

Clinical Structure of Headache Syndrome in Adolescents with Autonomic Dystonia Syndrome

Janna Nazarova

Associate Professor

Department of Neurology

Tashkent Institute of Postgraduate Medical Education

Phone (+99890) 9750899;

Email address: janna804@mail.ru

Dilfuza Zukhritdinova

Lecturer

Department of Neurology

Tashkent Institute of Postgraduate Medical Education

Abstract

The structure of headache in adolescents with autonomic dystonia syndrome is shown (types, features of the course, concomitant manifestations and relationship with other factors). 167 respondents from 12 to 18 years old were under observation. The patients did not have any rude specialists in neurological or somatic disorders, and the corresponding ones were not observed. Among the surveyed persons, the majority of respondents experience headache (HD) at least once a month and more often, but only 53.3% of them complained of HD, which indicates a subjective perception of this ailment and adds additional complexity in its analysis and assessment. The provocateurs of HD are mental stress, stress, physical activity. In the study of HD syndrome in adolescents with autonomic dystonia syndrome, gender differences were determined.

Keywords: Headache, adolescents, autonomic dystonia syndrome.

Introduction

One of the common complaints in adolescents with vegetative dystonia syndrome (VDS) is headache (HD). According to research data, the incidence of headache increases from 3–8% among preschoolers to 57–82% in adolescents (9).

In most cases, headaches in adolescents with VDS have a favorable prognosis if an accurate diagnosis is made and therapy is prescribed in a timely manner and correctly (3,4). Revealing the causal relationship and establishing the nature of HD in children is a rather difficult task. The main causes of HD syndrome at this age are tension headache (HDT), less often migraine (6,7).

Primary HD, as well as HD in general, negatively affects the daily life of children and adolescents, which lead to difficulty in adaptation processes, decreased academic performance, and disorders of social activity outside the school. Which leads to deterioration in the quality of life (2,8), headaches also predispose to the development of a number of disorders in adulthood. Headache can be a manifestation of many organic neurological, somatic, and psychogenic diseases (5).

Most of the advances in the study of HD syndrome refer to the problem of adult cephalgia. At the same time, there are still few studies on the epidemiology, clinical and pathogenetic features of HD in children. The probable predictors, provoking factors and pathogenetic mechanisms of the onset and chronicity of HD in children remain undefined. There are not enough publications devoted to the study of the influence of chronic somatic pathology on the clinical and psychophysiological features

of HD syndrome in childhood. Given these circumstances, this pathology should be classified as an important general medical, social and economic problem.

Research Material

The object of the study was 243 adolescents 12-18 years old with clinically and laboratory-instrumental confirmed dysfunction of the autonomic nervous system, who were on outpatient treatment at the Youth Center in Tashkent. Voluntary informed consent was obtained from patients and their parents to participate in the survey.

Among the surveyed adolescents with VDS, there were 1.8 times less boys than girls. This is probably due to less pronounced physical and hormonal changes in the pubertal period of the development of boys, which contributed to a less pronounced manifestation of this pathology (Table 1). Table 1, Distribution of the surveyed by sex and age,

Surveyed	boys	girls	Total
n	87	156	243
%	35,8%	64,2%	100,0%
Average age, years	14,0±2,2	15,3±2,6	14,7±3,1

The average age of the clinical manifestation of VDS in girls was 12.2 ± 1.8 years, and in boys - 13.5 ± 2.1 years. In the group of girls, 23.7% (n = 37) were prepubertal girls and 76.3% (n = 119) were pubertal girls. In the group of boys, 28.7% (n = 25) of all examined boys were of prepubertal age and 71.3% (n = 87) were of pubertal age (Fig. 1).

