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ASSESSMENT OF ANXIETY IN PERSONALITY STRUCTURE OF CHILDREN SUFFERING FROM BRONCHIAL ASTHMA

Abstract. *Design of the study included 121 children with asthma and 226 healthy school children aged 8 to 17, who were assessed for anxiety by Spielberger-Khanin test(1976) and anxiety at school by Philips questionnaire . The aim of the study was to evaluate the personality and psychological components of broncho-obstructive symptoms in patients with asthma. The contingent under study showed disorders in personal anxiety in 97.52% of children and situational one in 78.51%. The indices of the reactive anxiety in the experimental group were slightly lower than of the personal one, but reliably higher than in the control group. The results indicate that children with asthma aged 8-10 years are the most sensitive to stressful school situations and factors. There was a tendency to reduce the importance of the school environment factors with pupils' growing up. Senior pupils and those from graduation classes are better adapted to the school environment. Obviously, the human factor is important in the severity of school anxiety, as peers and teachers, considering the serious illness of children with asthma, treat them more indulgently and are less demanding towards them as evidenced by medium and low scores on scales of school anxiety.*

Key words: *anxiety, bronchial asthma, children*

Introduction. Bronchial asthma (BA) and allergic diseases have become today "a global challenge of modern times" due to considerable prevalence among children and adult population of the planet. From 5 to 10% of children suffer from this disease every year and this figure is growing, urging an ongoing scientific interest in studying etiopathogenetical aspects of asthma [1, 2, 3].

Respiration is the only spontaneous manifestation of a newborn baby independence. Physiological characteristics of breathing are directly connected to its emotional state, and this relationship persists throughout the life. Emotional factors alone can not create sufficient conditions for a disease, but they activate the broncho-obstructive process in biologically prone person [4]. Broncho-obstructive (asthmatic) attack is a spasm of the bronchioles, which can be caused both by allergen exposure and by emotional factors [5]. Asthma is characterized by an action pattern-

bated breath , which is formed by nature, as a defense mechanism in response to an episode that caused fear, to an unexpected event or a premonition of the unknown.

Objective: to study the personal and psychological components of broncho-obstructive symptoms in the schoolchildren with asthma.

Materials and methods. We have examined 121 children with asthma who had been hospitalized in pulmo-allergy department of Ternopil childrens' hospital during 2012-2015. The control group consisted of 226 adolescents, 76,55% (n = 173) of whom were virtually healthy at the time of examination, secondary school students from Ternopil and Terebovlya, and 23,45% (n = 53) – from the villages of Ternopil and Terebovlya districts. The average age of patients was (12.98 + 2.80) years, children in the control group (12.36 ± 2.80) years. Among the patients with asthma in all age groups the number of boys prevailed over that of girls by

about half, and in the 3rd group the girls were only ¼ part. The criterion for inclusion in the study was possibility and willing to answer questions of the proposed questionnaires. The criterion for exclusion among the children in the control group was identifying background diseases and comorbidity among pediatric patients.

The clinical status of children with asthma was assessed on the basis of anamnesis, physical examination findings, spirometry (peakflowmetry). Asthma severity assessment

was conducted in accordance with the recommendations of the international Global Initiative for the diagnosis and treatment of asthma GINA-2015. The level of BA controllability was evaluated every three months of treatment in accordance with the step therapy. The majority of the observed cohorts, 76,03% (n = 92) was diagnosed with partially controlled disease. Not controlled character was found in 10,74% (n = 13) and the remaining 13,23% (n = 16) in the controlled ones (Figure).

