ETHIOPIAN INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 11, Issue 02, Fev-2024 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

DYSBIOSIS IN CHILDREN: TREATMENT AND PREVENTION

Yunusov D.M.

Assistant Department of Propaedeutics and Polyclinic Pediatrics of Children's Diseases. ASMI.

Introduction: Studies of the intestinal microflora in children have become widespread and not always justified. The diagnosis of intestinal dysbiosis has become one of the most popular among pediatricians (in the absence of an appropriate cipher in ICD 10). In foreign literature, the terms "violation of bacterial homeostasis", "dysbiosis" and "violation of normal intestinal flora" are more often used. Whatever term is used, disorders of the intestinal microflora in children are quite real and common, requiring close study and discussion. Intestinal eubiosis is optimal the ratio of microorganisms, representatives of the normal intestinal flora, which are located in the distal part of the small intestine (in small quantities) and in the colon (in the overwhelming majority).

Keywords:Intestinal dysbiosis, diagnosis, treatment, children.

Intestinal dysbiosis (dysbiosis) is a change in the quantitative ratios and qualitative composition of its microflora, characterized by a decrease in the number or disappearance of microorganisms usually present with the appearance and dominance

of atypical, rare or unusual forms [2, 4].

Intestinal dysbiosis (dysbiosis) cannot be used as the main diagnosis, it is always secondary and has no specific clinical equivalents. That is why it is more correct to talk not about treatment, but about the correction of this condition. Dysbiosis bowel disease occurs more often and faster in children of the first year of life. Any intestinal infection at this age is accompanied by dysbiosis in 100% of cases. Dysbiosis complicates and delays the course of the underlying disease.

It can be both an unfavorable background condition and a complication for him. Microorganisms that normally inhabit the colon are divided into 3 groups:

1) main (bifidobacteria and bacteroids);

2) concomitant (lactic acid bacteria, strains of full-fledged E. coli, fecal enterococci);

3) residual (E. coli with reduced enzymatic properties, coccoid forms, occasionally mushrooms, proteus, etc.).

Dysbiosis in children is characterized by a persistent violation of intestinal microbiocenosis, a change in the ratio of obligate and facultative intestinal microflora in use the latter. The problem of dysbiosis in children is the most urgent in pediatrics,

since according to modern research, a violation of intestinal biocenosis is detected in 25-50% of healthy infants. Among children with somatic and infectious diseases (intestinal infections, enteritis, colitis, allergic dermatitis, etc.), intestinal dysbiosis of varying severity is found in almost 100% of cases.

The birth of a child is associated with its transition from a sterile intrauterine environment to the surrounding world is populated by a variety of different microorganisms. Almost immediately, the

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 11, Issue 02, Fev-2024 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

newborn's body undergoes microbial colonization. The child receives the main part of the obligate microflora from the mother (during the progress along the birth canal, during breastfeeding), which is crucial for his subsequent health. Immune factors present in colostrum and breast milk (secretory IgA, lysozyme, lactoferrin, macrophages, bifidus factor, etc.), block colonization of the intestine by conditionally pathogenic flora. Therefore, for the prevention of dysbiosis in a child, it is extremely important to apply it early to the mother's breast (in the first 30 minutes, but no later than 2 hours after birth).

During the first 3-5 days of life, the microbial landscape of the intestine becomes more diverse, and in it, along with beneficial bacteria, opportunistic microorganisms settle in large numbers. As a result, in the first week of newborns children develop transient intestinal dysbiosis, manifested by regurgitation, unstable watery stools with an admixture of mucus, and spastic pain. Transient dysbiosis in children usually ends in the second week of life, as bifidobacteria and lactobacilli displace other representatives of the intestinal microbiocenosis. However, in the presence of aggravating factors, the normal microflora is not formed, and transient dysbiosis in children turns into a true one.

The main causal factors of intestinal dysbiosis:

- gross feeding disorders (late application of the newborn to the mother's breast, early transfer to artificial feeding);

- irrational use of antibiotics, especially of a wide spectrum of action;

- acute and chronic gastrointestinal diseases of infectious and non-infectious nature;

- treatment with immunosuppressants, cytostatics, radiation therapy;

-non-sanitized foci of chronic infection and frequent intercurrent diseases.

