FUNCTIONAL DISORDERS OF THE DIGESTIVE ORGANS IN EARLY CHILDREN. RUMINATION

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Abstract

The goal is to focus medical practitioners' attention on rumination, which is common in young children, and to increase their knowledge in this area through wider implementation.

The article describes rumination, its epidemiology, classification, etiology, pathogenetic factors, clinical picture, diagnosis, differential diagnosis based on Roman criteria and modern recommendations, medicinal milk formulas and other treatment methods.

Key words: children, functional disorders of the digestive system, rumination, diagnosis, treatment.

Реферат

Цель – привлечь внимание и ознакомить врачей общей практики на часто встречающие функциональные нарушения органов пищеварения – руминацию, свойственную детям раннего возраста, повысить их знания в этой области путем более широкого внедрения.

В статье описывается синдром руминации, раскрыта эпидемиология, классификация, этиология, патогенетические факторы, клиническая картина, диагностика, дифференциальная диагностика, а также приведены методы диетической терапии, и другие методы лечения основанные на римских критериях и современных рекомендациях.

Ключевые слова: дети, функциональные нарушения органов пищеварения, руминация, этиопатогенез, диагностика, лечение.

Introduction. In functional disorders (FD) of the gastrointestinal tract (GIT) in young children, the occurrence of clinical symptoms is not associated with organic changes (structural abnormalities, inflammatory changes, infections or tumors) and metabolic disorders of the gastrointestinal tract in children [3].

With functional disorders of the gastrointestinal tract, motor, evacuation and secretory functions, digestion and absorption of food can be disrupted, as well as the activity of the intestinal microbiota and the immune system is disrupted. The causes of FD often go beyond organ damage, that is, the activity of the digestive tract may be associated with disorders of nervous and humoral regulation [3,5].

The occurrence of FD in the first months on the part of the child is due to the anatomical and physiological features of the development of the GIT, as well as a violation of

the regimen and technique of feeding the child on the part of the mother. In most cases, the physical, social and mental state of the mother determines the occurrence of GIT FD in her child. It is noted that GIT FD is often observed in the first, long-awaited children and elderly parents [6].

However, untimely treatment of FD of the digestive organs in the first months of a child's life (with medications, regulation of the diet and quality of nutrition, elimination of causes on the part of the mother), despite the absence of organic changes, can lead to the development of chronic diseases in the future [7].

In addition, it should not be forgotten that in children, especially in the first six months of life, GIT function disorders most often occur in various combinations, in fewer cases individually. Functional disorders are most common among infants: vomiting - 23.1%, intestinal colic - 50-70%, functional constipation - 17.6% of cases [4].

According to the Roman criteria III, IV (2006, 2016) - GIT FD in young children (0-3 years old) are divided into 7 groups (G): regurgitation, rumination, cyclic vomiting syndrome, intestinal colic, functional diarrhea, dyschesia and functional constipation [2].

G2. Rumination syndrome

Definition and description

- • The word “rumination” comes from the Latin word “ruminor”, which means constant chewing. This is a pathological condition that can occur in both children and adults.
- • The third and fourth revised Roman Criteria define rumination in children and teens as repetitive regurgitation or regurgitation with chewing food that begins soon after eating, is not accompanied by nausea and does not occur during sleep.
- Infantile rumination syndrome is a rare functional disorder characterized by the habitual repetitive regurgitation of recently swallowed food back into the mouth with contraction of the abdominal muscles, diaphragm and tongue. The regurgitated food is chewed by the child, and then swallowed or spat out again.
- • Rumination is characterized by an early start in 3-8 months of a child's life and the absence of influence on changes in eating habits and type of feeding. This condition may be a symptom of deprivation or severe organic damage to the central nervous system.
- • Infant rumination is a life–threatening psychological disorder resulting from psychosocial deprivation. Rumination is not associated with nausea or vomiting and can be arbitrary. Relapses occur several times a week, usually every day.

Epidemiology

Although the epidemiology of GIT FD (regurgitation, colic, constipation) in children, it is sufficiently covered in the literature, there are not enough sources of information about the prevalence of rumination. According to various data, the frequency of regurgitation in children ranges from 0.1 to 4%, in adults - from 0.8 to 8%. It is often combined with feeding disorders (20% of cases) and fibromyalgia [8,10].

Etiopathogenesis

Regurgitation can occur in infants, children, teens, and adults. In adults, rumination occurs in bulimic disorders based on anorexia nervosa. Regurgitation occurs consciously or unconsciously and can often be diagnosed by a doctor. Some patients are aware of their condition and feel socially awkward, often trying to hide it by covering their mouth with their

hands or restricting eating. They often do not decide whether to eat with other people.

