COMPOSITION OF THE INTESTINE MICROFLORA IN YOUNG CHILDREN UNDER CONDITIONS OF DIARRHEA AND RECOVERY

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INTRODUCTION

The problem of diarrhea in children of different ages remains one of the topical areas of modern medicine. The study of the characteristics of the microflora in diarrhea is associated with the development of therapeutic and preventive measures for this condition. The intestinal microflora performs important functions in the child's body, including the exchange of energy substrates and the formation of intestinal immunity. At the same time, the intestinal microflora changes during the first years of life. In addition to age-related changes, gut flora changes with nutritional status, birth path, antibiotic exposure, genetic factors, and episodes of diarrhea.

PURPOSE OF THE RESEARCH

Comparison of the characteristics of the intestinal microflora during and after treatment of diarrhea in young children.

MATERIALS AND METHODS

The intestinal flora in the feces was studied in 42 children aged 12 months to 3 years. Diarrhea was defined as an increase in the frequency of stools to at least three loose stools in 24 hours or as changes (bloody, very loose, or watery). Feces were collected during the episode of diarrhea and 2 months after the last episode of diarrhea. Fecal samples were taken in a sterile plastic container from a soiled baby diaper. Rotaviruses and adenoviruses were determined using enzyme immunoassay, noroviruses, and saroviruses – by polymerase chain reaction, bacterial enteropathogens – by traditional cultivation method.

RESULTS

When studying the features of episodes of diarrhea, it was noted that the maximum number of bowel movements in 24 hours was from 4 to 6 times (4.2±1.22). At the same time, 28.6% (12/42) had sub-febrile body temperature against the background of diarrhea, 26.2% (11/42) vomited, and 9.5% (4/42) received antibiotic therapy during the period of diarrhea. In the study of enteroflora during an episode of diarrhea, an enteropathogen was detected in 61.9% (26/42) of children. At the same time, in 14.3% (6/42) infection of a shifted category was detected, that is, both bacterial and viral enterobiota were detected at the same time. Bacterial enteropathogens were detected in 16.7% (7/42) of children, viral – in 28.6% (12/42), and parasitic – in 2.4% (1/42) of children. Viral enteropathogens identified in diarrhea stool samples included norovirus (12/42), rotavirus (4/42), and sapovirus (2/42).

Bacterial enteropathogens identified in diarrhea stool samples included E.coli (9/42), Shigella flexneri (2/42), and Campylobacter spp. (2/42). Feces were re-examined 2 months after the last episode of diarrhea. At the same time, in the recovery period, enteropathogens were partially preserved. In particular, enteropathogens of viral etiology were found in 7.1% (3/42), bacterial – 14.3% (6/42), and mixed category – 11.9% (5/42) of children. The microbial composition both during diarrhea and after recovery was dominated by proteobacteria, cyanobacteria, actinobacteria, bacteroids, and verrucomicrobes. In addition, an increase in the number of lactobacilli was found at the end of episodes of diarrhea, and then there was a decrease in their number in the second month after the last episode of diarrhea.

CONCLUSIONS

In the etiopathogenesis of diarrhea in young children, along with bacterial microflora, enteropathogens of viral etiology are of great importance, they account for up to 28.6% of cases of diarrhea in these children.