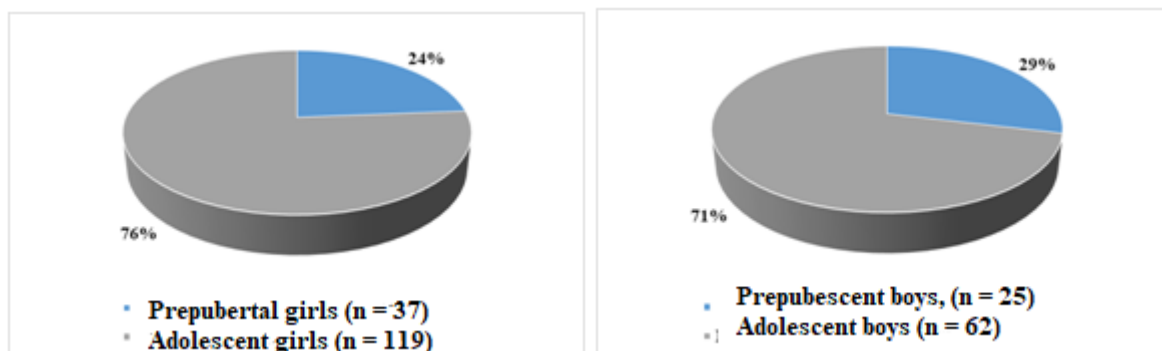


Figure 1. The number of prepubertal and pubertal patients among boys and girls

Among the surveyed adolescents with VDS, 69.5% lived in urban conditions, 30.5% - in the region (Table 2).

Table 2

Geographic distribution of adolescents with VDS

Place of residence		Girls, n=156	Boys, n=87	Total, n= 243
City	abs.	115	54	169
	%	73,7% *	62,1% *	69,5% *
Region	abs.	41	33	74

	%	26,3%	37,9%	30,5%
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*- $p < 0,01$ (credibility between boys and girls)

Survey Methods

The physical development of children was assessed according to the main anthropometric indicators (height, body weight, chest circumference) according to the generally accepted method in compliance with the requirements for them and their performance.

In the course of the study, a questionnaire was conducted using a developed questionnaire that clarifies the nature and location of headaches (PedMIDAS Questionnaire), the intensity of the headache was determined using a visual analogue scale of pain (VAS) (2).

The study of the state of the autonomic nervous system (ANS) was carried out with the determination of all three main characteristics of the functional state of the ANS: initial autonomic tone (IAT), autonomic reactivity (AR), the type of hemodynamics for the clinostatic test (COP). The IAT was assessed according to the tables of A.M. Wein (1991), I.A. Belokon (1987), modified for children, taking into account the nature of complaints, clinical symptoms, cardiointervalogram (CIG) and ECG indicators. To determine the state of vegetative tone, the stress index (SI) of R. M. Baevsky (1976), expressed in arbitrary units, was used. Autonomic reactivity was assessed by the indicators of the Dansh-Apsher eye reflex. Autonomic support of activity (ASA) was assessed according to the results of the clinostatic test (CPC) with recording heart rate, systolic blood pressure, and diastolic blood pressure at standard time intervals. The interpretation of the data was based on generally accepted criteria for assessing pathological variants of COP and indicators of normal hemodynamic response to COP (1).

Mathematical processing of the data obtained was carried out by the method of variational analysis. The mean values (M) and their mean error ($\pm m$) differences between the mean values (0) were determined, the criterion of compliance (χ^2), the probability value (p) were determined.

The relationship between the studied parameters was determined using the linear correlation coefficient ($\pm r$). The results were considered statistically significant at $p < 0.05$. The estimation of the direct correlation was considered: up to ± 0.3 - small; from ± 0.3 to ± 0.7 - average; ± 0.7 to 1.0 large.

Research Results and Discussion

The most common clinical syndromes in patients with VDS were cephalic syndrome (68.7%), esophageal dyskinesia (48%), gastric and intestinal dyskinesia (76%), symptomatic arterial hypertension (44.5%) and hypotension (6.2%), functional cardiopathy (42.4%), neurogenic bladder dysfunction (16.5%), vestibulopathic syndrome (12.4%), neuroendocrine syndrome (12.2%), neurogenic syncope (8.2%), autonomic crises - vagoinular (8.5%), sympathoadrenal (2.2%) - hyperhidrosis (5.0%), angiotrophoneurosis (1.2%).

