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Overlapping Influence the Psychoemotional Profile among Children with Functional Gastrointestinal Disorders

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Abstract

Introduction: The aim of our study was to assess the psycho-emotional state of children with irritable bowel syndrome.

Materials and Methods: We examined 40 children aged 6 to 17 years with Irritable Bowel Syndrome (IBS). The intensity of abdominal pain was determined using a five-point visual analogue scale. The levels of social adaptation, resistance to stress, anxiety and self-esteem and vegetative tone were determined. As a control, 40 practically healthy children of the same age were examined.

Results: The high level of anxiety in children with IBS manifestations was observed in 60% of cases vs. 10% of respondents from the control group ($\chi 2=46.9$; $p<0.001$). The highest levels of anxiety and psychosomatic maladjustment were found in patients with overlapping FGID, which were diagnosed in 65.0% of children. The correlation was determined ($r=0.78$; $p<0.001$) between the level of anxiety in patients with overlapping FGID and the severity of pain. The self-esteem of children with IBS was often underestimated and significantly differed from the self-esteem of healthy children ($\chi 2=101.9$; $p<0.001$). The correlation ($r= -0.41$ $p<0.01$) between self-esteem of children with overlapping FGID and severity of pain was determined. The majority of children with IBS (55.0%) had increased autonomic reactivity. At the same time, the severity of constipation correlated with sympathicotonia ($r=0.82$, $p<0.05$).

Conclusion: The condition of patients with FGID and overlap syndrome is characterized by signs of psychosomatic disorientation and instability to stress. Anxiety and pain levels in patients with FGID overlapping were closely correlated.

Keywords: Children; Irritable bowel syndrome; Psycho-emotional state; FGID

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Introduction

According to modern tendencies, psycho-emotional and sensory-motor dysfunctions turn out to be the root cause of FGID appearance. Neuropsychic factors lead to changes in the sensitivity level of visceral receptors in the intestinal wall. These receptors define perception of pain and intestinal motor function. Significant progress is achieved in determining clinical criteria for functional intestinal disorders. Nevertheless, the influence of mental determinants on formation, severity and efficacy of treatment is still poorly researched.

In particular, our clinical observations prove that there is a connection between appearance of constipation syndrome in older children and such stress factors as parents loss at an early age, parents separation within the past history, etc. Adults with the same pathology reveal somatogenic anxious and depressive disturbances associated with asthenic and vegetative disorders (weakness, increased fatigability, nervousness, headache, sleep problems) more often. According to our observations, among variants of pathological changes of mental status of patients with constipation there were such personality disorders that had no specific character for the disease: asthenia, depression, anorexia, neurotic reaction, so on [1].

The central nervous system, especially its vegetative division, is the first one to react to stress factors. Influence of social factors mediates *via* emotiogenic parts of the vegetative nervous system. Any damage on the level of vegetative structures that perform integrative functions leads to disturbance of the organism's adaptive activity, homeostasis and somatic functions. That's why evaluation of indices of psycho-emotional status in children with FGID is of extreme importance [2].

The "gut–brain" axis is the main neuro-anatomical substrate in which bio-psycho-social impacts

occur. The connection between brain and intestine is realized within complicated integral system. This system transmits information from emotional and cognitive brain centers by means of neuromediators for peripheral functioning of the gastro-intestinal tract and *vice versa* [3].

Abdominal pain is one of the most frequent causes why outpatients seek for medical help in emergency departments, admission to hospitals, appointments to gastroenterologists and imaging tests [4]. Rome IV diagnostic criteria describe four major categories of functional abdominal pain disorder in children and teenagers. They include functional dyspepsia, Irritable Bowel Syndrome (IBS), abdominal migraine and functional abdominal pain [5,6-9]. The present-day feature of FGID is overlapping character when the patient has several functional disorders simultaneously. This condition has been officially accepted in Rome criteria IV under the term "overlap syndrome" [10].

The analysis of literature allows concluding that abdominal pain is more frequently observed in female teenagers, and it often appears as a result of depression, asthenoneurotic syndrome [2,4]. Despite successful studies of FGID pathogenesis, peculiarities of psycho-emotional sphere of children with overlapping FGID are not researched sufficiently.

The aim of the given paper is to evaluate the psycho-emotional state of children with Irritable Bowel Syndrome (IBS).

Materials and Methods

The research had been conducted on the basis of Children's Municipal Clinical Hospital (Odessa) within 2018-2019. Forty children with the verified diagnosis of Irritable Bowel Syndrome (IBS) aged 6 to 17 took part in the research. Females prevailed insignificantly in the selection (26% or 65%).

Intensity of abdominal pain was determined by means of five-point Visual-Analog Scale (VAS).

To reveal peculiarities of psycho-emotional state of children who participated in the research, such aspects as level of social adaptation, stress tolerance as well as anxiety level and self-esteem were determined. The children were tested according to "Psychosomatic Orientation Questionnaire". Anxiety level was determined by means of the test "Diagnostics of Neurotic Disorders in primary and secondary school-aged children". Self-esteem was elicited by means of Dembo-Rubinstein technique (1988 year).

Vegetative tonus, reaction and vegetative supply were estimated according to A. M. Wane (2003 year).

Patients with IBS received treatment in accordance with current clinical protocol. As control, the same indices of 40 almost healthy children aged 6 to 17 were researched. Statistical processing was carried out by means of the program complex Statistical 13.0 (TISCO., USA).

