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APPLICATION OF ART THERAPY IN 'ASTHMA SCHOOL' IN ADOLESCENTS WITH UNCONTROLLED AND PARTIALLY CONTROLLED BRONCHIAL ASTHMA

The aim of the study – to increase the effectiveness of providing medical care to children, taking into account the child's individual and psychological characteristics, constitutional and somatic characteristics of the body and its adaptive capabilities.

Materials and Methods. Our work is a part of the comprehensive scientific work "Prognostic criteria for metabolic disorders in children with somatic pathology in the ecosocial conditions of the Ternopil region" (state registration number 0113U001240) and the Belarusian Ukrainian Polish Asthma Study (BUPAS) epidemiological research.

We conducted a survey of 38 child patients (from 11 to 15 years) with asthma who were hospitalized to the allergic department in children's hospital. They were observed by physicians and were questioned on asthma control questionnaire (ACQ-5), Eisenk EPI personal questionnaire, Phillips' questionnaire, Spielberger's test. To correct the problems which were founded in adolescent patients, we have created a modified version of Astma School and combined it with art therapy, elements of methods of neuro-linguistic programming, dance-motor therapy and also used the creative visualization and body-oriented psychotherapy.

Results and Discussion. The complex of art therapy, added to standard therapy, positively influenced on the level of controllability in asthma and lowered personal and situational anxiety in children. During the training in the right breath with the help of art therapy in patients with asthma, anxiety was reduced: personal in 58.33 %, against 10.53 % in protocol treatment, situational in 66.67 %, against 10.53 %, and improved control of the disease comparatively with an initial level of 75.00 % versus 42.11 %, which significantly ($p < 0.05$) reflects the higher efficacy of the complementary symptomatic treatment.

Conclusion. It is proved that correction of BA therapy taking into account individual peculiarities of the psychosomatic state of the patient contributes to increasing the effectiveness of treatment.

Key words: bronchial asthma; children; anxiety; art therapy.

ЗАСТОСУВАННЯ АРТ-ТЕРАПІЇ В «АСТМА-ШКОЛІ» В ПІДЛІТКІВ ІЗ НЕКОНТРОЛЬОВАНОЮ ТА ЧАСТКОВО КОНТРОЛЬОВАНОЮ БРОНХІАЛЬНОЮ АСТМОЮ

Мета дослідження – підвищити ефективність надання медичної допомоги дітям з урахуванням індивідуально-психологічних особливостей дитини, конституційно-соматичних особливостей організму та його адаптаційні можливості.

Матеріали та методи. Проведено обстеження 38 дітей (від 11 до 15 років), хворих на бронхіальну астму, які перебували в алергологічному відділенні обласної дитячої лікарні. Усіх дітей опитали за опитувальником контролю астми (ACQ-5), особистим опитувальником ЕРІ Айзенка, опитувальником Філліпса, тестом Спілбергера. Для виправлення проблем, які виникли у пацієнтів підліткового віку, ми створили модифіковану версію Astma School (Школи Астми) і поєднали її з арт-терапією, елементами методів нейролінгвістичного програмування, танцювально-моторної терапії, а також використали творчу візуалізацію та тілесно-орієнтовану психотерапію.

Результати дослідження та їх обговорення. Комплекс арт-терапії, доданий до стандартної терапії, позитивно вплинув на рівень керованості БА та знизив особистісну та ситуативну тривожність у дітей. Під час навчання правильному диханню за допомогою арт-терапії у хворих на БА відбулося зниження тривожності: особистісної на 58,33 %, проти 10,53 % у протокольному лікуванні, ситуативної на 66,67 % проти 10,53 % і покращився контроль над хворобою, порівняно з початковим рівнем 75,00 % проти 42,11 %. Отримані дані достовірно ($p < 0,05$) відображають вищу ефективність додаткового симптоматичного лікування.

Висновок. Доведено, що корекція терапії БА з урахуванням індивідуальних особливостей психосоматичного стану хворого сприяє підвищенню ефективності лікування.

Ключові слова: бронхіальна астма; діти; тривога; арт-терапія.

INTRODUCTION. Bronchial asthma is a multifactorial disease which can manifest as a result of the implementation of genetic predisposition on the basis of psychosocial disharmony and is one of the pressing problems of modern clinical pediatrics due to a significant increase in morbidity, disability and the presence of lethal consequences. [1–5]. This pathology significantly affects the mental, physical and social aspects of the life of child with asthma, morally and financially depletes members of her family [6, 7].

