. Наука и образование сегодня, (6-1 (53)), 83-84.
8. Ибрахимова, Х. Р., Нурллаев, Р. Р., & Артиков, И. А. (2019). Влияние паразитарных болезней на особенности развития туберкулеза у детей, проживающих в Хорезмской области. Наука, техника и образование, (9 (62)), 68-72.
9. Ibraximova, H. R., Nurllayev, R. R., & Matyaqubova, O. U. (2023). KICHIK YOSHDAGI BOLALAR ORASIDA ICHAK PARAZITAR KASALLIKLARINING EPIDEMIOLOGIK XUSUSIYATLARI. Новости образования: исследование в XXI веке, 2(15), 109-114.
10. Nurllayev, R. R., Ibadullayeva, S. S., & Yoqubov, Q. Y. (2023). KICHIK QON AYLANISH DOIRASI ARTERIYALARINING MORFOLOGIK TUZILISHI. Научный Фокус, 1(8), 463-468.
11. Sadullayev, S. E., Matyakubova, O. U., Artikov, I. A., Nurllayev, R. R., Ibadullayeva, S. S., & Yakubov, K. Y. (2023). RESULTS OF STUDIES ON THE LEVEL OF POPULATION KNOWLEDGE ABOUT PARASITIC DISEASES AND ITS PREVENTION. Western European Journal of Medicine and Medical Science, 1(4), 15-20.
12. Ibadullayeva, S. S., Yakubov, K. Y., Artikov, I. A., Nurllayev, R. R., & Sadullayev, S. E. (2023). CHARACTERISTICS OF PATHOMORPHOLOGICAL CHANGES IN LYMPHOCYTIC LEUKOSIS IN CHILDREN. Western European Journal of Medicine and Medical Science, 1(4), 21-26.
13. Nurillaev, R. R., & Matyakubova, O. U. (2023). EPIDEMIOLOGICAL STRUCTURES OF DIARRHEAL DISEASES IN THE KHOREZM REGION. PEDAGOG, 6(2), 126-129.
14. Ibrakhimova, H. R., & Nurllayev, R. R. (2023). A METHOD FOR OBTAINING PRECIPITATING SERUMS FOR THE DETECTION OF HUMAN SEMINAL FLUID USED IN THE STUDY OF PHYSICAL EVIDENCE IN FORENSIC BIOLOGICAL LABORATORIES. World Bulletin of Management and Law, 19, 42-44.
15. Djalilovna, A. M., Nurullaev, R. R., KB, T. S. A. S., & Rakhimova, M. (2022). Chronic viral hepatitis b in women of reproductive age living in the aral sea region.
16. Юсупов, Ш. Р. (2021). НУФУРОКСАЗИД-АНТАГОНИСТИЧЕСКИЙ АКТИВНЫЙ ПРОБИОТИК НА МИКОБАКТЕРИИ ТУБЕРКУЛЕЗА. In Инновационные технологии, экономика и менеджмент в промышленности (pp. 17-21).
17. Рузибаев, Р. Ю., Юсупов, Ш. Р., & Сапаева, Ш. А. (2021). МЕРЫ ДЛЯ СНИЖЕНИЯ КОРРУПЦИИ В СФЕРЕ ВЫСШЕГО ОБРАЗОВАНИЯ И МЕДИЦИНЫ. In Инновационные технологии, экономика и менеджмент в промышленности (pp. 227-229).
18. Нуралиев, Н. А., Нуралиева, Х. О., & Юсупов, Ш. Р. (2014). О" Программе мер по ликвидации последствий высыхания Арала и предотвращение катастрофы экосистем в Приаралье". Журнал теоретической и клинической медицины, (4), 43-45.
19. Юсупов, Ш. Р., Аитов, К. А., Савилов, Е. Д., Абдуллаева, Д. К., & Умиров, С. Э. (2023). ЭтиолоГическая характеристика хронических вирусных Гепатитов в хореЗмской области уЗбекистана. Байкальский медицинский журнал, 2(2).
20. Юсупов, Ш. Р., Аскарова, Р. И., Машарипова, Ш. С., & Якубова, У. Б. (2019). Анализ факторов риска, влияющих на развитие туберкулеза у детей в Хорезмской области. Наука, техника и образование, (8 (61)), 66-72.