

Features of Functional Dyspepsia in Children of Early Age

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Abstract: Today, the Rome Criteria IV revision (2016) is the main consensus document at the international level, which contains section G, which combines the diagnosis of functional disorders in infants and children of the first 4 years of life. Clinical recommendations “Functional disorders of the digestive organs” (FDOP) were created on the basis of the 2016 Rome IV criteria developed by experts of the World Gastroenterological Organization (WGO).

Keywords:- dyspepsia, child, gastrointestinal, functional dyspepsia.

Introduction

Diarrhea (διάρροια) translated from Greek means “to flow through.” Diarrhea, diarrhea (Rome IV, G5) - frequent (3 times or more) loose stools (so loose that they take the shape of the vessel in which they fall) within 24 hours, often accompanied by pain in the abdomen, urgency and anal incontinence. Functional diarrhea of infants (FDI) is a benign, chronic diarrhea in an infant, toddler, or preschool-age child who appears healthy, has normal physical, psychomotor, and cognitive development, and has no signs of any systemic, infectious disease, malabsorption, or malnutrition.

The disease is also known as chronic nonspecific diarrhea of infancy or irritable bowel in infants .

The causes of functional diarrhea (FD) are not precisely defined. Among the possible mechanisms for accelerating the motor function of the gastrointestinal tract, nutritional factors are considered primarily: excessive consumption of fruit juice; a diet high in simple carbohydrates, low in fat and dietary fiber, as well as disorders of the brain-gut axis, genetic predisposition, environmental factors, and previous intestinal infection [1].

It has been noted that in children of the first year of life, stool liquefaction occurs when the rules for introducing complementary foods are violated; in children who are only breastfed - if the mother's diet is violated. In addition, the process of teething in young children can also be accompanied by diarrhea. There is an opinion that age-related inhibition of the lactase enzyme is associated with the excitation of genes responsible for dentition, which causes stool thinning in the baby.

Taking certain medications, such as laxatives, antibiotics, drugs containing bile acids, non-steroidal anti-inflammatory drugs, antacids and others, can also cause diarrhea.

In the genesis of the development of FDM, several mechanisms are distinguished.

1. Impaired absorption of carbohydrates.

- The ability of the small intestine to metabolize fructose is limited. Foods containing equivalent amounts of fructose and glucose are more easily absorbed due to the additive effect (mutually reinforcing the effect of each) of the glucose-dependent fructose transport mechanism.
- Excessive consumption of juices high in sorbitol, which inhibits the absorption of fructose, or juices with a high fructose to glucose ratio (eg, apple juice) leads to fructose malabsorption and increased

gas production in the intestinal lumen caused by bacterial fermentation. As a result, the child experiences bloating, severe flatulence and diarrhea.

- Function of the large intestine. The colon's ability to ferment unabsorbed carbohydrates into short-chain fatty acids, which support colonocyte function and prevent the development of diarrhea.

2. Impaired motility of the digestive tract - reducing the transit time of food chyme from the oral cavity to the anus. As a result of the accelerated passage of intestinal chyme, there is an increase in the frequency of bowel movements and a deterioration in fluid absorption in the lower parts of the colon. If during normal transit of chyme through the intestine the stool contains 60–70% water, then with diarrhea the water content in the stool increases to 75–90%. Persistence of immature intestinal motility pattern; failure to initiate normal postprandial (after eating) delayed gastric emptying. Excessive fluid intake. The infant's colon works with high efficiency (in children, more fluid reaches the cecum). Excess fluid intake can lead to diarrhea. Excess fecal bile acids. Rapid transit of chyme results in an excess of conjugated bile salts moving from the small intestine to the large intestine (cecum)[2].

Bacterial degradation results in the formation of unconjugated bile salts, which reduce net water absorption in the colon.

In most cases, the frequency of bowel movements with functional diarrhea increases up to 3-5 times a day, less often - up to 6-8 times, and there is also a change in the consistency of stool (stool shape according to the Bristol scale - type 6 or 7), since stool consistency directly correlates with the rate of transit through the colon. Moreover, the more often bowel movements occur, the smaller the volume and lower the density of feces. After three years of age, diarrhea is defined as stool volume exceeding 200 g per day.

Rumbling, flatulence and a feeling of incomplete bowel movement (in older children), false and imperative urges are usually observed with a significant increase in the frequency of bowel movements. As a rule, these symptoms are mild or moderate. Palpation reveals bloating and slight pain in the abdomen without clear localization of pain. Sometimes the zone of maximum algosia is located in the projection of the sigmoid colon[3].

The Rome Consensus IV revision (2016) defined the following diagnostic criteria for functional diarrhea: manifestation of symptoms between the ages of 6 months and 3 years; daily painless repeated bowel movements with the passage of unformed stools 3 times a day or more (25% of all bowel movements) without the predominance of abdominal pain or debilitating bloating; symptoms persist for more than 4 weeks; symptoms in the morning (when he wakes up), no night symptoms; there are no signs of impaired physical development; with age, symptoms disappear on their own; there are no other pathological symptoms [4,5].

The child's diet should be designed taking into account the use of four components that underlie the genesis of the development of functional diarrhea (fruit juice, liquid, dietary fiber and fat): excessive consumption of fruit juices is not recommended, especially those that contain sorbitol and have a high fructose to glucose ratio (eg, apple juice, pear nectar); apple juice with pulp or natural grape juice (directly pressed juice without dyes, preservatives, sugar or sweeteners) can serve as a safe alternative; dietary fiber consumption should be normalized by introducing whole grain bread and fruit into the child's diet, that is, foods that provoke increased intestinal motility should be excluded from the diet; the daily amount of dietary fat intake should be at least 35–40% of the total energy intake: this can be achieved by replacing low-fat milk with whole milk; it is necessary to limit the amount of liquid in the diet to 90 ml/kg/24 hours if there is evidence that the child consumes liquid

in volume we eat about 150 ml/kg per day. Normalization of the quality characteristics of stool occurs from several days to two weeks after the start of the above-mentioned diet therapy.

Elimination diets should be avoided as they may lead to a low-calorie diet. To date, no large-scale studies have been conducted on the use of any dietary techniques for FD. In case of severe diarrheal syndrome, while observing the above measures for diagnostic and therapeutic purposes, it is recommended to transfer the child to a therapeutic formula based on amino acids or deep hydrolysis of milk protein (whey or casein), lactose-free, enriched with MCTs, for 2–4 weeks.

If diarrhea was provoked by taking medications, therapy is adjusted with the abolition of these medications. Among medications, young children can be prescribed adsorbents (Smecta, Enterosgel, Zosterin Ultra), enzyme preparations (Creon) and probiotics. Although there are currently no clinical studies looking for evidence of this assumption in young children with FD.

Rererences:

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