Background. Despite the significant achievements of allergy and the study of pathogenetic mechanisms of development, asthma as a disease remains the most discursive and complex problem in modern allergy. [8].

Therefore, it is important to increase the effectiveness of providing medical care to these children by taking into account the individual psychological, constitutional and somatic features of the body and its adaptive possibilities. [9] A number of questionnaires have been validated for the assessment of asthma control in children: The Asthma Control Test (ACT) is a five-item questionnaire answered monthly by children aged ≥ 12 years, The Asthma Control Questionnaire (ACQ) and the ACQ for children (cACQ) are seven-question tests that have been validated in children aged ≥ 6 –16 years (cACQ) and in adults (ACQ), The Pediatric Asthma Therapy Assessment Questionnaire for Children and Adolescents (pATAQ) is designed for patients aged 6–17 years, The Childhood ACT

(cACT) is used for younger children (aged 4–11 years). [10] But most of them do not take exacerbations into account in scoring asthma control. [7, 10]

METHODS. Our work is part of the complex scientific work "Prognostic criteria of metabolic disorders in children with somatic pathology in the ecosocial conditions of Ternopil region" (state registration number 0113U001240) and epidemiological studies of the Belarusian-Polish Asthma Study (BUPAS).

The main group of this study consisted of 38 children with asthma who were inpatient treatment in the pulmonary and allergic department of the regional Ternopil hospital. The criteria for including it were: the ability to understand the content of questionnaires and respond adequately to them, to agree on an in-depth clinical examination, the processing of medical records and the publication of results in scientific journals. Exclusion criteria indicate the presence of other concomitant somatic pathology and mental deviations. The average age of patients was (12.93±2.83) years. Another 226 healthy children were included in our study as a control group. The criteria for inclusion in this group were: the absence of clinical manifestations of atopy and hypersensitivity to any substances in the history received from the questionnaire "Questionnaire: Asthma and allergy in children " International research: Poland–Ukraine–Belarus, medical documentation (outpatient card – form No.025 / o), and a physical examination. This group includes 173 (76.55 %) townspeople and 53 (23.45 %) rural inhabitants.

The surveyed group was standardized according to the chosen treatment scheme in accordance with the current Unified Protocol for primary, secondary (specialized) medical aid "Bronchial Asthma in Children", approved by the Order of the Ministry of Health of Ukraine No. 2856 "On approval and implementation of medical-technological documents on standardization of medical aid at bronchial asthma ". This cohort included 38 patients who randomly completed the main protocol treatment of the course of art therapy, which led to the division of the group into two parts: one received only protocol treatment (n = 19 – 50.00 %), the other (n = 19 – 50.00 %) – combined. (In the process of longitudinal observation, the group of patients receiving combined therapy was reduced to 7 people (4 children changed their place of residence due to the lack of monitoring of the results of therapy, 3 adolescents were irresponsible to conduct their own diary of observations, which made it impossible to analyze the data on the patient's health through questionable their credibility).

During this phase, the basic principles of treatment for children with BA were adhered to: a) developed partnerships in the patient-family-doctor chain (educational and counseling, psychological diagnosis and correction); b) determined the risk factors of exacerbation of the disease and facilitated the elimination of contact with them (elimination measures);

c) assessed the achievement and monitoring of asthma control (ACQ-5) (Asthma Control Questionnaire) [11, 12].

The ACQ–5 allows, with a simple, but objective method, to assess the state of asthma control in scores in the shortest period of time, taking into account the most important symptoms, according to the latest GINA version, which clearly specifies the need for a cyclic approach to the management of such patients. ACQ-5 is easy to use and compute by a questionnaire whose data, according to research findings, correlate well with physician estimates based on anamnesis, physical examination and determination of the function of external respiration [13]. The ACQ-5 used by us contained 5 questions, each of which had 7 answer options. Each of the points is assigned a 7-point scale (0 is a good control, 6 is no control), the points are summed, then the amount received is divided by the number of questions, the general index (0–6) is the average value of the answer.

This version of ACQ has been validated in several independent studies (Juniper E. F., 2006, Mork A. C., 2005, Svensson K., 2003). To date, ACQ is the most common tool used in studies to determine the control of asthma symptoms, and the only one for which a clinically meaningful minimum difference of 0.5 points is established.

