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CLINICAL AND PARACLINICAL MANIFESTATION OF IRRITABLE BOWEL SYNDROME IN CHILDREN

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Abstract

Bowel diseases and disorders take a significant place among digestive system pathology in children. Overall goal of the research is a study of clinical and paraclinical indices for verification of Irritable Bowel Syndrome (IBS) in children.

A complex clinical, anamnestic and paraclinical research of 35 children 3 to 16 years aged with IBS was analyzed. IBS with constipation were found in 32 children (91,4%); IBS with pain and flatulence – in 2 children (5,7%); only 1 patient had IBS with diarrhea (2,9%).

IBS was found more often in children of preschool and primary school age, was characterized by prolonged relapsing course and same frequency in both genders. Clinical severity of the disease correlated with older age, overweight, signs of dysautonomia (Vegetative-vascular dystonia (VVD)) and cholestasis.

Key words: children, diagnosis, clinical and paraclinical manifestation, irritable bowel syndrome.

The challenge (problem statement). High prevalence of Irritable Bowel Syndrome (IBS) among all age group of Ukrainian population, as well as its features such as multi-system complains, wide range of psycho-social triggers, absence of diagnostically unambiguous marker and, as consequence, an effective treatment methods make this problem very important for scientific and epidemiologic research. IBS frequency among children and adolescents in USA and Europe is around 10 to 14%. However in Ukraine these indices is on 40 to 50% lower than worldwide. Researchers and analytics believe it can be caused by high frequency of misdiagnosis of organic pathology in case of IBS.

Scientific literature latest data overview and analysis. IBS persistently ranks first out of all Functional Gastrointestinal Disorders (FGIDs) in terms of number of cases and research during many years [1,6]. Indeed, creating diagnostic criteria of FGIDs by group of gastroenterologists from Italy, USA and Canada has started specifically from IBS study long before the Rome Foundation I development. The diagnosis of IBS was officially implemented into ICD-10 by WHO in 1993. Further dynamic of changes and supplements to definition, classification and assessment criteria is shown in the Rome Foundation Criteria from Rome I in 1994 up to Rome IV in 2016 [4].

Modern IBS criteria are clearly marked in Rome IV, which include presents, frequency, duration of pain syndrome in relation to disorders of defecation and stool. The Rome IV criteria for the diagnosis of irritable bowel syndrome require that patients have had recurrent abdominal pain on average at least 1 day per week during the previous 3 months that is associated with 2 or more of the following: 1) related to defecation (may be increased or unchanged by defecation); 2) associated with a change in stool frequency; 3) associated with a change in stool form (appearance). The criteria are fulfilled with symptoms onset 6 months prior to diagnosis [2]. To date, abdominal pain is considered to be the main diagnostic criteria of IBS, mostly it is pain related to defecation. Term “abdominal discomfort” has been eliminated from the IBS criteria list as, according to the experts, it had no diagnostic value (nonspecific) and as consequence often had confused patients during the diagnosis. Thus, nowadays, main clinical signs of IBS are abdominal pain related to defecation and altered bowel habits not discomfort, flatulence, abdominal distension or any other unpleasant feelings of a patient [3, 11].

IBS classification according to the Rome IV includes next subtypes: 1) IBS with constipation (IBS-C); 2) IBS with diarrhea (IBS-D); 3) mixed IBS (with alternating diarrhea/constipation) (IBS-M); 4) unsubtyped IBS (IBS-U). Definition of a subtype demands describing the stool peculiarities (its form and consistency) and a ratio of changed

(regular/irregular) feces. This is a complicated, delicate, sensitive and not very pleasant for a patient as well as for a medical doctor clinical and anamnestic stage of diagnosis. However it allows not only suspecting a IBS but decreasing a share of unsubtyped IBS, claimed in Rome III [7, 9].

Etiopathogenesis of IBS is rather complicated and not completely studied to date. Many etiological factors and pathogenesis mechanisms are involved into IBS development. Every single clinical case has its individual combination. However, modern list of important factors includes: social and economical status of a family, genetic susceptibility, family alimentary habits (parents with IBS could form an IBS in their children); psychological triggers, visceral hypersensitivity, GI motility disorders, pathological changes in neural-endocrine system (axis “cerebrum-bowel”), dysautonomia (Vegetative-Vascular Dysfunction (VVD)), microbiota imbalance, diet disorders [1, 3].

Main complication in IBS diagnosis is proper and complete elimination of any organic pathology during a routine clinical examination, the detection of so called “red flags” such as ill-founded weight loss, sharp or intense local abdominal pain, night symptoms, fever, hepatic- splenomegaly, blood trace in stool (including occult blood), anemic syndrome, leukocytosis, rising of erythrocyte sedimentation rate, bowel oncological pathology in relatives. In presence of mentioned symptoms child must be hospitalized to gastroenterology department for verification of the diagnosis and realization additive diagnostic methods according to indications [5,9]. Main peculiarities of IBS in pediatrics are complains variability, non-progressive course, absence of weight loss, relation to stressor triggers and connection with other functional diseases. General complains occur in children in any IBS subtype: headache, fatigue, cardialgia, feeling of difficulty breathing, lump in the throat during swallowing, rapid sense of satiety, sense of overeating, trembling, urination disorders.

Meaningful is discrepancy between long duration of the disease, multiple complains and relatively satisfactory condition of a patient. Clinically could be found signs of astheno-vegetative and astheno-depressive syndromes, pain in colon during its palpation [5].Some authors consider IBS development as vegetative visceral dysfunction, which occurs due to disorder of vegetative nervous system regulating influence and correlates with VVD symptoms [1, 8,10].