All representatives of the intestinal microflora in gastroenterology are divided into 4

groups: obligate, facultative (conditionally pathogenic), transient and pathogenic flora. Transient flora is not typical for the human body, and is temporary, accidental in nature. Representatives of the pathogenic intestinal flora are pathogens of infectious diseases (dysentery, salmonellosis, etc.), which are normally not present in the intestine.

Obligate flora (bifidobacteria, lactobacilli, E. coli) regulates immunity; participates in the process of digestion, metabolism, synthesis of vitamins and enzymes; it stimulates the motility of the gastrointestinal tract. Facultative flora (Staphylococcus aureus and epidermal staphylococcus, Enterobacter, proteus, klebsiella, clostridium, yeast fungi of the genus Candida) normally makes up no more than 0.6% of the total number of microorganisms and, in the normal state of the immune system, does not cause diseases. However, with a decrease in the body's resistance, a change in the species and quantitative ratio of obligate and facultative microflora, dysbiosis develops in children.

The causes leading to dysbiosis in children are diverse and begin to act already in the prenatal period or shortly after the birth of a child. Violation of bacterial intestinal homeostasis may be associated with a complicated course of pregnancy and childbirth, late application to the breast, prematurity of the child, the presence of bacterial vaginosis in the mother.

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 11, Issue 02, Fev-2024 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

The development of dysbiosis in infants may be due to poor nutrition of the nursing mother, the occurrence of mastitis, early transfer of the child to artificial feeding, frequent acute respiratory infections, diathesis.

In children of early, preschool and school age, irrational nutrition with a predominance of excess carbohydrates and animal protein in the child's diet, environmental pollution, long-term treatment with antibacterial and hormonal drugs, and stress are factors in the development of dysbiosis.

Intestinal infections, diseases of the digestive system (lactase deficiency, gastritis, pancreatitis, enterocolitis, constipation), parasitic invasions (ascariasis, giardiasis), the presence of non-sanitized foci of chronic infection (caries, tonsillitis), diseases that occur with a decrease in immunity (diabetes mellitus, oncopathology, cirrhosis of the liver, HIV, etc.).

Symptoms of dysbiosis in children In newborns and infants, dysbiosis is accompanied by regurgitation, vomiting, flatulence, rumbling and cramps along the intestinal tract. The child does not gain enough body weight, behaves restlessly, sleeps poorly. The stool of a child with dysbiosis is usually liquid or mushy, abundant, foamy with an admixture of lumps or mucus, of an unusual color (white, greenish), with a putrid or sour smell.

Malabsorption syndrome develops diarrhea, steatorrhea, hypotrophy, and polyhypovitaminosis. Endogenous intoxication with dysbiosis in children is accompanied by polydeficiency anemia, delayed physical development, and decreased appetite. The processes of fermentation and putrefaction in the intestine cause autoallergization and the development of dermointestinal syndrome (urticaria, atopic dermatitis). Manifestations of asthenoneurotic syndrome include irritability, weakness, and sleep disorders.

At an older age, dysbiosis in children can occur with constipation, diarrhea or their alternation; intestinal colic, belching, bad breath, a feeling of fullness of the stomach after eating. Secondary extra-intestinal manifestations of dysbiosis in children associated with hypovitaminosis, metabolic disorders, decreased immunity can be congestion in the corners of the mouth, stomatitis, furunculosis, acne, brittle hair and nails, etc.

Generalized dysbiosis usually develops in children with an immunodeficiency condition and proceeds according to the type of candidamycosis with the phenomena of thrush, glossitis, cheilitis, lesions of smooth skin, vulvitis or balanoposthitis, visceral candidiasis. The diagnosis of dysbiosis is preceded by an examination of the child by a pediatrician and a pediatric gastroenterologist, laboratory tests and additional instrumental studies. With the help of a physical examination of children, the condition of the skin and mucous membranes is assessed; palpation of the abdomen reveals soreness along the course of the intestine.

