

MEDICAL SCIENCES

EVALUATION OF THE EFFECTIVENESS OF SOUR-MILK MIXTURES DURING ALIMENTARY DIARRHEA IN CHILDREN

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Abstract

This article describes the study of the effectiveness of sour-milk mixtures used in the treatment of alimentary diarrhea in breast-fed children. It was found that in approximately 68-91% of patients, diarrhea syndrome occurred mainly after the intake of foods that were not appropriate for their age in terms of quantity and quality. Among other causes of diarrhea, mothers' recent feeding with large amounts of fruit and poor-quality foods, as well as acute intestinal disorders, also played an important role. It was found that in all patients with diarrhea involved in the study, normal intestinal mycobiosis was disrupted, which sharply increased the risk of developing opportunistic flora. Our study once again confirmed that the use of sour-milk mixtures in the treatment of diarrhea stimulates the child's resistance to intestinal disorders by preventing the development of opportunistic flora and improving the composition of the intestinal microflora.

Keywords. children, alimentary diarrhea, intestinal microbiosis, dietary nutrition, sour-milk mixtures.

Introduction. Diarrhea is usually defined as the excretion of unusually loose and watery stools, usually no less than 3 times within 24 hours. However, in such cases, it is not the number of stools, but their consistency that is of particular importance. Thus, frequent excretion of formed stools, as well as the occurrence of loose «porridge-like» stools in a child who is fed naturally, are not considered indicators of diarrhea. Diarrhea syndrome continues to be one of the urgent problems of pediatrics today, both in terms of its high incidence and as one of the main causes of child mortality.

Diarrhea-related diseases are considered one of the serious medical and social problems among the child population, especially in developing countries. According to WHO experts, diarrheal syndrome, which accounts for 3.2 episodes per child per year, is also characterized by a fairly high mortality rate among children [4-7]. According to other data, diarrhea is the third leading cause of death among children under 6 months of age. Thus, approximately 1.7 billion cases of diarrhea are recorded among children every year. The annual number of deaths from diarrhea in children under 5 years of age is 443,832, and among children aged 5-9 years is 50,851 [8]. However, despite all these facts, timely diagnosis of diarrheal diseases, development of a treatment plan, especially proper diet therapy, allows for the elimination of complications and deaths during any diarrhea. It has already been confirmed that properly designed therapeutic diet nutrition can play a powerful role in the treatment of diarrheal syndrome [6].

It has been established that a properly designed diet has a positive effect on the course of the disease and the recovery process by affecting the disturbed metabolic chain, normalizing the function of the digestive tract and activating the body's defenses.

Among the therapeutic foods used in diarrhea syndrome, especially in children under 1 year of age, special importance is given to sour-milk products [1,2]. Thus, sour-milk mixtures, which are quickly absorbed without affecting the absorption of food ingredients by reducing the pH in the digestive tract, inhibit the processes of putrefaction and fermentation in the intestine and the development of conditionally pathogenic microorganisms. At the same time, sour-milk mixtures, in addition to affecting the secretory and motor activity of the digestive tract, inhibiting the development of pathogenic microorganisms and stimulating the development of indigenous microflora, have the ability to improve the absorption of microelements such as calcium, phosphorus, magnesium and iron, and increase the body's defenses by exerting an immunomodulatory effect [3,5,7].

Thus, the intake of fermented milk products during alimentary diarrhea stimulates the development of bifidoflora in the intestine and eliminates dysbiosis, which leads to an improvement and normalization of the intestinal microbial landscape and, ultimately, the elimination of diarrhea.

Goal of the work. The causes of the development of alimentary diarrhea in breastfed children and the state of the intestinal microbiota during diarrhea were studied.

