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Peculiarities of psychological, clinical and instrumental indicators in children with vegetative dysfunction and hypotension under the influence of innovative psychocorrective program

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Abstract. Background. To study the features of psychological state, clinical and instrumental parameters in children with vegetative dysfunction (VD) and hypotension influenced by comprehensive treatment with the inclusion of the innovative psychocorrective program with elements of music therapy, visual art therapy and gelotology. **Materials and methods.** The study included 57 patients with VD and hypotension aged 12 to 17 years, 37 of them received psychotherapy with innovative program “Our drugs — music, laughter, creativity” in comprehensive treatment, 20 children (control group) received basic treatment without psychological assistance. General clinical, laboratory, instrumental and psychodiagnostic studies were performed both in main and control groups. **Results.** Using innovative psychocorrective program in children with VD and hypotension as a part of comprehensive treatment contributed to the improvement of clinical and instrumental data: number of cases with autonomic influences on the heart reduced (from 22.1 to 5.25 %, $p < 0.05$), orthostatic test autonomic provision was normalized in 40.5 % of children, psychological state improvement was observed in 74.1 % of cases. **Conclusions.** Innovative psychocorrective program with elements of music therapy, visual art therapy and gelotology can be recommended as a part of comprehensive treatment of children with VD and hypotension in hospital environment and in future psychological support of patients.

Keywords: vegetative dysfunction with hypotension; innovative psychocorrective program with elements of music therapy, visual art therapy and gelotology; children

Introduction

Vegetative dystonia (VD) with hypotension is one of the most common pathological conditions among all somatic pathology in adolescents, because of pubertal hormonal changes in the body, functional stress of various organs and systems and significant mental-physical activity. The disease is characterized by signs and symptoms of psychoemotional disorders, sensitive, motor and vegetative activity in children [10]. A communication is proven between hemodynamic parameters and level of anxiety in the genesis of VD with hypotension. Thus, high anxiety combined with hypersympatonic autonomic reactivity and insufficient supply of autonomic

activity, which indicates high excitability and rapid depletion of the sympathoadrenal system. A representative of the theory of differential emotions K. Izard says that anxiety consists of the dominant emotion of fear and its interaction with one or more basic emotions: suffering, anger, guilt, shame and interest [6].

Psychological distress, tension, confusion, indecisiveness, impotence in difficult situations, disorder of self-regulation processes, inadequate self-esteem and physiological responses (increased heart rate, pale skin, sweaty limbs) occur simultaneously and often lead to disease, because the information during perception of events the flow first to the thalamus, where the impulses

are divided: a part goes to the cerebral cortex, where the subjective sensation is formed, and another part to the hypothalamus, which is responsible for autonomic responses [6, 10].

It is known that children that have VD with hypotension are mostly characterized with personality traits such as vulnerability, insecurity and increased perception of stress. Each child problem develops because of some family problems, such as the possibility of parental divorce, the birth of a second child, etc. [6]. According to literature psychotherapeutic methods were used in the treatment of VD with hypotension: rational, group psychotherapy, autogenic training depending on gender, art therapy in the form of drawings. Given the state of the quality of life, stress in connection with a military threat to Ukraine, the psychological problems of adolescents that have VD with hypotension are a serious danger for the further development of the disease in adulthood. That is why the continued search of updated psychological approaches to help sick children, taking into account known facts of the impact of music on neuroendocrine function, particularly at the level of certain hormones in the blood that play a crucial role in the formation of emotional responses; isotherapy as a tool for research and harmonization of those aspects of the inner world of the child for which words don't reach, solving problems using humor [3, 5] is very important.

The purpose of the research was to study the dynamics of changes in the mental status, clinical and instrumental parameters in children with VD and hypotension influenced by complex treatment with the inclusion of the innovative psycho-program "Our drugs — music, laughter, creativity" with elements of music therapy, isotherapy and gelotology in the hospital.

Materials and methods

The study included 57 patients with VD and hypotension treated in the Center of autonomic dysfunction, Kyiv at the Child Clinical Hospital N 6. The age of patients ranged from 12 to 17 years old. Among them there were 45 girls and 12 boys. Patients were divided into two groups: main and control. Members of the main group ($n = 37$) received the standard basic treatment, which included the application of daily regime, diet, drug therapy, psycho-program "Our medicines — music, laughter, creativity", with elements of music therapy, isotherapy and gelotology. Participants in the control group ($n = 20$) received only basic treatment.