In young children, regurgitation, vomiting, a decrease in the rate of weight gain, anxiety, and sleep disorders are observed. The stool may be profuse, runny, or mushy, foamy, with white lumps, greenish with a sour or putrid smell. Abdominal pain is paroxysmal, appears 2-3 hours after eating, accompanied by bloating, rumbling, urge to defecate. With disorders of intestinal absorption, the clinical picture is dominated by diarrhea with putrefactive fermentation, steatorrhea, flatulence, weight loss, symptoms of polyhypovitaminosis, intolerance to many food ingredients and a toxic-dystrophic condition may develop. In the pathological process involves the hepatobiliary system and pancreas, there is a deficiency of enzymes and bile acids. All this aggravates malabsorption and closes the vicious cycle of metabolic processes in the body. Macromolecules of partially digested

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 11, Issue 02, Fev-2024 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

food accumulate, which become allergens and cause dermointestinal syndrome (a variant of allergodermatosis).

Laboratory diagnostics usually includes bacteriological or biochemical examination of feces for dysbiosis. Microbiological criteria of dysbiosis in children. There is a decrease in the number of bifidobacteria and lactobacilli, a decrease or increase in the number of normal E. coli, as well as the appearance of their modified strains, the detection of gram-negative bacilli, an increase in the number of cocci, fungi, clostridium. The biochemical analysis is based on determining the level of metabolites of volatile fatty acids (propionic, acetic, butyric) produced by microorganisms living in the gastrointestinal tract.

To find out the cause of dysbiosis in children, ultrasound of the abdominal cavity, gastroscopy, biochemical liver tests, analysis of feces for giardia and helminth eggs can be prescribed. The study of the coprogram allows you to identify the degree of violation of the splitting and absorption of food.

If dysbiosis is suspected in children, it is important to exclude non-specific ulcerative colitis, OKI, malabsorption syndrome.

Treatment of dysbiosis in children

Treatment of dysbiosis in children begins with the selection of individual diet therapy.

Fermented milk products are introduced into the diet of mixed-fed children. Sugars, carbohydrates, and animal proteins are limited in the diet of older children; lactic acid products enriched with biocultures and dietary fibers are recommended to restore normal intestinal microflora.

In case of intestinal dysbiosis in children, probiotics are prescribed – drugs containing

monocultures or combinations of beneficial bacteria; prebiotics that promote growth and reproduction of microbes of the normal intestinal flora; symbiotics - combined

drugs.

For the purpose of selective decontamination of the intestine in dysbiosis in children, bacteriophages lysing pathogenic bacteria are used, and if ineffective, antibiotics (macrolides, cephalosporins). Treatment of candidiasis dysbiosis in children is carried out with antifungal drugs (nystatin, fluconazole).

In the case of severe digestive disorders, enzymes are prescribed, and the intake of sorbents is indicated for intoxication. Immunomodulatory therapy with adaptogens and vitamin therapy are often recommended for sick children.

There are several groups of probiotics:

1. Bifid-containing drugs (bifidumbacterin, bificol, bifilong, bifiliz, bifidum-bacteriinforte).

2. Preparations of la ktoba kterium (la ktobakter in, acipol, acylact, euflorin (normoflorin).

3. Combinations of bifidolactobacteria and sometimes other microorganisms (linex, primadophilus for children, primadophilus bifidus).

4. Preparations of E. coli (colibacterin dry) and combinations of E. coli and other bacteria (bifikol).

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 11, Issue 02, Fev-2024 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

5. Biologics with antagonistic activity (enterogermin, bactisubtil, sporobacterin, biosporin, bactisporin, enterol).

6.Probiotics of the metabolic type are drugs created on the basis of components of microbial cells or products of their vital activity.

By engaging in metabolism, they regulate the functions of the mucous membranes of the body (hilacforte, gastropharm, bioflor). Probiotics are used for 2 to 4 weeks. When including medicines of this group in the treatment complex, it is necessary in each case to approach the analysis of the composition of the drug, the patient's state of health and the choice of the age dose with high professional responsibility (according to the instructions). In addition to probiotics, prebiotics are also used to correct intestinal dysbiosis.

