SCIENTIFIC REVIEW: TOPICAL ISSUES OF THEORY AND PRACTICE

Published: February 10, 2022 | Pages: 06-10

# ADAPTIVE AND RESERVE CAPABILITIES IN ELDERLY PATIENTS

**Ismigul Abbosova**

Andijan State Medical Institute Andijan, Uzbekistan

**Janna Nazarova**

Associate Professor, Department Of Neurology,

Tashkent Institute Of Postgraduate Medical Education, Tashkent, Uzbekistan

**Iroda Rustamova**

Andijan State Medical Institute Andijan, Uzbekistan

**ABSTRACT:** This article discusses adaptation and reserve skills in elderly patients. Our studies have shown that the state of the autonomic nervous system (ANS), adaptive and reserve capabilities of the body change with age. At the same time, the issue of using a tilt test with the analysis of heart rate variability (HRV) in patients with CCI in clinical practice has been little studied. Moreover, the lower the FR of the body, the higher the tension of regulatory mechanisms is required to maintain homeostasis an objective, simple and highly informative functional test for studying the FR of the neurovascular system is the tilt test (orthostatic test).

**KEYWORDS:** Adaptation skills, reserve skills, elderly patients, studies, autonomic nervous system, body change, heart rate variability, functional test, homeostasis.

## INTRODUCTION

It is known that the reserve capabilities and adaptation mechanisms of the body undergo significant changes with age and become more dependent on changing conditions of the internal and external environment [1,2].

Thus, a decrease in functional reserves and a violation of adaptation mechanisms is one of the main links in the pathogenesis of various processes in the body, in particular, in patients with chronic cerebral ischemia (CCI). It is possible to assess the state of functional reserves (FR) of the body by studying the tension of regulatory systems. Moreover, the lower the FR of the body, the higher the tension of regulatory mechanisms is required to maintain homeostasis an objective, simple and highly informative

Published: February 10, 2022 | Pages: 06-10

functional test for studying the FR of the neurovascular system is the tilt test (orthostatic test). In clinical practice, it is used to assess the reactivity of the parasympathetic sympathetic divisions of the autonomic nervous system (ANS), for the differential diagnosis of syncope, neurocirculatory circulatory disorders, as well as for the selection of drugs that affect the redistribution of blood (antihypertensive drugs, ganglioblockers, angiotensin-converting enzyme inhibitors, etc.).;

When performing a tilt test, it is important to take into account the dynamics of blood pressure, heart rate and clinical data. The test is considered positive if fainting or pre-syncope develops, accompanied by a feeling of lightheadedness, dizziness, hypotension, bradycardia, pain or discomfort in the head and neck, and sometimes convulsions. In the presence of these symptoms and / or on the condition that, in response to an orthostatic load, the heart rate increases by more than 30 beats per 1 min, and systolic blood pressure (BP syst) decreases by 30 mm. 2T. Art. and more, a diagnosis of orthostatic hypotension is made, which indicates a violation of the autonomic regulation of vascular tone.

It is known that for assessing the functional state of the autonomic nervous system, the instrumental method of research is informative - cardiointervalography and analysis of heart rate variability [2]. Our studies have shown that the state of the autonomic nervous system (ANS), adaptive and reserve capabilities of the body change with age. At the same time, the issue of using a tilt test with the analysis of heart rate variability (HRV) in patients with CCI in clinical practice has been little studied.

Purpose of the study: Comparison of Cardiointervalography Parameters in Active Tilt Test in Elderly Patients with CCI.

## MATERIAL AND METHODS

The clinical part of the work was carried out in the advisory polyclinic of ASMI in the period from 2019 to 2022. 180 patients with CCI of the second stage were under observation. The patients included 62 (37.8%) men and 118 (62.2%) women. The age of patients ranged from 60 to 75 years the average age was 67.4±6.1 years.

Group I consisted of 118 patients (62.2% of the total number of patients) with stage 2 chronic cerebral ischemia (CCI) with ADS (42 men (35.6%) and 76 women (64.4%)), group 2 consisted 62 patients (34.4%) with stage 2 CCI without ADS (26 men (41.9%) and 36 women (58.1%)).