General clinical, laboratory and instrumental examinations were performed before and after treatment. Subjective and objective indicators were assessed, as well as and the results of the survey of autonomic homeostasis: via Wayne's adapted to child age tables the output of autonomic tone was estimated, orthostatic test was done by general procedure — autonomic sufficiency, status of the cardiovascular system — electrocardiography (ECG), cerebral blood flow — rheoencephalography (REG), brain activity using electroencephalography (EEG) [1, 2]. Blood pressure was determined with the single measurement method by standard triple test.

The assessment of the state of cerebral hemodynamics was performed by determining the status of REG arterial pulse blood filling, peripheral vascular resistance and condition of venous outflow, as well as the asymmetry coefficient. To analyze rheographic curves standard methods were used. The registration of REG curve was performed on electrocardiograph 6 NEK-4 with the help of 4-RG-2M 4 channel box at paper speed of 50 mm/sec and the value of calibration signal at 0.1 Ohm for the described method.

State of the central nervous system activity was studied using EEG, which was performed on an eight-channel electroencephalograph "Schwazer-ED-14" (Germany). Registration of brain activity was carried out in a state of relaxed wakefulness. EEG recording was performed in a reclining position of the patient with eyes closed in dark conditions and silence. Previously the patients were subjected to 15–20-minute adjustment. Background activity and EEG were recorded during the functional test (in this case — hyperventilation). All subjects were subjected to mono and bipolar recording. Background activity was analyzed by the following parameters: frequency, amplitude and distinctiveness of high (α , β) and slow (δ , θ) potentials, presence of focal and convulsive paroxysms. EEG into account age features. Age specifications of EEG were taken into account.

Echoencephalography was conducted on echoencephaloscope EPS-12 (Russia) with the transmission method of assessment of middle and displaced M-echo, as well as the presence of pulsation.

Electrocardiography (ECG) was used to characterize the condition of the cardiovascular system [1].

Before psychic correction treatment was carried out consultations with doctors about the status of each child were conducted and consent of children and their parents on such a form of treatment was obtained. Psychological testing was carried out on the terms of the Privacy Policy.

Psychodiagnosis was conducted before and after the psychocorrection treatment during standard basic therapy techniques used in child clinical psychology: rapid assessment of health, activity, mood (HAM) [8], Goldberg, Benjamin and Creed's screening tests using A (alarm) and D (depression) scales [4], the Olshankov — Rabinovich method, which determines a person's tendency to experience the three basic emotions (fear, anger, joy) [7].

To normalize the emotional state, ensuring the remedial impact in three areas: communication (doctor and psychologist establish contact with patient, interpersonal contacts in the group), regulatory (removal of the neuropsychological stress), reactive (to achieve catharsis, purification of pathological states) we have created an innovative psychocorrective program with elements of music therapy, isotherapy and gelotology "Our drugs are music, laughter, creativity". The program used the principles of positive psychotherapy that allows to understand that there are problems and difficulties, and, at the same time, that there are resources and possibilities. To maximize the therapeutic potential of correction

the treatment was conducted in small groups of 10–12 children. The duration of one session was 40–50 minutes; the course was designed to last for 12–14 sessions 5 times a week in heterogeneous by gender, age, personality styles and conflict groups.

Training sessions in which the focus was on psychological problems more characteristic in children with VD and hypotension, on topics “How to overcome fear?”, “Conflict is not a problem, but an opportunity”, “Excellent self-esteem”, “Ways out of stress”, “Laughter treatment” consisted of mini-lectures, group discussions, brainstorming — the method of group discussion of the problem with the aim of solving it, structured exercises that have enabled each participant to learn from their own experience different feelings, movement exercises that activate attention, increase the level of activity and trust in the participants, thematic drawing, role-playing situations etc. The technical work contained receptive music therapy based on passive perception of music, isotherapy, given that symbolic language of pictures are most adequate to express the unconscious; classic direction of gelotology (using anecdotes, humorous stories, etc.).

Statistical analysis was performed using mathematical software package Stata 12.0 (licensed European version).

