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## **FEATURES OF PSYCHOSOMATIC STATUS IN ADOLESCENTS WITH CHRONIC GASTRODUODENITIS**

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### **Abstract:**

Changes in mental and emotional status such as subdepression and increased anxiety, both reactive and personal, are characteristic of adolescent children with chronic gastroduodenitis. These changes cannot be resolved with the traditional therapy of chronic gastroduodenitis and are maintained during remission, thereby worsening the quality of life, increasing the negative perception of the disease and its treatment prospects.

**Keywords:** children, chronic gastroduodenitis, psycho-emotional status, the quality of life.

### **Introduction:**

At the present stage, the pathogenesis of chronic gastroduodenitis (CGD) is highly influenced by the state of mental and emotional status characterized by a high incidence of subdepressive, depressive and anxiety disorders (Antropov, 2003; Kalash, et al., 2010). This leads to a weakening of adaptive capacity of the body, impairs the quality of repair processes in the gastric and duodenal mucosa, which significantly reduces the period of CGD remission and serves as a risk factor for subsequent exacerbations (Antropov, 2003).

In adolescence, it is necessary to consider the emotional characteristics and reactions typical of this period, in addition to individual psycho-emotional characteristics. They are based on age-related changes in the functional state of the central nervous system (CNS) and the autonomic nervous system (ANS), manifesting themselves on the part of CNS as the weakness of inhibitory processes and central regulatory mechanisms (Basham, 2004). Changes in the ANS are characterized by an increasing activity of the sympatico-adrenal component, followed by a mismatch in the various components of the autonomic regulation (Bobrishheva-Pushkina, et al., 2008). Neuropsychiatric response of the adolescents to environmental influences also differs from other age periods and is characterized by the growing

importance of the affective response in contrast to the immaturity of thinking (Engel, 1997). This is manifested as sharp mood swings shifting from the exaltation to the subdepressive and depressive states, as well as increased anxiety and affective disorders, enhanced by the predominance of negative emotions and low self-esteem (Isaev, 2004; Santalahti, et al., 2005). At the same time, these negative emotions are sustainable and have a vegetative, and hence, somatic appearance (Antropov, 2003). In this connection, an emotional profile of even apparently healthy adolescents in most cases includes "negative experiences of the past, anxiety about the future and a common lack of positive emotions in the present" (Antropov, 2003). This leads to the fact that a feature of adolescence is a combination of functional instability of the visceral systems (due to the active morphogenesis and restructuring of the control contour subject to the new needs of the organism) with psychological instability (Isaev, 2004; Skomorin, 2012). In the case of chronic diseases (CGD), a redistribution of plastic and energy resources, aimed at restoring the damaged system, occurs, followed, as a result, by sub-optimal provision of other organs and systems with the exacerbation of psycho-emotional disorders and reinforcement of psychopathological traits (Ierodiakonou, 2001). This fact is confirmed by the data on that the psychosomatic component of somatic diseases of children and adolescents is identified almost in 70% of cases (Vorob'eva, 2006). At the same time, a complex of psycho-emotional changes, arising on the background of CHD, not only contributes to the maintenance of chronic inflammation, but also gives it a new clinical overtone (Ierodiakonou, 2001; Santalahti, et al., 2005). This allows us to consider changes in the psycho-emotional status as an additional pathogenetic factor that modifies the nature of the underlying disease, and reduces the adaptive capacity of the child's body with the subsequent deterioration of social adaptation and the children's quality of life.

**Objective of the research** was to assess the state of mental and emotional status of adolescent children during CGD exacerbation and remission and its impact on the quality of life.

### **Materials and Methods**

To address this objective, we conducted a "case-control" study, which included 60 adolescents with CGD (main group) in the period of exacerbation 1 month after the treatment and in the period of remission (about 6 months after the end of therapy). The average age was  $13.06 \pm 1.2$  years, the ratio of girls and boys was 1.3:1. The control group consisted of 22 pupils of health group I. Case records of the children from the control group had no data on monitoring for chronic diseases. The average age and gender-based distribution were comparable to those in children of the main group.

All children with CGD had anamnesis morbi of more than one year ( $31.4 \pm 7.4$  months in average), the average number of exacerbations was 3 episodes per year ( $3.1 \pm 1.5$ ). Sampling was organized as a stratified selection with the formation of a simple random sample.