Materials and methods. The study was conducted on 36 children aged 3 months to 2 years with alimentary diarrhea. For the purpose of comparative evaluation of the results, the patients were divided into 2 groups. 28 (77.8%) patients in group I were prescribed fermented milk mixtures for dietary therapy, and 8 (22.2%) patients in group II were prescribed adapted artificial mixtures. In addition to dietary therapy, all patients were prescribed probiotic preparations such as bifidumbacterin, lactobacterin,

linex, enterol, etc. In all patients, general clinical laboratory examinations and microbiological examination of feces were performed, with the examination of the anamnestic data and characteristics of the course of the disease.

Results. Of the 36 patients included in the study, 5 (13.9%) were fed natural, 22 (61.1%) were fed artificially, and 9 (25%) were fed mixed. Almost all of the children had various background diseases. Thus, anemia was detected in 32 (88.9%) children, rickets in 24 (66.7%), atopic dermatitis in 13 (36.1%), and grade I hypotrophy in 10 (27.8%). Mothers complained of frequent loose stools with a foul odor, mucus, or greenish tinge, mostly undigested, in 26 (72.2%), regurgitation or vomiting in 22 (61.1%), bloating in 19 (52.8%), anxiety in 16 (44.4%) and anorexia in 14 (38.9%). Among the main causes of dyspepsia in children, in 19 (52.8%) cases the mother's diet in recent days was high intake of fruit and in 12 (33.3%) cases poor quality food, and in 6 (16.7%) cases the mother's despite the fact that acute intestinal disorders occurred in 68-91% of children, diarrhea syndrome appeared after consuming foods that were not appropriate for their age in terms of quantity and quality. It is known that incomplete breakdown of nutrients during such feeding creates conditions for disruption of the normal intestinal microflora and the development of conditionally pathogenic microorganisms in the intestine, which leads to increased peristalsis, accumulation of toxic products and gases in the intestine, and ultimately the development of vomiting and diarrhea. When studying intestinal mycosis, a deficiency of bifidoflora was detected in all children. Thus, bifidobacteria were detected in 13 (36.1%) patients in the 7th dilution, and in 23 (63.9%) patients in the 8th dilution. At the same time, a ten-fold increase in *Escherichia coli* and enterococci was detected, and in 3 (8.3%) patients even 100-fold. Staphylococci were detected in 6 (16.7%), molds in 8 (22.2%), and proteus in 2 (5%) patients.

The effect of the treatment was assessed by comparing the dynamic changes in clinical signs and the results of microbiological examinations. It was found that in patients in group I who received sour-milk porridge, flatulence disappeared on the 2nd day of treatment, and abdominal cramps disappeared on the 3rd day. In 25 (69.4%) patients, in whom dyspeptic disorders decreased, an improvement was also observed in the general condition, and stool normalized approximately on the 5th-6th day. In control group II, compared to group I, flatulence, abdominal cramps and other dyspeptic symptoms persisted for 2-3 days longer. Despite the fact that an increase in the level of bifidobacteria was noted in all patients against the background of treatment, while this increase was detected in 9 (25%) and 19 (52.8%) patients in group I at the 8th and 9th dilutions, respectively, in group II it was detected in 3 (8.3%) patients at the 7th dilution, and in only 7 (19.4%) patients at the 9th dilution. At the same time, a significant decrease (2.6 times) in the level of *Escherichia coli* and enterococci was also detected in all patients included in group I. Thus, although mold fungi were detected in 5 (13.9%) patients,

staphylococci and proteus were not detected in any of the children. In group II, mold fungi were detected in 7 (19.4%) patients, staphylococci in 3 (8.3%) patients, and proteus in 2 (5.6%) patients. Thus, it was once again established that the use of fermented milk mixtures during diarrhea not only prevents the development of opportunistic flora and improves the composition of the intestinal microflora, leading to the normalization of the digestive process and stool, but also stimulates the child's resistance to intestinal disorders.

Conclusion. Thus, the use of fermented milk mixtures in the complex treatment of alimentary diarrhea accompanied by intestinal microflora disruption has a positive effect on the restoration of MBT function and normal microflora in a short time. Taking all this into account, the use of fermented milk mixtures with high biological value in alimentary dyspepsia accompanied by diarrhea and intestinal dysbiosis is considered appropriate.

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