Results and discussion

Almost all patients in the main and control group complained of headaches (90.2 and 92.1 % respectively); heartache (40.5 and 37.2 %); dizziness (70.4 and 72.1 %); sleep disorder (10.4 and 8.1 %); emotional lability (50.3 and 49.1 %); weakness (35.5 and 30.6 %). After treatment the majority of the patients of the main group

noted a decrease in the intensity of headaches (68.4 %), heartaches (29.7 %), dizziness (50.8 %), emotional lability (48.6 %), improvement of night sleep (8.5 %), increase of functional abilities (32.3 %).

The control group showed a positive trend on patient complains 3 times lower than in the main group.

We researched the medical history of the patients with VD and hypotension, which showed that the disease was the result of constant stress (60.4 %), anxiety (87.2 %), significant difficulty adapting to school life (48.5 %), out of school: complains from elders (30.4 %), isolation (62.1 %), tense situation in the relations with peers (68.5 %), etc. In conversations teenagers usually noted low satisfaction with the situation (52.3 %), constant search for the meaning in life, which is due to the difficulties of growing up (20.4 %). Our observations suggest that, in this sense, the most vulnerable are teenagers who are not in a very friendly relationship with their own parents (62.6 % of the subjects).

Research by the method of rapid assessment of health, activity, mood (HAM) to provide for children features emotional state before and after the psycho programs. The research results are presented in table 1.

Analyzing the initial results with the HAM method we diagnosed malaise in 73 % (27 patients) of the main group and in 75 % (15 patients) in the control group, low activity in 54 % (20 patients) and 55 % (11 patients), respectively, bad mood in 43.2 % (16 patients) and 60 % (12 patients). Repeated tests showed a positive trend change in the main group. So, has significantly improved in 21 patients (56.8 %) of the main group and in 4 patients (20 %) in the control group. Activity was significantly increased by 43.2 % (16 patients) in the study group and 15 % (3 patients)

Table 1. The results of psychological testing using the HAM method before and after providing psychological care to patients with VD and hypotension

Parameters	Number of patients, n (%)			
	Main group (n = 37)		Control group (n = 20)	
	Before treatment	After treatment	Before treatment	After treatment
Health state				
Low	27 (73)*	6 (16.2)	15 (75)	11 (55)
Average	8 (21.6)	16 (43.2)	5 (25)	8 (40)
Normal	2 (5.4)	15 (40.6)*	0	1 (5)
Activity				
Low	20 (54)**	4 (10.8)	11 (55)	8 (40)
Average	12 (32.4)	20 (54)	7 (35)	7 (35)
Normal	5 (13.6)*	13 (35.2)	3 (15)	5 (25)
Mood				
Low	16 (43.2)	2 (5.4)	12 (60)	8 (40)
Average	16 (43.2)	20 (54)	7 (35)	9 (45)
Normal	5 (13.6)	15 (40.6)	1 (5)	3 (15)
p*	0.73		0.76	

Notes: * — $p < 0.05$ — reliability of differences on the criterion χ^2 (xi-square); ** — $p < 0.01$.

Table 2. Results of the study of patients with VD and hypotension before and after the psychocorrective actions (using the Goldberg – Benjamin – Creed method)

Number of participants	Parameters, n (%)			
	Anxiety		Depression	
	Before treatment	After treatment	Before treatment	After treatment
Main group (n = 37)	32 (86.5)	13 (35.1)*	12 (32.4)	2 (5.5)*
Control group (n = 20)	19 (95)	17 (85)	7 (35)	6 (30)

Note: * – $p < 0.05$ – reliability of differences on the criterion χ^2 (xi-square).

in the control group. Mood improved in 37.7 % (14 patients) of the main group and 20 % (4 patients) in the control group.

Results of study using D. Goldberg, S. Benjamin, F. Creed screening tests on two short A (alarm) and D (depression) scales are presented in table 2.

Using the Benjamin – Goldberg – Creed screening method it was shown that there is a high level of anxiety in 86.5 % (32 patients) the main group and 95 % (19 patients) in the control group, conditions with episodes of depression in 32.4 % (12 patients) in the main group and 35 % (7 patients) in the control group. After treatment, tests showed a significant decrease in anxiety by 51.4 % (19 patients) in the main group and 10 % (2 patients) in the control group, conditions with episodes of depression were significantly decreased by 26.9 % (10 patients) in the main group only 5 % (1 patient) in the control group.