The criteria for inclusion of children in the study were a morphologically proven *Helicobacter* - positive CGD. The diagnosis of *H. pylori* infection was conducted with the use of a breath Helic-test along with histological study. Withdrawal criteria: peptic ulcer, severe organic gastrointestinal diseases, severe concomitant somatic diseases, acute infectious diseases at the time of the study, celiac disease and other diseases manifesting themselves as malabsorption syndrome.

In the period of exacerbation, children with *Helicobacter*-associated CGD received anti-secretory (omeprazol) and antibiotics (amoxycillin, nifuratel) as basic therapy at the age dosages for 7 days, with further prebiotic (lactuloza) treatment for 3 weeks. Due to the therapy, all children showed a positive clinical effect as a lack of basic clinical manifestations of CGD.

A set of psychological tests included Spilberger's test for the assessment of the levels of reactive and personal anxiety, and Cung's test for the depression level determination. Spilberger's test was evaluated by the standard technique, where the total points up to 30 indicated low anxiety, 31-45 - moderate, and 46 and more - high anxiety. The level of depression was also assessed by score: 20 to 49 points - the absence of depression, 50 to 59 points - the presence of a moderate situational or neurotic depression, 60 to 69 points - subdepressive state or latent depression, more than 70 points - a true depression.

Quality of life (LQ) was determined with the help of an adapted questionnaire SF-36, comprising 36 questions, or 8 scales assessing both physical and mental health components. The responses were evaluated on a scale from 0 to 100, where a large number of points corresponds to a higher LQ. Psychological tests and the quality of life were evaluated in the period of exacerbation 1 month after the treatment, and during remission (after 6 month) in children with confirmed eradication of *H. pylori* infection. Control group had general survey conducted, aimed at identifying the existing complaints, as well as the above set of psychological tests and the determination of LQ.

The results were statistically processed on a PC using Statistica software package 6.0. To compare the data obtained in both groups, a 95% confidence interval (CI) of odds ratio (OR) was calculated. The reliability of the quantitative parameters used in both groups was assessed with the Mann-Whitney U-test. The results were evaluated as statistically significant at a probability level of  $p < 0.05$ .

## Results

During exacerbation, clinical manifestations of CGD in children in almost 100% of cases were followed by complaints typical of asthenic syndrome, including fatigue, mental exhaustion, sleep disorders, and headaches, while similar complaints in the control group were only in 31.8% of cases (95% OR CI 2.8-4.48,  $p=0.001$ ) (Table 1).

**Table 1. Clinical manifestations of asthenic syndrome during exacerbation of CGD in children of the main and the control groups.**

Manifestations of asthenic syndrome	Number of patients, n (%)	Number of healthy children, n (%)	95% CI OR	P
Asthenia, fatigue	52 (86.6)	7 (31.8)	0.2 [0.077 – 0.52]	0.001
Drowsiness	38 (63.3)	4 (18.1)	1.9 [1.67 – 2.34]	0.038
Petulance	43 (71.6)	9 (40.9)	0.86 [1-1.53]	0.26
Mental exhaustion	38 (63.3)	4 (18.1)	1.2 [1.32-1.61]	0.063
Headache	47 (78.3)	7 (31.8)	1.9 [1.67 – 2.44]	0.026
Insomnia	21 (35)	2 (9.1)	2.8 [0.85 – 5.59]	0.038
Difficulties in falling asleep	46 (76.6)	2 (9.1)	[2.12 – 3.49]	0.011
Early awakening	24 (40)	0		
Troubled superficial sleep	24 (40)	0		
Sleeptalking	28 (46.6)	0		
Emotional lability	51 (85)	12 (54.5)	1.02 [0.97 – 2.49]	0.055