Because of rumination, children can be teased at school, and it is also harmful to teeth — gastric acid destroys the enamel.

It is important to know: the child regurgitates simply undigested food that does not have an obvious sour taste.

The Roman criteria are currently the main guideline for doctors dealing with functional diseases of the gastrointestinal tract. It should be noted that functional disorders are primarily associated with a violation of the interaction of the "brain-gastrointestinal tract".

Sometimes rumination is associated with a deficiency of mass.

Both doctors and patients themselves often confound rumination with other gastroenterological diseases, usually with gastroesophageal reflux disease (GERD). In addition, in parallel with rumination, children may experience abdominal pain, nausea and intestinal problems – constipation or diarrhea. In this sense, functional disorders are combined in one child due to common developmental mechanisms. Due to the similarity of the mechanisms of the general development of functional disorders in this child, doctors combine rumination with other FD.

How often does rumination combine with other functional disorders of the gastrointestinal tract?

• in case of abdominal pain – in 23-38% of cases
• with nausea – at 17-30%
• in case of constipation – in 21-23% [4]

Because of this confusion, they may spend time on fibrogastroduodenoscopy (FGDS), stomach X-ray and esophageal pH determination before the child is diagnosed with rumination.

Unfortunately, with functional tests of the esophagus and stomach, episodes of regurgitation often distort the results of the research, which can confuse doctors even more.

Doctors divide children with rumination into three main groups:

- • children of the first years of life
- • older children without neuropsychiatric disorders
- • older children with abnormalities in neuropsychiatric development (usually the help of a gastroenterologist is not required here, they are dealt with by specialized experts)

Doctors explore the mechanisms of rumination as follows: the main research is high–precision manometry of the esophagus – simultaneously with the assessment of resistance of esophageal tissues – impedance. This research is appointed in the case when the clinical picture is not completely clear to the doctor.

Proposed rumination mechanisms:

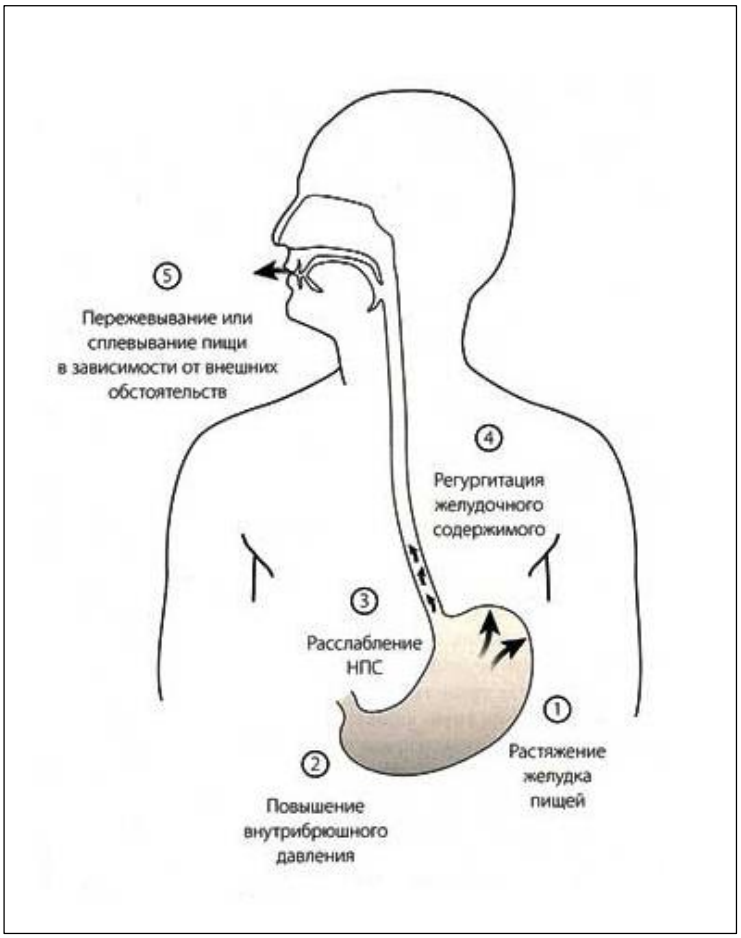
- • tics similar to traction
- • rumination due to gastroesophageal reflux disease
- • rumination is secondary to other functional disorders of the gastrointestinal tract (for example, as an attempt to relieve pain or pressure in the stomach).

In the second case, the initial functional disorder may have already disappeared, but the secondary rumination continues. Delayed gastric emptying is detected in 30-46% of children with regurgitation.