Research by Olshannykov – Rabinovich method let’s us determine the susceptibility of children to the experience of the three basal emotions: fear, anger, joy. Table 3 presents the results of the research.

By the Olshannykov – Rabinovich method high fear level were found in 81.1 % (30 patients), of the main group and in 80 % (16 patients) of the control

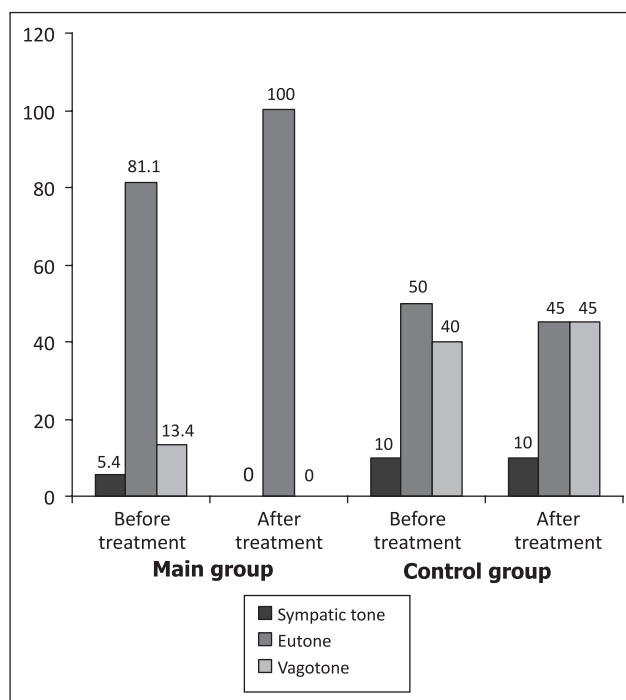


Figure 1

Table 3. Results of the study patients VD and hypotension using the Olshannykov – Rabinovich method before and after psychocorrective actions

Parameters	Number of patients, n (%)			
	Main group (n = 37)		Control group (n = 20)	
	Before treatment	After treatment	Before treatment	After treatment
Fear				
High	30 (81.1)	1 (2.7)*	16 (80)	16 (80)
Average	3 (8.2)	20 (54.1)*	4 (20)	3 (15)
Low	4 (10.8)	16 (43.3)	0	1 (5)
Anger				
High	25 (67.5)	0*	13 (65)	11 (55)
Average	10 (27.1)	30 (81)*	4 (20)	6 (30)
Low	2 (5.4)	7 (19)*	3 (15)	3 (15)
Joy				
High	18 (48.7)	27 (72.9)	10 (50)	11 (55)
Average	7 (18.9)	10 (27.1)	5 (25)	4 (20)
Low	12 (32.4)	0*	5 (25)	5 (25)
p*	0.04		0.81	

Note: * – $p < 0.05$ – reliability of differences on the χ^2 -criteria (xi-square).

group, high level of anger in 67.5 % (25 patients) in the main group and in 65 % (13 patients) in the control group; low levels of joy were observed in 32.4 % (12 patients) and 25 % (5 patients), respectively. Repeated testing after treatment showed a tendency to decrease fear by 78.3 % (29 patients) anger by 67.5 % (25 patients), increase in joy by 51.4 % (19 patients) in the main group. In the control group a decrease in anger by 10 % (2 patients) was observed, indicators of fear and mood remained the same.

Given the initial results of the three methods (high anxiety, elements of depression, poor health, low activity, low mood, high levels of fear, anger, low levels of joy) and referring to the analysis of possible strategies for treatment, on our training sessions we focused on developing skills for fighting childhood fears, conflicts through play, drawing, humor.

At the beginning of the sessions 18.7 % of adolescents easily joined in and were willing to talk about themselves and their situation, 58.2 % listened with interest but said little, 10.5 % showed complete indifference to the sessions.

Drawing while listening to music helped all children to “open up”. In the drawings the children reflected what is going on in their lives now what they have experienced and what can not be forgotten. Teens interpreted their feelings in pictures: “My parents neglect me”, “Parents don’t value my time”, feelings which can be clearly seen on the pictures of patient M., 15 years old, and patient D., 13 years old, before treatment (figures 2, 4). The pictures and statements of these adolescents following treatment showed a change in their attitude to the problems of hopelessness to finding a solution (figure 3 “Kindness is blind and sincere” and figure 5 “A world where all are singing and dancing”), in which creativity, originality and critical thinking were observed.