CI - confidence interval, OR - odds ratio

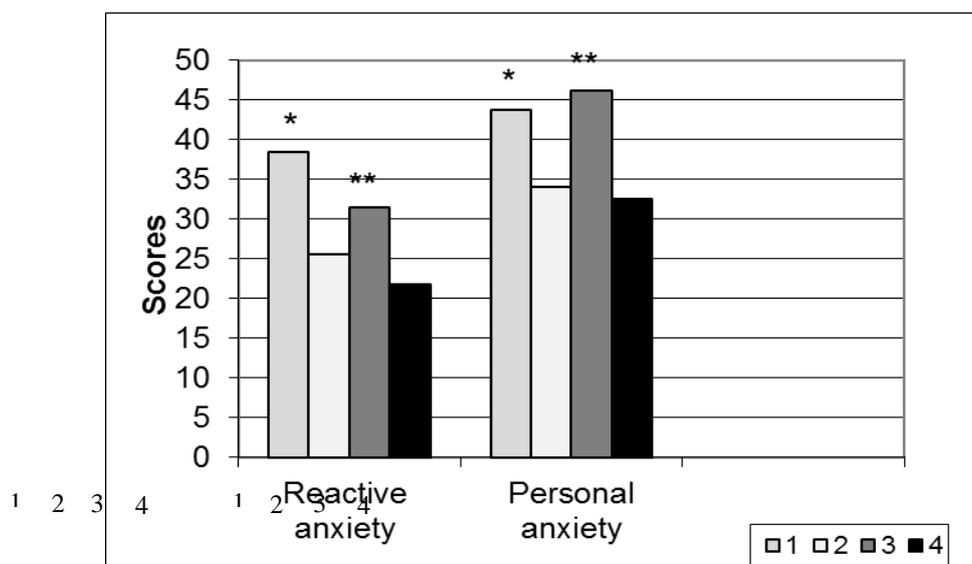
One month after treatment, a distinct improvement in general state with the relief of clinical manifestations of CGD and decrease in the severity of asthenic syndrome was observed. At the next examination after 6 months, the children had no complaints of the upper parts of the digestive system, however, they had the remaining manifestations of asthenia as frequent as the complaints in the period of exacerbation (Table 2).

**Table 2. Features of asthenic syndrome in patients with CGD in different periods of the disease.**

Complaints of asthenic syndrome manifestations	During exacerbation. Number of children, n (%)	1 month after treatment, number of children, n (%)	6 months after exacerbation, number of children, n (%)	p
Asthenia, fatigue	52 (86.6)	43 (71.6)	49 (81.6)	> 0.05
Drowsiness	38 (63.3)	29 (48.3)	33 (55)	> 0.05

Petulance	43 (71.6)	33 (55)	34 (56.6)	> 0.05
Mental exhaustion	38 (63.3)	19 (31.6)	24 (40)	> 0.05
Headache	47 (78.3)	35 (58.3)	42 (70)	> 0.05
Insomnia	21 (35)	17 (28.3)	19 (31.6)	> 0.05
Difficulties in falling asleep	46 (76.6)	27 (45)	30 (50)	> 0.05
Early awakening	24 (40)	18 (30)	21 (35)	> 0.05
Troubled superficial sleep	24 (40)	16 (26.6)	18 (30)	> 0.05
Sleeptalking	28 (46.6)	23 (38.3)	26 (43.3)	> 0.05
Emotional lability	51 (85)	44 (73.3)	46 (76.6)	> 0.05

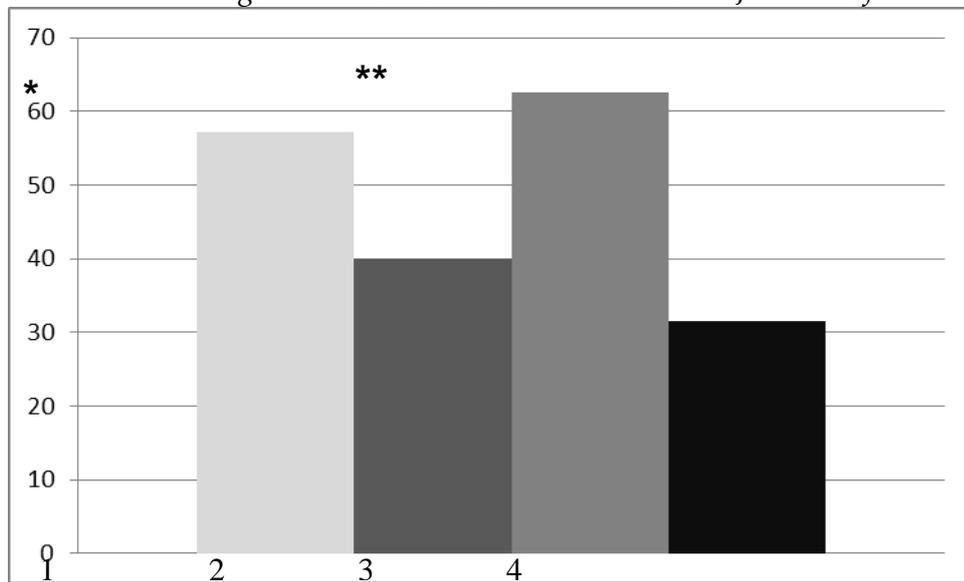
Evaluation of the anxiety, defining the features of the emotional response and behavior under the influence of the environment, showed that during exacerbation the children with CGD had higher reactive (Uemp. 258.5) and personal anxiety (Uemp. 195), (significance -  $p < 0.01$  - Ucrit. 437), which was decreasing after the treatment with a consequent increase after 6 months (Figure 1).