Dysfunction of the cardiovascular system was manifested by blood pressure lability syndromes: orthostatic hypotension (in 4% of boys and 2.2% of girls), tachycardia at rest (8% and 17%, respectively), symptomatic arterial hypertension (15.2% and 29.3%, respectively). With a high frequency, cardialgic syndrome was detected, characterized by "stitching" pain in the projection zone of the apex of the heart and pericardial region (16% and 24.2%, respectively). These syndromes were detected significantly more often in sympathicotonic type VR and arterial hypertension. Electrocardiographic changes were manifested by an increase in the amplitude of the T wave (6.2%

and 8%, respectively) and ST segment (2.2% and 6.2%, respectively), sinus arrhythmia (32% and 42.4%), supraventricular extrasystole (18.4% and 23.4%, respectively).

In a detailed study of the HD syndrome in adolescents with VDS, according to the PedMIDAS Questionnaire, 167 adolescents (68.7%) have HD, but only 89 patients (53.3%) of them complained of HD, which indicates a subjective perception of this ailment and adds additional complexity in its analysis and assessment. Of these, 29 (32.6%) and 60 (67.4%) adolescents complained about permanent HD. The average age of adolescents with cephalgia was 16.3 ± 1.8 years. Cephalgic syndrome was observed relatively equally often in adolescents of all age groups, more often in urban adolescents and reliably significantly prevailed in girls (two times) - according to the questionnaire, HD syndrome was detected in 116 girls (69.5%) and 51 boys (30, 5%). This is due to the greater emotional lability of female representatives.

The average intensity of cephalalgia in adolescents with VDS ranged from 4.1 points to 7.3 points on the VAS. Most often, HD was accompanied by flashing “flies” in front of the eyes, darkening in the eyes, nausea, loss of appetite, less often - the appearance of strong odors, sounds, abdominal pain or even vomiting, as well as other manifestations.

42.7% of boys with HD syndrome on the background of VDS assessed their health as “good”, 54.4% assessed it satisfactory, which significantly differs from the same indicators in the group of girls with HD - 36.4% and 62.1% respectively. (fig. 3). This once again proves the direct correlation between the presence of a headache syndrome and the well-being of patients.

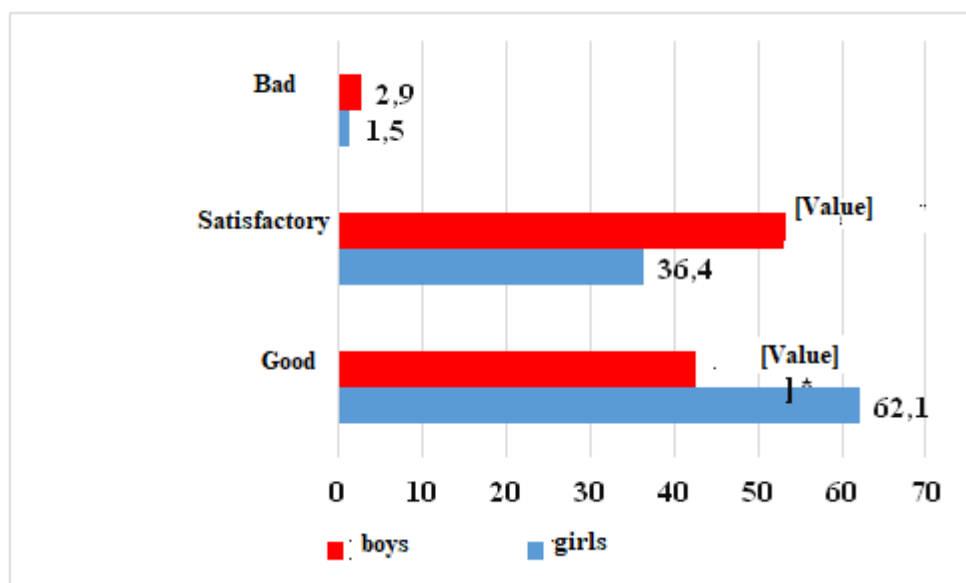


Figure 2. Self-reported health in adolescents with VDS

*- $p < 0, 01$ (credibility between boys and girls)