A check the performance of our established programs was carried out during the psychotherapeutic process through feedback and after its completion. Attention was focused on the overall health of adolescents, their attitude to the group process, expression of feelings in the process of listening to music.

Teens stated that the music helped them “get to know themselves”, ie to assess their strengths and weaknesses



Figure 2. “Solitude” drawn by patient M., 15 years old, diagnosed with VD and hypotension, before treatment



Figure 3. “Kindness is blind and sincere” patient M., 15 years old, with VD and hypotension after treatment



Figure 4. “Life under pressure” patient D., 13 years old, with VD and hypotension before treatment



Figure 5. “A world where all are singing and dancing” patient D., 13 years old, with VD and hypotension after treatment

to be able to solve their own problems, to get over anxiety and get rid of it.

Music therapy treatment results of adolescents with VD and hypotension are shown in table 4.

Negative results were found in none of the patients. The most positive results were achieved with the help of fantasy and developed imagination while listening to J. Iglesias "Life goes on the same" in 94.6 %, in 89.2 % when listening to Beethoven's Overture "Edmond" and 81.08 % when listening Mozart's Turkish waltz "Rondo", developed the ability to see, listen and hear themselves and others. Suite "Morning" from the works of "Peer Gynt" E. Grieg at in case of 86.4 % of patients, "Ode to Joy" by L. Beethoven allowed 78.4 % patients to feel stronger, more confident, able to make conscious choices for their own health.

A survey of the children and their parents showed that working in the group allowed anxious adolescents to increase their self-esteem (40.2 %), contributed to the development of effective interaction skills, with parents included.

According to the objective clinical and instrumental examinations the blood pressure in both experimental groups using one-time measurement method on average before treatment regarding age norms ranged from: systolic blood pressure = 101.8 ± 8.7 , diastolic blood pressure = 63.6 ± 4.8 . After treatment the main group showed a steady increase of blood pressure: systolic — statistically significant ($p = 0.02$), an average of 106.00 ± 7.26 and diastolic ($p = 0.66$) to 61.10 ± 5.18 . The control group had no significant changes in BP.

The evaluation of the functional state of autonomic homeostasis before and after complex therapy with

provided psychological assistance was carried out on the basis of its main components - autonomic tone and provision.

Analysis of patient examination data using Wayne tables of the main group showed that 5.6 % of patients appeared to have sympatkinetic direction of initial ANS tonus 11.1 % — parasympathicotonic in eutonia 81.1 % was observed (table 5). Similar data was also studied in the control group: sympatoconic — at 13.3 %, parasympathicotonic — 40 % eutonic in 66.7 % after treatment. In 100 % of children in main group eutonic direction of ascending tone BHC was observed — 40 %, while the control group had the eutonic direction even decreased by 5 %.

According to the orthostatic test, normal autonomic sufficiency during the first examination was observed in only 18.9 % of the main group, insufficient levels in 52.7 %, excess levels in 27.9 %. In the control group insufficient levels of autonomic sufficiency were noted in 50 % — excess in 15 %, sufficient levels in 35 %. After a complex, including psychological methods, treatment a 22.2 % increase in the number of children with sufficient autonomic sufficiency ($p < 0.05$), and an increase of 5 % was noted in the control group ($p < 0.05$). After treatment, the normal reaction to orthostatic test was in 40.5 % of children ($p < 0.05$). In the control group a normal reaction to orthostatic test before and after treatment was 35 and 40 % ($p < 0.05$), respectively (table 6).

An analysis of ECG data in children with hypotensive type of VD, who received complex medication and psychological treatment, showed a statistically significant reduction in the incidence of autonomic influences on the heart (from 22 to 5 %, $p < 0.05$). It

Table 4. Results of music therapy treatment in adolescents with VD and hypotension

№	Name of music composition	Number of patients with VD and hypotension (n = 37), n (%)	
		Positive results	Indifferent
1	Mozart turkish waltz, "Rondo"	30 (81.08)*	7 (18.92)
2	Grig, "Morning mood", act four of the "Peer Gynt" Suite	32 (86.4)*	5 (14.6)
3	Beethoven, "Ode to joy"	29 (78.4)*	8 (21.6)
4	J. Iglesias, "Life goes on the same"	35 (94.6)*	2 (5.4)
5	Beethoven, Ouverture "Egmont"	33 (89.2)*	4 (10.8)

Note: * — $p < 0.05$ — reliability of differences on the χ^2 -criteria (xi-square).

