STATE OF INTESTINAL MICROBIOTA IN YOUNG CHILDREN WITH CONGENITAL HEART DEFECTS

Rabbimova Dilfuza Toshtemirovna

Doctor of Medical Sciences, Associate Professor, Head of the Department of Propaedeutics of Children's Diseases, Samarkand State Medical University

Abstract. The article presents data on the state of the digestive tract in children with congenital septal heart defects. Most of the examined patients were found to have intestinal dysbiosis of varying severity, which requires timely diagnosis and correction to improve treatment results.

Keywords: children with septal congenital heart defects.

INTRODUCTION

Among the diseases of the cardiovascular system in young children, congenital heart defects (CHD) and blood vessels occupy a leading place [1]. In turn, CHD lead to disability of the child population, high mortality, development of various complications and changes in the organs and systems of the body [3]. Against the background of organic pathology of the cardiovascular system, dysfunction of other organs and systems of the body occurs.

MATERIALS AND METHODS

When studying the clinical and anamnestic data of 102 young children with congenital septal heart defects, it was found that 80 of them (78.4%) had gastrointestinal syndrome, manifested by regurgitation, intestinal colic, flatulence, and changes in the nature of the stool. Stool disorders predominated in 61 children (59.8%), abdominal distension in 53 children (52.0%), flatulence in 49 (48.0%), and foul-smelling stool in 45 (44.1%). Assessing the state of the microbial landscape of the oropharynx in young children with septal heart defects, it should be noted that the greatest proportion was accounted for by Candida albicans fungi, found in 26 children (25.5%). The second place in the structure of microflora was

occupied by Staphylococcus aureus. It was determined in 24 patients (23.5%). Of the streptococci, the most frequently detected growth was pneumococcus (Streptococcus pneumonia) - in 16 children (15.7%).

RESULTS AND DISCUSSION

In isolated patients, the intestinal microflora, Escherichia coli and Enterococcus faecalis, were detected in the oropharyngeal microbiocenosis. Klebsiella pneumonia dominated among enterobacteria – in 8 children (7.8%). The presence of mainly yeast-like fungi Candida albicans, Staphylococcus aureus and pneumococci in the oropharyngeal microflora of young children with congenital septal heart defects may be one of the factors causing a decrease in the body's immune systems and thereby aggravating the course of the underlying disease. The data obtained are presented in Figure 2. It was found that intestinal dysbiosis in 63 children (61.8%) was associated with a decrease in bifido- and/or lactobacilli in the microbial landscape of the large intestine. An increase in the total number of E. coli was found in 60 children (58.8%), normal and decreased numbers were found in 22 and 18 children (21.6 and 17.6%), respectively. Hemolyzing E. coli were found in 21 children (20.6%). An increased content of lactose-negative enterobacteria was observed, which were represented by microorganisms of the genus Klebsiella (K. pneumonia, K. oxytoca) in 24 children (23.4%), Citrobacter C. freundi in 15 (14.7%), Enterobacter (E. cloacae) in 9 (8.8%), and Serratia (S. adorifera) in 3 (2.9%). Coccal flora in 32 patients (31.4%) was represented by Enterococcus (E. faecalis), in 12 (11.8%) – by plasmacoagulating staphylococcus, in 6 (5.9%) – St. aureus, in 3 (2.9%) – Str. epidermidis. It was revealed that in 45 children (44.1%) intestinal dysbiosis was associated with the presence of yeast-like fungi of the genus Candida (C. albicans) in amounts exceeding the permissible norm. The obtained results indicate a decrease in the content of normal microflora of the digestive tract and activation of opportunistic flora. An increase in the number of the latter is observed due to microorganisms of the genus Klebsiella and hemolyzing E. coli. Activation of pathogenic microorganisms was revealed due to plasmacoagulating staphylococcus.

An increase in the contamination of a particular section of the gastrointestinal tract with opportunistic microflora reduces its bactericidal properties and can serve as an indicator of a decrease in the immunological reactivity of the macroorganism.

The majority of those examined - 93 children (91.2%) of early age with congenital septal heart defects - were found to have dysbiosis of the large intestine of varying severity. Dysbiosis of the second and third degrees was most often diagnosed, in 46 (45.1%) and 34 patients (33.3%), respectively. Dysbiosis of the first degree of the intestine was found in 13 children (12.7%), and dysbiosis of the fourth degree was not detected in any case. Only 9 children (8.8%) were not found to have disturbances in the composition of the intestinal microflora. Analysis of the intestinal microflora composition in the observation groups showed the following: in the 1st group there were 50 children (86.2%) with intestinal dysbiosis. Normal composition of the intestinal microbiocenosis was observed only in 8 children (13.8%). Intestinal dysbiosis of the 1st degree was detected in 8 children (13.8%), 2nd and 3rd degrees - in 21 (36.2 and 36.2%, respectively). In the 2nd group, intestinal dysbiosis was observed in 31 children (96.9%), of which 7 (21.9%) had the 1st degree, 16 (50%) - the 2nd, and 8 (25%) - the 3rd. No clinical and microbiological disorders were detected in 1 child (3.1%).

It is noteworthy that in the main group 66 children (64.7%) received antibiotic therapy in the first year of life. In the structure of the transferred diseases, acute upper respiratory tract infections prevailed in 51 children (50.0%), pneumonia - in 18 (17.6%). The high level of gastrointestinal tract damage in the form of colon dysbiosis in 93 young children (91.2%) with congenital septal heart defects is probably also associated with frequent use of antibiotic therapy. The presence of gastrointestinal syndrome, disturbances in the microbiological landscape of the oropharynx and lower gastrointestinal tract are factors complicating the course of congenital septal heart defects in young children, which complicates timely surgical treatment.

CONCLUSION

Thus, it is necessary to correct dysbiotic disorders depending on the severity and clinical manifestations - balanced nutritional support, pro- or prebiotics, enzyme preparations, bacteriophages, enterosorbents. In children with grade 3 intestinal dysbiosis, it is necessary to decide on the appointment of antibiotics for decontamination of "problem" microorganisms.

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