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INTESTINAL MICROBIOTA AND ITS EFFECTS ON THE FUNCTION OF SHAPED ELEMENTS IN FREQUENTLY ILL CHILDREN

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ABSTRACT

The article presents the data of 146 frequently ill children aged from 1 to 6 years with respiratory diseases hospitalized in the No. 1 of Samarkand. As a comparison group, 30 episodically ill children were examined. The composition of the intestinal microflora, hematological parameters of blood and the adsorption capacity of erythrocytes were studied. The results of the study show that with severe diarrhea, as a complication of the underlying disease in FICh, hemolytic flora increases in the intestinal microflora, among which staphylococci occupy the first place, escherichia coli takes the second place and yeast-like fungi take the third.

Key words: frequently ill children, intestinal microflora, erythrocytes.

INTRODUCTION

The relevance of the problem. Among the most important diseases in frequently ill children, respiratory pathology occupies one of the main places. Judging by the number of visits to outpatient clinics, on average, each child suffers from 3 to 5 officially registered respiratory diseases [1,6,]. In some cases, respiratory tract diseases are accompanied by intestinal dysbacteriosis [2,9]. This is explained by the fact that at a young age, antagonist microbes in the intestinal microflora are in smaller quantities and the normal intestinal microflora is not fully formed [7,8]. In addition, with frequent diseases of the upper respiratory tract, various antibiotics are used, which are most often prescribed empirically, and they destroy antagonist microbes, which leads to intestinal dysbacteriosis.

Human microflora plays an important and sometimes decisive role in protecting the body from pathogenic microbes, the effects of toxic substances, etc. [3,10]. Normal microflora is not only antagonist microbes, but also supports the function of the immune system [4,5]. Naturally, when the intestinal microbiota is disrupted, the immune system suffers first. A decrease in the number of antagonist microbes leads to a disruption of the vitamin balance of groups B and K, which affects the functional state of red blood cells.

However, the functional state of erythrocytes in frequently ill children suffering from respiratory tract diseases complicated by diarrhea remains unstudied.

Purpose of the study: to study the intestinal microbiota for the functional state of formed elements in frequently ill children with respiratory infections.

Materials and research methods. We observed 146 frequently ill children (FIC) aged 1 to 6 years with respiratory diseases hospitalized in the City Children's Hospital No. 1 of Samarkand. As a comparison group, 30 occasionally ill children (EIC) were examined.

Research methods:

1. Clinical. A statistical and anamnestic study of the disease was conducted, and the current somatic status was assessed. When studying the anamnesis of the children being examined, the child's age, how many times and what diseases he/she was ill with during the year, and whether upper respiratory tract diseases were complicated by diarrhea were taken into account.

2. Bacteriological. The composition of the intestinal microflora was studied by means of stool sampling.

3. Hematological. A general blood test was performed and the adsorbing capacity of erythrocytes was revealed.

Research results and their discussion. Our observations showed that out of 146 examined children, 48 (33.6%) had acute respiratory viral infection, 24 (13.7%) focal pneumonia, 59 (36.3%) acute bronchitis, and 15 (16.4%) obstructive bronchitis. The main complaints of children upon admission were fever (100%), anxiety (96.7%), cough (91.9%), convulsions (33.8%), decreased appetite (93.5%), vomiting (37%), and gastrointestinal tract complaints - loose stools and flatulence. The premorbid background and concomitant syndromes in these patients were: chronic tonsillitis, acute nasopharyngitis, anemia, rickets, grade 1-2 hypotrophy.

Also, out of 146 examined patients, 40 children had intestinal dysbacteriosis. To study the intestinal microbiota, 40 (FBD) aged from 1 year to 3 years were subjected to bacteriological examination. Of these, 23 had severe diarrhea and 17 patients had a milder course. The material for the study was the patient's feces,

which were diluted in physiological solution to the 1010 power. Feces in dilutions of 106,107,108,109,1010 were seeded on Blourock's medium for bifidobacteria, on milk-salt agar - for staphylococcus, on Sabouraud's - for candida and on Endo for E. coli.

The analysis of the obtained data shows that of the 23 patients with severe diarrhea, staphylococci were found in dilutions of 108, with a milder course of diarrhea in dilutions of 106. Hemolytic E. coli was found, respectively, in dilutions of 107 and 106, and Candida 109 and 107. It is interesting to note that anaerobic bifido bacteria are sharply reduced in the intestinal microflora of the first group, that is, those with severe diarrhea. They were found in dilutions of 104 feces. In the second group, they were found in dilutions of 109 (Table 1).

Table 1.