Table 5. Ascending initial autonomic tonus in children with VD and hypotension before and after treatment

Autonomic tone	Number of patients, n (%)			
	Main group (n = 37)		Control group (n = 20)	
	Before treatment	After treatment	Before treatment	After treatment
Sympatic tone	2 (5.4)	0*	2 (10)	2 (10)
Eutone	30 (81.1)	37 (100)	10 (50)	9 (45)
Vagotone	5 (13.5)	0*	8 (40)	9 (45)
p*	0.025		0.94	

Note: * — $p < 0.05$ — reliability of differences on the χ^2 -criteria (xi-square).

Table 6. Orthostatic test indicators in children with VD with hypotension before and after the treatment

Parameter	Number of patients, n (%)			
	Main group (n = 37)		Control group (n = 20)	
	Before treatment	After treatment	Before treatment	After treatmentn
Hypersympatonic	3 (8.2)	3 (8.2)	0	0
Astenosympatic	6 (16.2)	8 (21.6)	2 (10)	1 (5)
Hyperdyastolic	2 (5.4)	6 (16.2)	0	0
Asympatonic	17 (45.9)	5 (13.5)	10 (50)	10 (50)
Sympatoastenic	2 (5.4)	0	1 (5)	1 (5)
Normal	7 (18.9)	15 (40.5)*	7 (35)	8 (40)
p*	0.034		0.94	

Note: * — $p < 0.05$ — reliability of differences on the χ^2 -criteria (xi-square).

should be noted that in the control group, the figure rose from 20 to 35 %. The frequency of arrhythmia episodes in the main group decreased by 1.2 times, while in the control group it even increased from 15 to 45 % ($p < 0.05$). The group of children who received combined treatment had decreased incidence of metabolic changes by 5.6 %, and in the control group the the parameter remained unchanged.

Analysis of changes in EEG and EchoEG during treatment in patients of the main group demonstrated a reduction of bioelectrical activity of brain nature by 2.1 times, phenomenon of cortical irradiation — by 1.8 times, a marked stimulation of median brain structures — by 2.3 times and reduce pulsation of m-echo by 6.1 times. In the control group, statistically significant changes were not observed.

REG showed that children with VD when adding complex treatment the frequency of blood supplying disorders in the area of internal carotid artery decreased by 16.3 % (from 51.4 to 35.1 %), while in the control group no significant changes were found. Venous outflow significantly improved in the main group. Thus, the frequency of types with complications decreased by 25 % (from 62.2 to 37.8 %) compared to the same period in the control group, which only improved by 10 % (from 90 to 80 %).

An analysis of psychological testing, clinical and instrumental examination, feedback confirmed the efficiency of psycho innovative program with elements of music therapy, isotherapy, gelotology in complex treatment of children with VD and hypotension.

Research carried out by approved medical and psychological principles of ethics. Side effects were not found in all case.

Conclusions

1. Incorrect life balance (60.4 % strain, fatigue 48.5 %), unfriendly relations with parents — 62.6 %, psychological trauma — 62.1 %, scares — 30.4 %, 87.2 % of unrest lead to anxiety, displayed in emotional, behavioral and cognitive spheres of personality and are precipitating and supporting factors of VD with hypotension in children.

2. Comparison of the results of psychological tests before and after treatment using a complex psycho innovation program “Our medicines — music, laughter, creativity” in comparison with patients who did not receive it, showed effective normalization and psychological state of children suffering from hypotension with VD: an certain improvement in health by 56.8 %, activity by 43.2, mood by 37.7 % in the main group and by 20, 15, 20 % in the control group respectively; reduced anxiety was noted 51.4 %, states with elements of depression by 26.9 % in the main group (in the control group — by 10 and 5 % respectively); decrease by 78.3 % of fear, anger by 67.5 %, increased joy index in 51.4 % of the main group (the control group marked a decrease of anger in only 10 %, figures of fear and mood remained at the same level).

3. Used in the innovative psycho-nondirective program with an indirect approach allowed children with VD and hypotension showed creativity, and using self — regulation to get rid of psychosomatic symptoms, adapt to various difficult situations: music contributed to the emotional saturation; while drawing children adequately expressed and understood psychological problems; through humor negative emotions and feelings were let out.