During the medical-psychological examination of patients with asthma were used – to assess anxiety in the structure of the personality of children with asthma Spielberg test, Eisenk EPI personal questionnaire, Phillips' questionnaire were applied.

The results of the study were analyzed using the STATISTICA computer packages of StatSoft Inc. on the PC using parametric and nonparametric computing methods.

The design of the study provided for adherence to the principles of confidentiality and respect for the child's personality as a self-defensible person, the concept of informed consent, taking into account the benefits of the benefit of the risk of harm and other ethical principles in relation to the subjects who served as subjects of research.

The work was performed at the Department of Children's Diseases with Pediatric Surgery at I. Horbachevsky Ternopil National Medical University.

RESULTS. Before the onset of therapy, we showed a high and moderate level of personal anxiety in all children with asthma, which significantly differed from healthy children (p <0.05), where only this type of anxiety was recorded in 45.57 % (Table 1). In patients it was moderate (41.94 %) and high (58.06 %), but in the healthy – outweighed moderate (41.59 %) and low (54.42%). A similar trend occurred in the analysis of indicators of reactive anxiety (Table 2).

A typical clinical picture of asthma in children of the studied contingent is formed by a combination of "contribution" of biological factors and anxiety-mediated vegetative reactions.

Table 1. State of personal anxiety at the start of asthma therapy

Personal anxiety	protocol treatment				All		Control group	
	n=19		+ art therapy, n=12		n=31		n=226	
	abs.	%	abs.	%	abs.	%	abs.	%
Low		-	-		-		123	54.42
Moderate	8	42.11	5	41.67	13	41.94	94	41.59
High	11	57.89	7	58.33	18	58.06	9	3.98

Table 2. Indicators of situational anxiety at the beginning of BA therapy

Situational anxiety	Protocol therapy				All		Control group	
	n=19		+ art therapy, n=12		n=31		n=226	
	abs.	%	abs.	%	abs.	%	abs.	%
Low	7	36.83	3	25.00	10	32.36*	163	72.12
Moderate	7	36.83	7	58.33	14	45.16	59	26.11
High	5	26.34	2	16.67	7	22.58*	4	1.77

Note: * - the reliability of the difference at $p < 0.05$

Detected deep disorders of the psychosomatic status of children who suffering from asthma, are requires for correction that is not sufficiently provided by traditional therapy. We have developed a program of individual anti-stress therapy using the right breathing training with the use of art therapy. Its essence consists in providing psychological help to children in the process of specially organized interaction for mastering various personal, interpersonal difficulties and implementation in everyday life of a child, a patient with asthma, needs-habits to properly breathe achieved through volitional regulation of this process through the normalization of the psycho-emotional state, and increase of physiological and mental adaptability.

Correctional work was conducted as a long training monotonous exercise volitional regulation of the respiration process. It provides a gradual decrease in the depth of breath, in conjunction with non-verbal psychotherapeutic effects on the psychological state of the child by attracting other, additional, channels of perception of information, taking into account psychophysiological features and activation of individual analyzers of the nervous system.

To implement the correction of the problems which were founded in patients with BA, we created a modified version of "Asthma School" in combination with art therapy, elements of methods of neuro-linguistic programming, the use of creative visualization and body-oriented psychotherapy.

Asthma is a disease, the course of which is changing: today the state of health in a patient is good, and tomorrow is bad. It may very often be necessary to adjust the therapy. Therefore, the patient himself and his immediate relatives should control the treatment. This problem we solved through an educational program in the "Asthma School".

In the beginning, at an organizational stage, a conversation with parents and children was held, acquaintance with opportunities, means of disease control and expected results. The planned number of classes is 5–10 sessions per week for 2 weeks. The structure of the occupations is the same

– warm-up, the main part, and the final stage with discussions and plans and expectations for the future occupation. Practically at each subsequent meeting a mini lecture with a feedback was conducted. At the end of the meeting had been the demonstration of diaries those who wish and the description of the drawings. The homework is the conduct of diaries and repetition of exercises with the exercise of meditative neuromuscular relaxation. Subsequent classes were conducted according to the proposed layout, their number and duration was determined individually.

At repeated meetings in 1, 3, 6, 9 and 12 months, the asthma control-testing by Asthma Control Questionnaire [13, 14, 15, 16] was conducted with the subjects and the level of asthma control was determined according to the assessment of the physician.