As a rule, IBS does not cause any pathological changes in general and biochemical laboratory tests, except for mild changes in coprocytogram (possible presence of mucus or detection of helminthiasis). Especially important and strongly indicated are screening tests such as detection of hemocolitis (Gregersen Reaction).

Therefore, diagnosis of IBS is based on anamnesis and clinical manifestation, clinical examination, minimal needed laboratory tests and, only in case of clinical necessity, on instrumental methods. Endoscopic instrumental methods of bowel investigation (sigmoidoscopy) and contrast X-ray diagnostic (irrigography) are the most significant from all allowable list of instrumental research.

Goal of the research. Overall goal of the research is a study of clinical and paraclinical indices for verification of Irritable Bowel Syndrome (IBS) in children.

Material and methods. Thirty-five patients with IBS aged 3 to 16 years were observed in Gastroenterology department of Chernivtsi Regional Children's Clinical Hospital during the research. Average age of the patients was $8,9 \pm 4,3$ years. Share of boys was insignificantly bigger (54,3%) as well as proportion of villagers (55,4%). Such a big part of rural residents does not correspond to data of literature [2, 3]. However, it can be explained by profile of Regional Hospital. Forty percents of patients were preschool age and sixty percents – school children mostly of primary school age.

Examination of children included clinical and paraclinical diagnostic “optimum” to rule out any organic pathology of bowel (clinical and biochemical blood analyses, general urine analysis, coprocytogram, Gregersen Reaction, bacteriological investigation of feces, abdominal ultrasonography (USG), Endoscopic diagnostics (sigmoidoscopy) and X-ray diagnostics (irrigography) in case of need only; counseling by profile specialists: psychoneurologist and others). Children with chronic constipation were excluded from the research if dolichosigmoid, dolichocolon or other organic pathology of the kind were found. The results were analyzed using descriptive and correlation methods by means of “Statistica 8.0” soft.

Results and discussion. Following clinical subtypes of IBS were found in examined patients: IBS with constipation - in 32 children (91,4%); IBS with pain and flatulence – in 2 children (5,7%); only 1 patient had IBS with diarrhea (2,9%). Main clinical signs were abdominal pain (97,0%), constipation (91,4%), flatulence (54,4%), one patient had tendency to diarrhea (2,8%). In most of the children pain was related to defecation and declined after it.

There was such ratio of children according to duration of the disease: less than half of patients (45,7%) had been suffered from IBS less than 1 year, every 3d child (37,2%) – from 3 to 6 years. Social status analysis revealed every 5s child was from single-parent family (mothers were single parents in all cases). In 20% of cases as well patient's families included 3 and more children. It was found out that exacerbation of the disease was related to social stressor trigger (mostly in family) in 22,5% of cases, and in 34,3% - to school overloading.

However no connection of IBS manifestation with perinatal indicators as well as with kind of feeding during first year of life was found. Most of the children (62,8%) have had been on breastfeeding during first year of life.

We have assessed a structure of comorbidity in observed patients with IBS. Dysautonomia (vegetative-vascular dystonia) (54,3%) and functional disorders of a gallbladder (65,7%) ranked first. In 20% of cases was found ascariasis, 8,6% of children complained on encopresis. Signs of dysautonomia (vegetative-vascular dystonia) were tension headache (28%), limb coldness (41,5%), dysuria (12,5%), white dermographism (46,5%).

Laboratory diagnostic results of CBC and general urine analysis of children with IBS were mostly without pathological changes. In 3 cases (8,6%) were found mild anemic syndrome, including one case of hypochromic anemia (color index 0,75). Coprocytological analysis revealed moderate steatorrhea, creatorrhea and amilorrhea. Rest of the parameters was according to age standards. No signs of inflammation or absorption disorder were found. Gregersen Reaction was negative in all cases. Biochemical serum analyses were without any significant changes. No pathogenic coliforms were found during bacteriological investigation.

Abdominal USG of children with IBS revealed moderate hepatomegaly (increasing on 1 to 2 cm from age standards) in 40,6% of cases, peribiliar infiltration in 59,4% of patients and gallbladder wall thickening in 40% of children. According to USG results hypertonic forms of gallbladder dysfunction prevailed in observed children. In 65,7% of cases a deformation of gallbladder was found (gallbladder body deformation or S-kind deformation of a neck).

Severity of IBS clinical manifestation significantly ($p < 0,05$) correlated with age of a child ($r = 0,40$), BMI ($r = 0,42$), VVD BCД ($r = 0,45$), increased gallbladder size ($r = 0,42$), peribiliar infiltration ($r = 0,38$).

Hence, IBS with constipation was leading clinical subtype among observed children. Clinical course of IBS in children depended on age, gender and subtype. The mortality was more in boys of younger and in girls of older school age. Severity of clinical manifestation associated with older age, overweight, signs of dysautonomia (vegetative-vascular dystonia) and cholestasis syndrome.

Conclusions. Children with complain on abdominal pain related to psycho-emotional stress joint with symptoms of bowel dyspepsia (constipation, diarrhea, flatulence and so on) need a complex examination for identification of bowel pathology. The verification of Irritated Bowel Syndrome diagnosis requires elimination of hemocolitis by providing the Gregerson test. Differential diagnosis for bowel congenital abnormalities is mandatory for

children with IBS with abdominal pain and constipation. Proper diagnosis and treatment of comorbid hepato-biliary pathology (including Cholestasis Syndrome) are strongly indicated for this group of patients. Patients with Functional Gastrointestinal Disorders need a consulting of a neurologist with further correction of dysautonomia (vegetative-vascular dystonia).

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