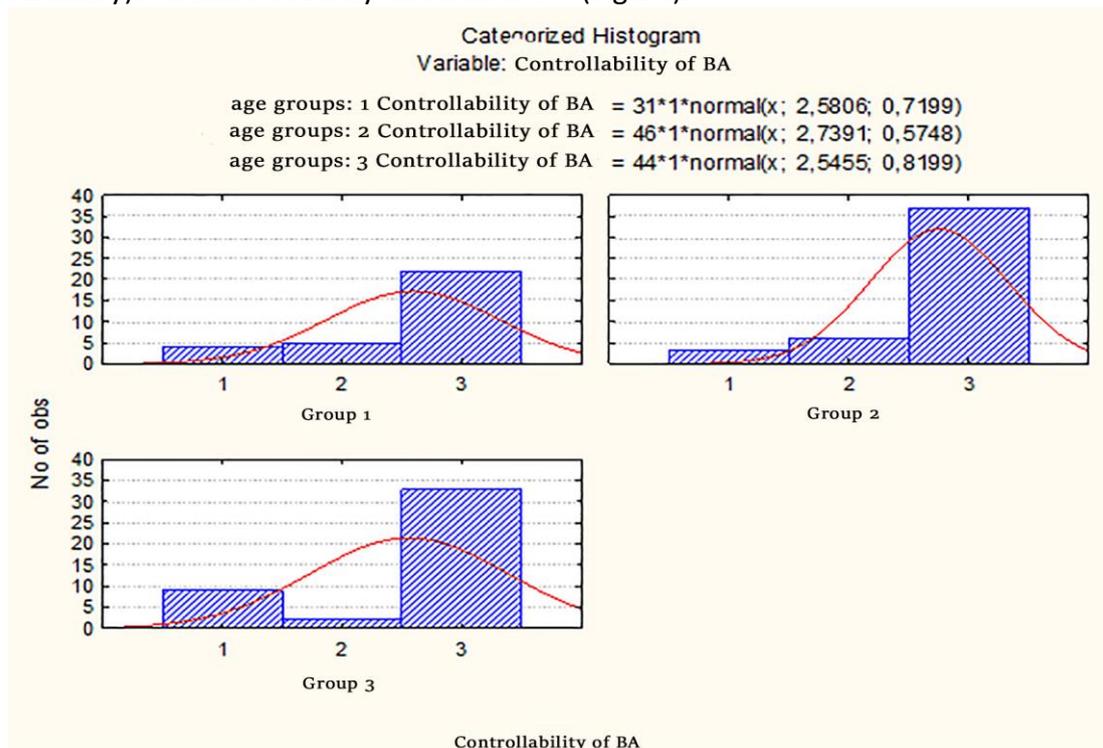


Figure. Level of BA control in the experimental groups, where 1 – controlled, 2 – uncontrolled, 3 – partially controlled.

The majority 77,68% (n = 94) of the observed children were diagnosed with atopic form of the disease, 2,47% (n = 3) with nonatopic and the remaining 19,83% (n = 24) with a mixed form. The dominant course of BA was persistent one in 92,56% (n = 112), including the mild form in 14,05% (n = 17), moderate one in 75,21% (n = 91) and a severe course in 3, 31% (n = 4). Intermittent asthma was diagnosed in 7,44% (n = 9).

All the children under observation were evaluated as to their emotional status by psychological tests and surveys:

- Assessment of anxiety in the structure of personality by Spielberger-Khanin test (1976) [7];

- Assessment of anxiety at school by Philips questionnaire [7].

Results and discussion. Even at the dawn of medicine as a science of healthy and sick people doctors noticed a connection between the features of the individual, their psychological lability and presence of a pathology. Classical psychosomatic diseases today include seven nosologies. Bronchial asthma is one of the "Chicago seven" by F. Aleksander. For all that, there is no single interpretation of the pathogenesis of asthma today. Several modern studies consider etiopathogenetical chain of chronic diseases in general as follows: stress factors – personality – psychological type – somatotype – system-organ deficiency and joining another sixth unit – resistant mechanism of pathological condition (by N.P. Bekhtiereva), which

close it in a "pathological circuit" of self sustained inertial system with secondary inactive compensatory pathological structures at each level [8]. The most common implementation of somatic symptom disorder through the respiratory system organs is a system hyperventilation syndrome. The psychogenic factor (anxiety) disrupt breathing, causing hyperventilation. An increased lung, alveolar ventilation leads to persistent biochemical shifts, excessive removal of CO₂ from the body, hypocapnia with decreased partial pressure of CO₂ in alveolar air and oxygen in arterial blood, as well as respiratory alkalosis. These changes contribute to the formation of pathological symptoms such as muscle-tonic,

sensitive and other disorders that enhance mental disorders and form a pathological circuit. [9] The growth of respiratory and heart rates, an increase of the minute volume of blood circulation, an increased blood pressure, disorders in acid-base balance, an increase in the overall excitability, reduced sensitivity threshold are all physiological symptoms of anxiety [10]. With the duration of the anxiety, the first physiological manifestations in case of recurrency gain constant nature, i.e. the changes in organs and systems gain some signs of the disease. Anxiety becomes somatic. Analysis of the study of personal anxiety in adolescent patients with asthma found no disorders in only 2,48% (n = 3) (Table)

Table

Comparative characteristics of anxiety at the time of examination in children with asthma and healthy pupils.