After the end of the course of art therapy at approximately comparable baseline levels of personal anxiety at the start of the treatment regimens analyzed, the course of therapy in asthma school allowed it to lower its level in 75.00 % of patients, against 36.84 % under the standard scheme (Table 3). Similar efficacy of the selected combined therapy is noted and in the analysis of situational anxiety 58.33 % against 5.26 %. Positive dynamics of situational and personal anxiety significantly pronounced ($p < 0.05$) was in a group that was trained in asthma School (Table 4). The emotional and vegetative part of the body of sick children as an instance of the "translation" of intrapsychological conflicts into the language of somatic dysfunctions clearly reflected the effectiveness of such therapy in 83.33 % of children who received a decrease in the levels of both types of anxiety.

The evolution of the questioning of patients over time surveillance showed significant improvement in the movement to both methods of treatment (Table 5) at about the initial level of asthma control. At the end of the first quarter of the observation, the level of control in traditional therapy was improved at 12 (60.30 %) and at 7 (58.33 %) – when

Table 3. Indicators of personal anxiety at the time of completion of BA therapy

Personal anxiety	Protocol treatment				Control group	
	n=19		+ art therapy, n=12		n=226	
	abs.	%	abs.	%	abs.	%
Low	1**	5.26	7*	58.33 %	123	54.42
Moderate	8	42.11	3*	25.00	94	41.59
High	10**	52.63	2*	16.67	9	3.98

Note: * – the reliability of the difference before and after treatment $p < 0.05$

** – the reliability of the difference compared with the control $p < 0.05$

Table 4. Indicators of reactive anxiety at the time of completion of BA therapy

Reactive anxiety	Protocol treatment				Control group	
	n=19		+ art therapy, n=12		n=226	
	abs.	%	abs.	%	abs.	%
Low	7**	36.84	9*	75.00	163	72.12
Moderate	9**	47.37	3*	25.00	59	26.11
High	3**	15.79	-	-	4	1.77

Note: * – the reliability of the difference before and after treatment $p < 0.05$

** – the reliability of the difference compared with the control $p < 0.05$

Table 5. Dynamics of controlling bronchial asthma during observation time

The time of the ACQ	Protocol therapy (PT) (n=19)						PT+ art therapy (n=12)					
	Uncontrolled		Partially controlled		Controlled		Uncontrolled		Partially controlled		Controlled	
	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%
1 st month observation	3	15.79	15	78.95	1	5.26	2	16.67	10	83.33	-	
3rd month observation	1	5.26	7	36.84	11	57.89	-		7	58.33	5	41.67
6th month observation	1	5.26	9	47.37	9	47.37	1	8.33	6	50.00	5	41.67
9th month observation	1	5.26	9	47.37	9	47.37	-		4	33.33	8	66.67
12th month observation	1	5.26	11	57.89	7	36.84	-		5	41.67	7	58.33

combined. The first half-year ended with a deterioration in control in three patients from both groups, accounting for 10.53 % (n = 2) in the first and 8.33 % (n = 1) in the second, respectively. During the next half-year, for 7 patients in each group, there was a complete absence of nocturnal symptoms, and the day-long bothered them no more than 2 times a week, while life activity did not differ from that of healthy peers. However, the efficacy of the supplement treatment was higher, since in children of this group, the monitoring during the year of observation was significantly more stable than in the control, where the improvement compared to the baseline was 42.11 % (n = 8) versus 75.00 % (n = 9). That is, the supplemented therapy allowed for longer control of the clinical manifestations of the disease.

CONCLUSION. Therefore, the complex, added to standard therapy, positively influenced the level of control of asthma and reduced the severity of both types of anxiety in children with asthma. In the process of training the right breathing means of art therapy in patients with asthma reduced anxiety: personality in 58.33 %, against 10.53 % under the standard scheme, situational in 66.67 %, against 10.53 %, and improvement of control of the disease compared with the baseline level of 75.00 % versus 42.11 %, which significantly ($p < 0.05$) reflects the higher efficacy of the complementary symptomatic treatment. Thus, the correction of BA therapy, taking into account the individual characteristics of the psychosomatic state of the patient, contributes to improving the effectiveness of treatment.

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Received 04.01.2022

Accepted 05.01.2022

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