Intestinal microbiota in bacteriological examination

A total of 40 subjects	Flow	Sown flora			
		Staphylococci	Hemolytic Escherichia coli	Candida	Bifido bacteria
23	heavy	108	107	109	104
17	lung	106	106	107	109

Notes:1010th degree, the patient's feces, which were diluted in a saline solution.

The results of our work show that in severe cases of diarrhea, as a complication of the underlying disease in FBD, the hemolytic flora in the intestinal microflora increases, among which staphylococci occupy the first place, E. coli in second place, and yeast-like Candida fungi in third place.

Blood tests show that the hematological picture of the blood in FBD does not differ from healthy people, i.e. the number of erythrocytes, leukocytes and ESR remain normal. However, very low hemoglobin levels have been established. If the normal average hemoglobin level is 110-140 g/l in children under 6 years of age, then in FBD with diseases it decreases to 80.5 g/l. A lower hemoglobin level has been noted in FBD suffering from diarrhea from 1 year to 2 years of age - 76.5 g/l.

In EBD, this indicator remains within the normal range - 105.5 g / l. Such results prove that the violation of the intestinal microbiota plays a pathogenetic role in reducing the hemoglobin level.

Non-specific protective factors play an important role in protecting children's bodies from infectious agents. One of them is the adsorbing capacity of erythrocytes.

Our observations show that there is no quantitative change in red blood cells in FBD compared to the norm. However, their adsorbing capacity is sharply reduced. Normally, the adhesion capacity of red blood cells of microbial cells is 18-20%, in EBD - 17-18% and in FBD with respiratory diseases - 12-13% (Fig. 1).

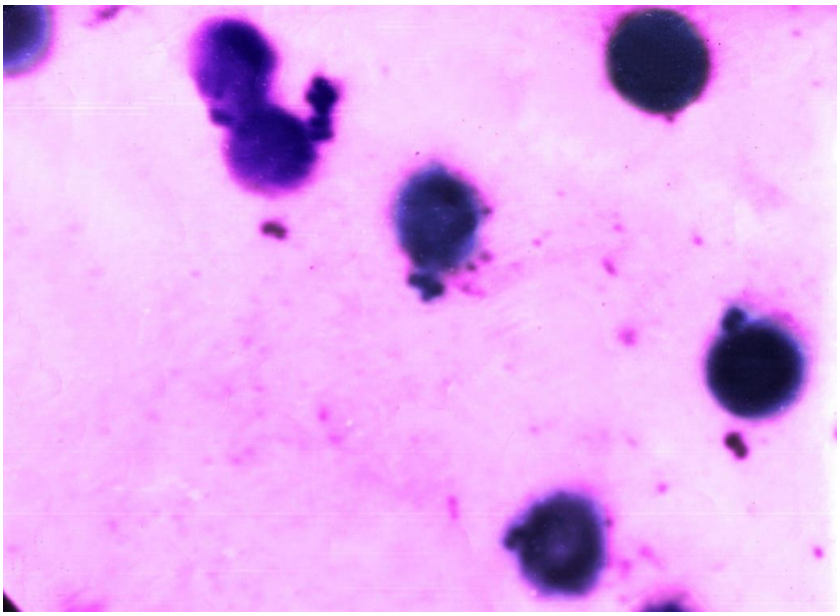

Fig. 1. Adsorption capacity of erythrocytes.

This indicator in CBD with dysbacteriosis decreases to 9-10%, which proves that under the influence of prolonged intoxication and with insufficient vitamin balance of groups B and K, erythrocytes lose the ability to adsorb the pathogenic agent. The change in the adsorbing capacity of erythrocytes in CBD compared to healthy ones once again indicates that this phenomenon is one of the factors of non-specific protection of the body and actively participates with all links of immunity in a single fight against infection.

Thus, a decrease in the amount of hemoglobin is pathological for the body of children. In this case, the metabolism of red blood cells is disrupted, and they lose their protective ability.

Conclusions.

1. In frequently ill children, upper respiratory tract diseases are often complicated by diarrhea. In order to prevent the development of an immunodeficiency state against the background of dysbacteriosis, it is necessary to restore normal intestinal microflora in time using eubiotics.

2. Frequently ill children with respiratory tract diseases complicated by diarrhea have lower hemoglobin levels, which is -76.5 g/l, than in children with respiratory tract diseases without diarrhea complications, which is -80 g/l.

3. In frequently ill children, the number of red blood cells remains normal. However, their ability to absorb bacteria is sharply reduced. This test can be used as a criterion for determining the state of non-specific factors of the body's defense.

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