Rumination syndrome is not accompanied by discomfort and does not precede a feeling of nausea, it is not observed during sleep and when the child communicates with others. To identify this syndrome, it is necessary to secretly observe the child, since the child feels that he is being watched.

A child with rumination may develop alimentary insufficiency due to insufficient intake of nutrients, often sensory and emotional deficiency. Similar disorders often occur during hospitalization, in children who do not have enough communication with their mother.

Rumination refers to diseases of the stomach, not the esophagus. There are two ways to objectively identify rumination episodes [8]:



- The use of impedancometry and manometry. Criteria: a rapid increase in gastric pressure above 30 mmHg, at which food is returned from the gastric to the esophagus, and is determined using impedancometry.• Using pH impedancometry. Rumination episodes are considered high (17 cm above the lower esophageal sphincter) in the resence of acid reflux within 1 hour after eating.**Pathophysiology of rumination syndrome** [9]

Increased intra-abdominal pressure

Distension of the stomach by

Relaxation of the lower food sphincter

Regurgitation of gastric contents

chewing or spitting food depending on external

Diagnostics

Parents often complain to the pediatrician during a preventive checkup. However, in some cases, without requesting help, parents begin to treat the child on their own. In principle, parents understand that intestinal dysfunction is observed in most babies. However, it is possible to help the child by understanding the causes of violations. And often it should be done by a pediatrician.

Diagnostic criteria

The presence of all the following symptoms in the last 3 months:

1. Repetitive contraction of the abdominal muscles, diaphragm and tongue.

2. Food from the gastric enters the mouth and is coughed up or chewed repeatedly.
3. The presence of 3 or more of the following signs:
- the start is from 3 to 8 months,
- in gastroesophageal reflux disease (GERD), there is no reaction to anticholinergics, manual retention, substitution of milk mixture, probe nutrition or gastrostomy measures,
- it is not accompanied by nausea or anxiety,
- it does not occur during sleep and in contact with others,
- the period of repeated regurgitation is ≥ 1 month,
- it starts right after eating,
- not observed during sleep.
4. The presence of all of the following signs for at least the last 3 months:
- multiple contractions of the abdominal muscles, diaphragm and tongue
- regurgitation of gastric contents into the mouth, regurgitated or chewed and re-swallowed
5. The presence of 3 or more of the following signs (beginning from 3 to 8 months):
- measures used in GERD include the administration of anticholinergic drugs
- forced feeding through a probe or gastrostomy
- No nausea and anxiety
- it is not observed during sleep and when communicating with others

Observation tactics

For diagnosis, it is necessary to observe rumination. Identification of violations in the relationship between children and caregivers. Rumination can be aggravated by the tension that accompanies the diagnostic process.

Rumination syndrome in children at an early age is more common in boys, in adolescence in girls.

Diagnostic criteria for rumination syndrome in children and teens (include all of the above):

- repeated painless regurgitation of meals followed by chewing or regurgitation soon after eating;

- the absence of episodes during sleep, the absence of effect from the measures used for GERD;

- absence of vomiting, inflammatory, anatomical, metabolic or neoplastic processes that may explain the presence of symptoms.

Signs should be observed at least once a week for at least 2 months.

Management of patients with rumination syndrome in children and teens.

It should be remembered that it is more difficult to solve the problem of rumination in older children and teens. Since rumination syndrome often occurs in children who are mentally retarded and pedagogically neglected. A third of children have psychological disorders: depression, anxiety and obsessive-compulsive disorders. About half of the children lose weight. GERD, esophageal achalasia, gastroparesis, bulimia nervosa, anatomical diseases should be excluded.

Treatment

First of all, the doctor should explain to the parents and the child (if age allows) the nature of this condition in order to exclude anxiety and fear. It is advisable to start treatment with non-drug methods.

Improving care and upbringing (the ability of caregivers to recognize and respond to a child's physical and emotional needs). It is important to explain the importance of close emotional contact with the child.

Rumination in most cases requires psychotherapeutic treatment, which is effective in 85% of cases, provided sufficient motivation on the part of the patient and his parents. In more complicated cases, it may be necessary to intervene with a psychiatrist [1].

Treatment of this condition should begin with clarifying the peculiarities of communication between people around the child, correcting the situation, creating a peaceful atmosphere of love and attention, and conducting behavioral therapy. Also, in order not to provoke a vomiting reflex, it is necessary to reduce the amount of food, stimulate slower absorption of food, reduce the total amount of food consumed, eliminate overfeeding and force-feeding. The amount of liquid consumed during feeding should also be reduced. Standard antireflux drugs from rumination show low efficiency.

Unfortunately, comprehensive research on the treatment of rumination in children is not sufficient. Cognitive behavioral therapy or hypnosis can be helpful.

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