



Electrophysiological Study Of Vegetative Dystonia Syndrome In Adolescents

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ABSTRACT

A combination of dysfunction in nonspecific systems and, possibly, delayed maturation takes place in the formation of the EEG pattern of vri PVS. The study of nonspecific brain systems in vegetative dystonia made it possible to establish the presence of dysfunction at the suprasegmental level, to assess the functional state of the activating apparatus of the trunk, septo-hypocampal mechanisms of the theta rhythm generation, to assess the state of the thalamo-cortical synchronizing systems in their connection with the clinical features.

KEYWORDS

Adolescents, polygraphy, autonomic dysfunction syndrome.

INTRODUCTION

The necessity for the study and early diagnosis of vegetative dystonia syndrome in adolescents is predetermined by modern trends in medical science and in particular the psychosomatic direction. The origins of most psychosomatic diseases of adulthood (ischemic, hypertension and hypotonic illness, bronchial asthma, peptic ulcer and others) lie in childhood, and the beginning of many of them is autonomic dysfunction (1). Violation of autonomic regulation leads to the emergence of vegetative dystonia syndrome (PVS), the issues of etiology, clinic,

pathogenesis and treatment of which in adults are most fully reflected in limited publications, at the same time, the central, determining role of dysfunction of integrative nonspecific brain systems in the pathogenetic mechanisms of PVS is shown (2).

In adolescence, when many psychosomatic diseases make their debut, the syndrome of vegetative dystonia is extremely insufficiently studied. Data on the epidemiology of autonomic disorders at this age are contradictory; there are no uniform generally

accepted signs of classifications of these disorders (3).

The work was based on the concept of the homeostatic-adaptive significance of the autonomic nervous system. In the aspect of maintaining the constancy of the internal environment of the organism (homeostasis), the study of the mechanisms worked out by evolution was a necessary condition for developing ideas about the conditions for the full existence of the organism.

Materials and research methods: 243 adolescents aged 13-18 years (girls -156, boys - 87), including 20 relatively healthy adolescents (control group), were examined by a complex method. All examined children had clinical manifestations of psychovegetative syndrome (PVS). The research program included clinical and electrophysiological methods.

The discussion of the results: To assess the state of the suprasegmental level of autonomic regulation, neurophysiological methods were used. Polygraphic research in a state of wakefulness with synchronous recording of EEG, ECG, GSA, in various functional states made it possible to clarify the state of nonspecific brain systems and confirm the results of visual analysis. Electroencephalography (EEG) is the simplest, most accessible and informative method for performing these tasks. The assessment of the ascending (subcortical-cortical) influences from the limbic-reticular structures was carried out in conjunction with the analysis of vegetative parameters. The technique of conducting EEG studies in childhood is traditional and is described in a number of manuals (4, 5)

Daytime printing carried out for all adolescents with PVS and adolescents in the control group (CG). The main feature in the systemic analysis of daytime polygram adolescents with PVS was dysfunction of the mesencephalic activating system and varying degrees of disintegration in the construction of adaptive brain responses to modeled functional loads. The differences in the group of adolescents with PVS compared to the CG

concern, first of all, the activation-inhibitory electroencephalographic ratios, the balance of the activation parameters of the right and left cerebral hemispheres. Activating ascending influences on the cortex were manifested in the dynamics of theta rhythm, shifts of the α -index, and varying degrees of desynchronization reaction upon presentation of loads. The descending influences reflected intersystem and intrasystemic disintegration into adolescent groups with PVS. This was shown most clearly in the study of orienting reactions - the rate and order of extinction of components in the PVS group were violated. Analysis of the state of nonspecific systems depending on the form of PVS revealed the characteristic features.

Thus, in chronic sinus tachycardia, there is a significant increase in the level of cortical activation, in tachycardia of a recurrent type, an insufficient degree of cerebral activation is revealed, combined with an increase in the generation of theta rhythm by septo-hypocampal structures. Thus, even in the presence of similar somatic phenomena (tachycardia), there are different variants in the dysfunction of the cerebral integrative systems. The study of nonspecific systems in adolescents with PVS in various functional states in wakefulness showed that, according to theta rhythm, there is an initially increased level of activating influences on the cerebral cortex, especially on the right. During functional loads (emotions), insufficient EEG activation is noted, significantly lower on the right. In adolescents from the CG, these shifts are significantly less pronounced and there is no emphasis on the hemispheres.

An important point, in our opinion, is the presence of paroxysmal nonspecific activity in the EEG in adolescents with PVS. Separate EEG signs - stem discharges, the reaction of rhythm assimilation in the range of 4-6 Hz in 13-year-old adolescents may indicate a delay in the morphological and functional maturation of the central nervous system.

CONCLUSION

A combination of dysfunctions in nonspecific systems and, possibly, a delay in maturation take place in the formation of the EEG pattern of PVS. The study of nonspecific brain systems in vegetative dystonia made it possible to establish the presence of dysfunction at the suprasegmental level, to assess the functional state of the activating apparatus of the trunk, septo-hypocampal mechanisms of the theta rhythm generation, to assess the state of the thalamo-cortical synchronizing systems in their connection with the clinical features.

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