4. The results of clinical and instrumental methods after complex treatment a normal reaction to orthostatic test was noted in 40.5 %, ECG analysis in children of the main group showed a statistically significant reduction in cases of autonomic influences on the heart (from 22.1 to 5.25 %, $p < 0.05$), in terms of REG it was found that the frequency of violations of blood supply in the area of internal carotid artery decreased by 16.3 % (from 51.4 to 35.1 %), while in the control group no significant changes were identified .

5. Studies indicate that innovative psycho program “Our drugs — music, laughter, creativity”, with elements of music therapy, isotherapy, gelotology justify its widespread use as an effective component in the treatment of children with hypotensive type of VD in hospitals.

Conflicts of interests. Authors declare the absence of any conflicts of interests that might be construed to influence the results or interpretation of their manuscript.

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Особливості психологічного стану та клініко-інструментальних показників у дітей, хворих на вегетативну дистонію з гіпотензією, під впливом інноваційної психокорекційної програми

Резюме. Мета: вивчити особливості психологічного стану та клініко-інструментальних показників у дітей, хворих на вегетативну дистонію (ВД) із гіпотензією, під дією інноваційної психокорекційної програми з елементами музикотерапії, ізотерапії, глотології. **Матеріали та методи.** Обстежено 57 хворих дітей віком 12–17 років, 37 з яких отримували психотерапевтичне лікування за інноваційною програмою «Наші ліки — музика, сміх, творчість» у складі комплексного лікування, 20 дітей (контрольна група) отримували базовий комплекс лікування без надання психологічної допомоги. Проведені загальноклінічне, лабораторно-інструментальне та психодіагностичне дослідження до та після лікування в основній та контрольній групах. **Результати.** Використання в комплексному

лікуванні дітей, хворих на ВД із гіпотензією, інноваційної психокорекційної програми сприяло покращанню клініко-інструментальних даних: зниженню випадків вегетативних впливів на серце (з 22,1 до 5,25 %, $p < 0,05$), нормалізації вегетативного забезпечення кліноортостатичної проби в 40,5 % дітей, покращанню психологічного стану в 74,1 % випадків. **Висновки.** Інноваційна психокорекційна програма з елементами музикотерапії, ізотерапії, глотології може бути рекомендована в складі комплексного лікування дітей із ВД та гіпотензією в умовах стаціонару та в подальшому психологічному веденні пацієнтів.

Ключові слова: вегетативна дисфункція з гіпотензією; інноваційна психокорекційна програма з елементами музикотерапії, ізотерапії, глотології; діти

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Особенности психологического состояния и клиничко-инструментальных показателей у детей, больных вегетативной дистонией с гипотензией, под влиянием инновационной психокоррекционной программы

Резюме. Цель: изучить особенности психологического состояния и клиничко-инструментальных показателей у детей, больных вегетативной дистонией (ВД) с гипотензией, под воздействием инновационной психокоррекционной программы с элементами музикотерапии, изотерапии, гелотологии. **Материалы и методы.** Обследовано 57 больных детей в возрасте 12–17 лет, 37 из которых получали психотерапевтическое лечение по инновационной программе «Наша лекарства — музыка, смех, творчество» в составе комплексного лечения, 20 детей (контрольная группа) получали базовый комплекс лечения без предоставления психологической помощи. Проведены общеклиничко-инструментальное и психодіагностичне исследование до и после лечения в основной и контрольной группах. **Результаты.** Использование в комплексном лечении детей, больных ВД с гипотензией,

инновационной психокоррекционной программы способствовало улучшению клиничко-инструментальных данных: снижению случаев вегетативных влияний на сердце (с 22,1 до 5,25 %, $p < 0,05$), нормализации вегетативного обеспечения клиноортостатической пробы у 40,5 % детей, улучшению психологического состояния в 74,1 % случаев. **Выводы.** Инновационная психокоррекционная программа с элементами музикотерапии, изотерапии, гелотологии может быть рекомендована в составе комплексного лечения детей с ВД и гипотензией в условиях стационара и в дальнейшем психологическом сопровождении пациентов.

Ключевые слова: вегетативная дисфункция с гипотензией; инновационная психокоррекционная программа с элементами музикотерапии, изотерапии, гелотологии; дети