\*- the statistically significant difference between groups 1 and 4 ( $p=0.001$ ) \*\* - the statistically significant difference between groups 3 and 4 ( $p=0.001$ ).

Fig. 1. Degree of reactive and personal anxiety in children with CGD and pupils, where the group 1, 2, 3 - children of the main group during exacerbation 1 month after treatment and remission, respectively. Group 4 – healthy children.

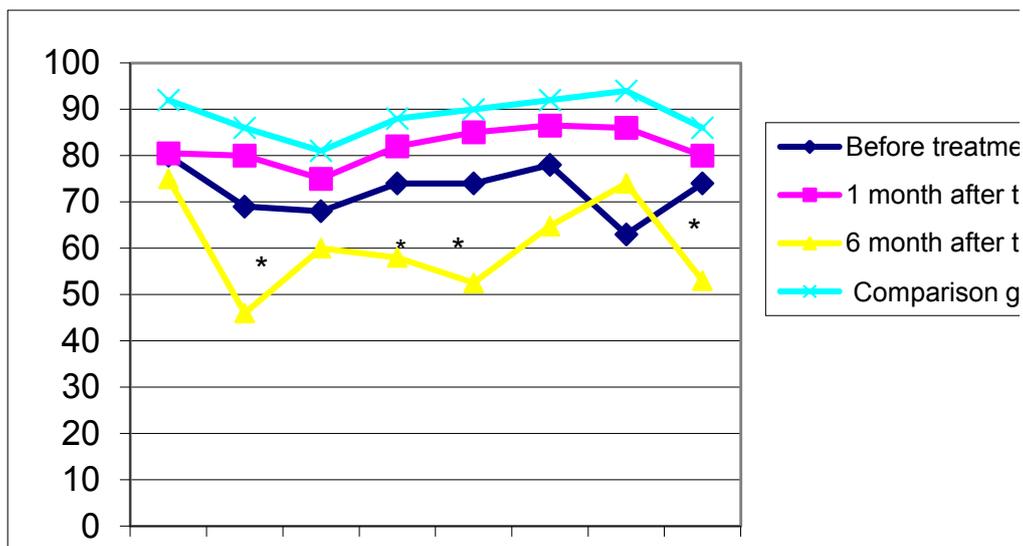
Similar results were obtained from comparing the difference according to the depression scale, where at the initially decreased mood during exacerbation, after post-treatment improvement of performances, and during remission the children of the main group showed again the presence of subdepressive state with the score  $62.13 \pm 11.49$  (Uemp.  $154.5 < Ucrit. 437$ ,  $p < 0.01$ ), while the control group of children had total  $31.5 \pm 8.4$  points (Figure 2).



\*- the statistically significant difference between groups 1 and 4 ( $p=0.001$ ) \*\* - the statistically significant difference between groups 3 and 4 ( $p=0.001$ ).

Fig. 2. Degree of depression severity in children with CGD and pupils, where the group 1, 2, 3 - children of the main group during exacerbation 1 month after treatment and remission, respectively. Group 4 – healthy children.

The results of LQ assessment are shown in Fig. 3.