Prebiotics are indigestible ingredients that benefit the body by stimulating the selective growth or activity of certain microbes –representatives of the normal microflora. These include: lactulose (dufalac, normase), oligosaccharides (fructo- and galactooligosaccharides), polysaccharides (inulin, pectin, dietary fiber). Gastrointestinal sorption is one of the modern methods of improving the correction of intestinal dysbiosis. Various enterosorbents are used, which they adsorb pathogenic microbes, their waste products, and absorb allergens. These include: activated carbon, methyl silicic acid hydrogel (enterosgel), diosmectite (smecta), polyphepan, alginatol, natalcide. Their advantage is a high degree of safety, absence of complications and contraindications.

Improvement of the motor-secretory function of the digestive tract in intestinal dysbiosis is achieved by drugs that reduce flatulence and improve the functional state of the stomach and pancreas (creon, panzinorm, pancitrate).

Enzyme therapy (in age-related doses) lasts from 2 to 3 weeks. In case of flatulence, dill water, chamomile decoction, activated charcoal, simeticone are prescribed.

In case of dysbiosis, immunomodulatory drugs (for 2-3 weeks in age–related doses), adaptogens, vitamins, phytotherapy can also be prescribed according to indications.

Prevention

The key to the formation of a normal intestinal microflora in a child is to take care of

the health of the expectant mother: pregnancy planning, balanced nutrition during pregnancy, treatment of bacterial vaginosis, observance of the daily routine and rest, exclusion of nervous shocks.

The very first measures to prevent dysbiosis should be the early application of the child to the breast in the delivery room and the preservation of breastfeeding for at least six months, the gradual introduction of complementary foods. Treatment is needed chronic diseases of the digestive system, prevention of intestinal infections. To

prevent the development of dysbiosis, antibiotic therapy in children should be carried out under the guise of probiotics or prebiotics.

Prevention of intestinal dysbiosis includes early application of the child to the mother's breast (within half an hour after delivery), prophylactic administration of probiotics to pregnant women and newborns from risk groups, the use of drugs that do not inhibit colonization resistance (cephalosporins, macrolides) if necessary antibiotic therapy, the use of antibiotic-resistant probiotics

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 11, Issue 02, Fev-2024 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

or prebiotics, fermented milk products or special biologically active additives containing lysozyme and bifidobacterin, against the background of antibiotic therapy in children.

Literature:

1 . Postnikova, E.A. The study of the qualitative and quantitative composition of the intestinal microflora in clinically healthy children at an early age / E.A. Postnikova [et al.] //Journal of Microbiology. - 2004. – No. 1. – pp. 67-69.

2. Shcherbakov, P.L. Intestinal microecology in children and its disorders / P.L. Shcherbakov [et al.] // Pharmateka. - 2007. – No. 4. – pp. 28-3 4.

3 . Agostoni, C. Probiotic bacteria in dietetic products for infants : a commenta ry by the ESPG H AN Committee on N u trition / C. Agostoni. [et. al.] // J. Pediatr. Gastroenterol. Nutr. – 2004. – № 38. – P. 365-37 4.

4. Baranov A.A., Shcherbakov P.L. Topical issues of pediatric gastroenterology // Issues of modern pediatrics. 2002. Vol. 11. No. 1. pp. 12-17.

5. Kopanev Yu.A., Sokolov A.L. Intestinal dysbiosis: microbiological, immunological, clinical aspects of microecological disorders in children. M., 2002.

6. Samsygina G.A. Features of the formation of intestinal biocenosis and intestinal dysbiosis // Attending physician. 2003. No. 5. pp. 52-57.

7. Sultanova O.D. The state of intestinal microecology in frequently and long-term ill children:The author's abstract. ... dis. candidate of Medical Sciences. M., 2005.

8. Ursova N.I., Rimarchuk G.V. Modern ideas about intestinal dysbiosis in children //

Consilium Medicum. 2001. Vol. 3. No. 8. pp. 25-28.