According to the results of the Questionnaire, the most frequent provoking factor was mental stress (among 56 respondents, 65.9%). emotional stress (in 46 adolescents, 51.6%), as well as physical activity (in 18 subjects, 20.2%). Among the persons complaining of headache, 47.2% of the respondents had an average academic score of 4 - 4.5. Students who studied well and moderately complained of headaches with approximately the same frequency. Among people who do not complain of headache, the percentage of academic performance is the same. Therefore, we can

conclude that there is no clear relationship between headache and academic performance in this category of patients. It should be noted that 47.7% of the respondents in the group of boys had an anxiety disorder, with 8.0% of moderate-severe degree. Among girls with HD, mild anxiety disorder was observed in 51.7% (Fig. 3). The data obtained may indicate the presence of a clear relationship between the phenomenon of headache and disturbing personality traits depending on gender.

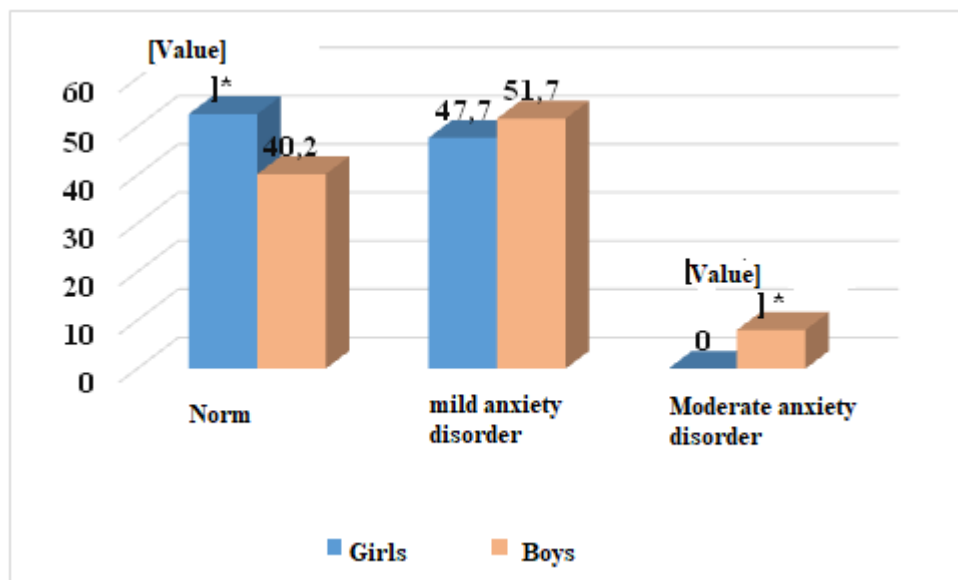


Figure 3. Anxiety disorder in adolescents with VDS, depending on gender (%)

*- $p < 0, 01$ (credibility between boys and girls)

Among the group of respondents who complained of headache, all adolescents (100.0%) had contact with electronic devices for a long time during the day, in the second group (76 people) who did not complain of headache, they constantly contacted electronic devices. a smaller number of respondents - 60 people, which amounted to 79.0%.

The initial autonomic tone in most adolescents with cephalgic syndrome was assessed as vagotonic (71.6%). These adolescents presented the following vagotonic complaints: marbling and cyanosis of the extremities (55.9%), increased hyperhidrosis of the palms and feet (53.7%), red, erect, persistent dermographism (69.9%), poor tolerance of stuffy rooms (49, 4%), complaints of “shortness of breath”, “sighing” (45.1%), allergic reactions (36.5%).