\*- the statistically significant differences ( $p<0.05$ )

Fig. 3. The quality of life of the children with CGD, and their healthy peers (X-axis - LQ indicators: PF – Physical functioning, RP – Role-Physical Functioning, BP – Body pain, GH – General Health, VT – Vitality, SF – Social Functioning, RE – Role emotional functioning, MH – Mental health; Y-axis – points).

## Results and Discussion

During remission, children with CGD, despite the absence of clinical manifestations of the underlying disease, have complaints specific to asthenic syndrome in the form of weakness, mental exhaustion, and headaches, occurring in

more than half of the patients. In addition, most of the patients (53.3%) had sleep disorders such as sleeptalking, difficulty in falling asleep and early waking, which are regarded as markers of anxiety in childhood (Antropov, 2003; Vorobyov, 2006).

Indicators of personal and reactive anxiety, and the score on the depression scale had similar dynamics, characterized by some improvement in the indicators after the treatment with the subsequent deterioration during remission. Positive dynamics of LQ indicators during treatment of the exacerbated underlying disease returned 6 months after treatment to the parameters close to the original, despite the CGD clinical remission. Comparison of the results on the scales showed the greatest difference in the evaluation of role-physical functioning (RP), general health (GH), vitality (VT) and mental health (MH). Thus, during CGD remission, the quality of life is influenced by psycho-emotional factors greater than by clinical manifestations of the pathological process.

The results show that the traditional treatment of CGD, aimed at the eradication of *H. pylori* infection, does not result in the normalization of mental and emotional state of patients, which during remission is close to that in the period of exacerbation. The continuing changes in the period of remission indicate a lack of stability of the state of the regulatory contour of patients required for the complete restoration of homeostatic parameters of the organism.

## **Summary**

Based on these results we can conclude that changes of mental and emotional status are typical of patients with chronic gastroduodenitis not only in the period of exacerbation, but also during remission in the form of subdepression, and increased reactive and personal anxiety. These changes cannot be resolved with the traditional therapy of chronic gastroduodenitis, thereby worsening the quality of life, mainly due to psycho-emotional factors, and increasing the negative perception of the disease and its treatment prospects. Lack of compensation of mental and emotional status of patients 6 months after treatment of chronic gastroduodenitis does not allow to treat this condition as a complete remission and requires the use of appropriate approaches to therapy aimed at compensation of psychological parameters, that will enhance the effectiveness of the existing therapy.

## **References:**

1. Antropov Ju.F., 2003 "Treatment of psychosomatic disorders in children": monograph; Moscow: "Triada-farm», P. 241.
2. Basham, K., 2004, "Transforming the legacies of childhood trauma in couple and family therapy". Soc. Work Health Care, 39(3–4), pp. 263-285.

3. Bobrishheva-Pushkina N.D., Kuznecova L.Ju., Silaev A.A., Popova O.L. 2008, "Physical and mental development of children and adolescents as an indicator of health status". *Pediatrician practice*, March, Pp. 36 - 40.
4. Engel, G.L., 1997, "From biomedical to biopsychosocial: being scientific in the human domain". *Psychosomatics*, 38(6), pp. 521-528.
5. Ierodiakonou, C.S., 2001, "The psychosomatic approach in childhood disorders: some psychodynamic and psychotherapeutic issues". *Revista Portuguesa de Psicossomatica*, 1, pp. 45—55.
6. Isaev D.N., 2004, "Child Medical Psychology": monograph, StP.: Rech, P. 384.
7. Kalach, N., Bontems, P., Koletzko S., 2010, "Frequency and risk factors of gastric and duodenal ulcers or erosions in children: a prospective 1-month European multicenter study". *Europ. J. Gastroenterol. Hepatol.*, 22(10), pp. 1174-1181.
8. Santalahti, P., Aromaa, M., Sourander, A., 2005, "Have There been Changes in Children`s Psychosomatic Symptoms? A 10-Year Comparison From Finland". *Pediatrics*, pp. 434-436.
9. Skomorin M.S., 2012, "Modern conceptions of chronic gastroduodenitis in adolescents in terms of evaluation of the quality of life". *Modern studies of social problems (electronic scientific journal)*, 5(13).
10. Vorob'eva O.V., 2006 "Anxiety-associated psycho-vegetative syndrome (diagnostic and therapeutic issues)". *Russian Medical Journal*, 14 (23), Pp. 3-6.

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