Personal anxiety									
groups	1 st , n=31			2 nd , n=46			3 rd , n= 44		
anxiety	high n=23	moderate n=7	low n=1	high n=26	moderate n=19	Low n=1	high n=22	Moderate n=20	low n=2
Children with BA, %	74,19*	22,58	3,22*	56,52*	41,31	2,17*	50,00*	45,45	4,55*
groups	1 st , n=72			2 nd , n=82			3 rd , n=72		
	high n=4	moderate n=26	low n=42	high n=1	moderate n=37	low n=44	high n=4	moderate n=31	low n=37
%	5,56	36,11	58,33	1,22	45,12	53,66	5,55	43,06	51,39
Situational anxiety									
groups	1 st , n=31			2 nd , n=46			3 rd , n= 44		
anxiety	high n=13	moderate n=10	low n=8	high n=11	moderate n=18	low n=17	high n=6	moderate n=20	low n=18
Children with BA, %	41,94*	32,26	25,80*	23,91*	39,13	54,84	13,64*	45,45*	40,91*
groups	1 st , n=72			2 nd , n=82			3 rd , n=72		
	high n=1	moderate n=21	low n=49	high n=3	moderate n=20	low n=59	high a n=0	moderate n=18	low n=54
%	1,39	29,16	68,05	3,66	24,39	71,95	-	25,00	75,00

**The difference is reliable compared to the control, p ≤ ,005*

The resulting performance of anxiety in our survey group of the hospital showed mostly a high level of personal anxiety in 58.68%

(N = 71) of surveyed children. It was moderate in the remaining 38,84% (n = 47). Slightly more than half of respondents (n = 78 - 64.46%) showed situational anxiety: a high degree was observed in 23,97% (n = 29), moderate - in 40,49% (n = 49). These figures

were slightly lower than personal anxiety, but much higher compared with the control group. Our findings about the high level of personal anxiety in children with asthma coincide with those of the research by Trzciaska H, Przybylski G, Kozaowski B, Derdowski (2012). [11], which showed the dependence of the level of asthma control on anxiety and depression. The relationship between the severity of

manifestations of allergic diseases and the presence of anxiety and / or depression were also shown in the study by Noriega N.H. and several other authors [12, 13, 14, 15].

The school environment is one of the major sources of anxiety for the children involved in our study. Fears in relationships between classmates, teachers, a fear not meet the expectations of others, knowledge tests, self-expression, frustration in a need to succeed, the overall school anxiety are crucial at this age. Analyzing the data from questioning our children with asthma by the method of Phillips, we found symptoms of general anxiety in school in all age groups surveyed. In the first group (age - 8-10 years) there was an increase in the average parameters according to almost all scales. Compared to other age groups the overall school anxiety $17,4 \pm 3,1$ points, fear of self-express $4,52 \pm 0,8$ points, fear of tests - $4,48 \pm 0,8$ points, and fear not to meet expectations of others - $4,68 \pm 0,9$ points were the most pronounced. These figures were in the range of high values for each of the scales. In group 2 the highest rates were recorded in the following three scales - Frustration in a need to succeed $8,76 \pm 1,7$ points, low physiological stress resistance - $3,69 \pm 0,8$ points, and fears in the relationship with teachers - $4,24 \pm 1,9$ points. However, these figures were in an average range of values for each of the above components of school anxiety and personal characteristics of a pupil. It should be noted that in the 3rd group, that is the oldest age group, the highest rates that corresponded to high values were observed on a scale of social stress - $8,89 (\pm 1,2)$ points.

Conclusions. 1. The results of a study in anxiety in adolescent patients with asthma found a disorder of personal anxiety in 97.52% of children and situational one in 78.51% of children.

2. The indices of reactive anxiety in the experimental group were slightly lower than of the personal anxiety, but significantly higher than the in the control group.

3. 58,68% (n = 71) of patients with BA were mainly diagnosed with high level of personal anxiety.

4. The results indicate that children with

asthma aged 8-10 years are the most sensitive to stressful situations and school factors.

5. There is a trend to decrease the importance of school environment factors with age.

Senior pupils are better adapted to the school environment. The human factor is important in the severity of school anxiety, as peers and teachers, considering the serious illness of children with asthma, treat them more indulgently and are less demanding towards them as evidenced by medium and low scores on scales of school anxiety.

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