Results

The research of psycho-emotional status of children who revealed irritable bowel syndrome showed that high anxiety level was observed in 60% of the cases investigated while the group of healthy children included no more than 10% of such respondents. The described differences are statistically valid (χ^2= 46.9; p<0.001). Meanwhile, low anxiety level which is also considered to be an unfavorable psychological factor, was characteristic of 7.5% of children from the major group and of only 2.5% of children from the control group. The average level of anxiety was observed in 32.5% of children with IBS.

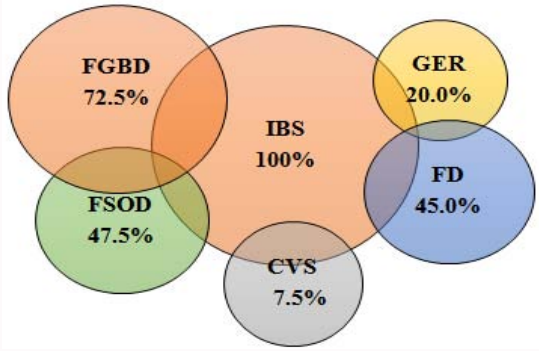

Figure 1: The structure of overlapping FGID in children with IBS. FGBD: Functional Gallbladder Disorder; FSOD: Functional Sphincter of Oddi Disorder; FD: Functional Dyspepsia; GER: Gastroesophageal Reflux; CVS: Cyclic Vomiting Syndrome

As a result of the conducted investigations of the psycho-emotional state it was found out that most of the children with IBS (92,5%) had signs of psycho-somatic disorientation and stress intolerance (regarding six or more positive answers in the questionnaire) while the group of healthy children included no more that 5% of such respondents. According to the results of the research, overlapping FGID were diagnosed in 65.0% of patients (Figure 1). At that, high anxiety level and psycho-somatic maladaptation were revealed in children.

In such patients along with the symptoms of IBS the signs of functional gallbladder and sphincter of Oddi disorders (72.5% and 47.5% respectively), functional dyspepsia (45.0%), gastroesophageal reflux (20.0 %), and cyclic vomiting syndrome (9.8%) were registered as well.

Determination of correlation relationship between anxiety level in patients with overlapping FGID and pain syndrome demonstrated direct strong connection (r=0.78, p<0.001).

Low self-esteem was registered in 55% of patients, mainly in males, whereas among healthy children it was observed in only 15%. High self-esteem was characteristic of 25% of children with IBS and of 52.5% of children from the control group, normal self-esteem was noted in 20% and 22.5% of children respectively. The obtained data testify that the self-esteem of children with IBS significantly differs from that of healthy children, χ^2=101.9, p<0.001.

When comparing self-esteem indices of children with IBS with intensity of pain syndrome, the backward correlational relationship of average strength (r= - 0.41 p<0.01) was determined.

Often, the children's mood was varying according to our observations; during personal contacts they demonstrated the signs of passiveness, aloofness, hypochondriasis, more rarely – excitement. Some children were conflictive and self-centered, they often quarreled with their counterparts in the department, and they didn't always follow the recommendations of the personnel of the medical establishment.

Figure 2 shows the peculiarities of psycho-emotional sphere of children with IBS, defined during our investigation.

The following indices were studied: Extraversion (E) (focus on the

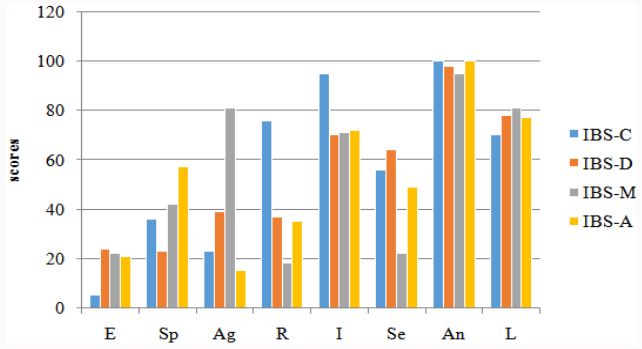

Figure 2: Peculiarities of psycho-emotional sphere of children with IBS. IBS-C: Constipation-Predominant; IBS-D: Diarrhea-Predominant; IBS-M: Mixed; IBS-A: with Alternating Stool Pattern

world of really existing objects and values, outspokenness, tendency to widen range of contacts, sociability), Spontaneity (Sp) (crudity in utterances and actions), Aggressiveness (Ag) (active self-fulfillment, stubbornness and self-will in defending own interests), rigidity of affirmations (R) (inactivity in thoughts and actions), Introversion (I) (focus on the world of subjective views and feelings, tendency to live in the world of illusions, fantasy and subjective ideal values, modesty, aloofness), Sensitivity (Se) (vulnerability, tendency to introspection, pessimism in estimation of prospects), anxiety (An) (emotionality, perceptivity, insecurity) and Liability (L) (affectability, marked mood changes, motivational instability, sentimentality, tendency to emotional involvement).

The figure above demonstrates that the highest frequency of psycho-emotional instability signs, in particular, anxiety, sensitivity and affectability, is observed in children with constipation IBS. Moreover, in most of children with IBSC (82.5%) overlapping functional gallbladder and sphincter of Oddi disorders have been revealed.

The conducted research have shown that the patients with increased vegetative responsiveness (55.0%) prevail among patients with IBS. High intensity and frequency of abdominal pain attacks is closely associated with normal vegetative responsiveness and deviation of the vegetative tonus from the Eutonia state whereas marked constipations correlate with marked sympathicotonia ($r=0.82$, $p<0.05$).

Conclusion

1. The state of patients with FGID, mainly with overlap syndrome, differs with signs of psycho-somatic disorientation and stress intolerance as well as decrease of self-esteem.

2. Levels of anxiety and levels of pain syndrome in patients with overlapping FGID closely correlate ($r=0.78$, $p<0.001$).

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