At the same time, adolescents with hypertension also had sympathicotonic signs: dry skin and decreased sweating (23.6%), pink and white dermographism (20.45), a tendency to lose weight (19.3%), episodes of increased blood pressure (18.3%), vegetative paroxysms of the sympatho-adrenal type (6.5%).

The initial autonomic tone of the ANS and autonomic reactivity (AR) were studied by cardiointervalography in adolescents with cephalgic syndrome. Analysis of the results showed that the majority of adolescents had eutonia in 39.1% of cases. Sympathicotonia and vagotonia were observed in a relatively equal number of adolescents (32.6% and 28.3%, respectively). Regardless of the initial state, adolescents with normotensive reactivity prevailed - 33 (37.1%), hypersympathicotonia was slightly less common - 27 (30.3%). Depletion of adaptation reserves, i.e. asympathicotonic reactivity was detected in 15 adolescents (16.9%) with hypertension.

The perinatal and hereditary history of adolescents with HD was analyzed. In 80.2% of adolescents with cephalgic syndrome, a burdened perinatal history was revealed (threats of termination, toxicosis, anemia, complications in childbirth, etc.). Adolescents with migraines are characterized by a high (77.3%) maternal hereditary predisposition.

Migraine debuted at prepubertal age in 33.3% of adolescents, and at puberty in 67.7%. In children with tension headache, the onset of the disease was observed more often in prepubertal age (52.6% 47.4%, respectively). It can be concluded that the debut of headaches at an early age is associated with the emergence of new responsibilities and loads in the lives of children associated with the educational process..

A migraine attack occurred at any time of the day. Adolescents noted the following provoking factors: the menstrual cycle in girls (33.3%), meteorological factors (16.7%), a traumatic situation and physical activity (16.7%), the rest did not associate the onset of headaches with certain external factors.

With tension headache (HDT), provoking factors were noted more often: mainly overwork in college in 58.7% of patients, meteorological factors - 23.4%. Children with HDT noted depressed mood.

Most of the children described pain as daily, persistent for a long time, but it did not interfere with daily activities, did not worsen with normal physical exertion, and often complained about the feeling of a "helmet", a "hoop" on the head.

To cope with a headache, the majority of adolescents among all respondents (47 people, 52.8%) need only rest and sleep. Also, to reduce headaches, the most common responses were: adherence to work and rest, stay in the fresh air, regular moderate physical activity and constant rejection of bad habits. However, half of adolescents 44 people - 49.4% also took painkillers to relieve headaches, and 18 people (20.2%) did it regularly. All adolescents considered themselves to be quite healthy people and did not turn to specialists. It follows from this that the percentage of "self-medication" of the respondents is quite high.

Conclusion

- Among adolescents, according to the PedMIDAS Questionnaire, the vast majority of respondents experienced headaches at least once a month and more often, but only 53.3% of them complain of headaches, which indicate a subjective perception of this ailment, which adds additional complexity to its analysis and evaluation. In addition, cephalalgia is more common in girls, which is associated with greater emotional lability of female representatives.
- The most common triggers of headache are mental stress, stress and physical activity.
- Most often, headache in adolescents is accompanied by vegetative manifestations (darkening in the eyes, flashing "flies" before the eyes, nausea, loss of appetite), less often abdominal pain, vomiting, etc.
- 49.4% of the respondents take painkillers when they have a headache, and 20.2% do it regularly, thereby not exerting any influence on the risk factors, engaging in symptomatic self-medication.

Thus, comorbid support significantly complicates the diagnosis and treatment tactics of headache syndrome in adolescents, therefore, it is necessary to timely assess the nature of the headache, the peculiarity of its course, intensity, the presence of risk factors in order to correctly determine the

nature of cephalalgia in them in the future and prevent a decrease in the quality of life of patients. Considering also the high percentage of symptomatic “self-treatment” among adolescents, it is necessary to conduct extensive educational and preventive work with this category of patients.

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