To assess the functional state of the autonomic nervous system in all groups, an active tilt test was performed with the registration of cardiointervalography (CIG) parameters according to the standard protocol: in the supine position for 7 minutes, then the patient was asked to actively move to a standing

Published: February 10, 2022 | Pages: 06-10

position and stand straight, without support for hands, within 7 minutes. The study was carried out in a state of relative rest after a 30-minute rest in the morning (8.00-10.00 hours) under conditions close to the main metabolism and in the evening (16.00-18.00 hours) - to assess the result of daily activity. The following CIG indicators were evaluated: mode amplitude (Amo), regulatory system tension index (IT), total power of the CIG wave oscillation spectrum (TOTAL power), referred to in the text as TOTAL, and sympatho-vagal index (LF\HF). The interpretation of the obtained CIG data was carried out according to the standards proposed by R.M. Baevsky (1998), E.A. Berezny and A.M. Rubin (1997), D.I. Jemaytite (1982). So, a normal reaction is characterized by a slight decrease in the total power of the spectrum, an increase in the power of the LF and a decrease in the HF component, as well as an increase in the LF / HF index, which reflects the inhibition of parasympathetic and an increase in sympathetic activity when moving from a horizontal to a vertical position. With certain functional and organic disorders, the following changes may occur: 1) a decrease in the reaction against the background of the initial low-variable rhythm and the sympathetic orientation of HRV, that is, changes in HRV indicators to the ongoing tilt test will be insignificant, which is explained by a decrease in the effect on the heart rhythm of both departments of autonomic regulation; 2) paradoxical reaction - manifests itself in the form of an inadequate increase in HRV and a change in the direction of the reaction, this reflects various disturbances in the regulation of adaptation mechanisms and is interpreted ambiguously. Regardless of the nature of the dysregulation, a sharp decrease in the total power of the spectrum in the standing position during the tilt test may indicate a significant dysregulation.

The research materials were subjected to statistical processing using the methods of parametric and non-parametric analysis. Accumulation, correction, systematization of initial information and visualization of the obtained results were carried out in Microsoft Office Excel 2016 spreadsheets. Statistical analysis was carried out using the IBM SPSS Statistics v.23 program (developer - IBM Corporation).

## RESEARCH RESULTS

In patients of group I, according to the background indicators of CIG, in the morning there was a pronounced tension of regulatory systems (IT=1281±197) against the background of low values of the total activity of autonomic influences on the heart (TOTAL=354±44.5), and in the evening an increase in sympathetic activity according to Amo =81±8, LF\HF =4.2±6 ($P < 0.05$), which significantly differs from similar indicators in patients with stage II DTA, elderly and senile age. In response to the test, 73.8% of

Published: February 10, 2022 | Pages: 06-10

the examined patients in this group showed unresponsiveness, CIG indicators did not change significantly (P <0.05), 26.2% had a paradoxical reaction, the changes of which are difficult to interpret due to the heterogeneity of the change in indicators.

In patients of group II, there were no significant differences between the morning and evening background CIG values (P>0.05), with the exception of the sympathetic-vagal index (LF \ HF = 3.7 ± 0.7), which indicates the predominance of sympathetic influences on heart rate in the morning (P<0.05). At the same time, the response to the test is adequate, both in the morning and in the evening, and is characterized by a significant increase in LF \ HF by 63.2% and a decrease in TOTAL power by 40.5% (P <0.05), which reflects the sympathetic orientation reactions. Amo, IT do not change during tilt test.

Age is one of the lengths of time, which consists of biological and psychological components, and at each stage is the result of the interaction of external and internal factors, which determines the time of existence of the subject. The summation of the intensity and duration of influence, external and internal negative factors can determine the time of the onset of the pathological process. On the other hand, the interaction of the laws of the environment and the genetically programmed age of a person presupposes an individual analysis of the development of these changes, like an analysis of fingerprints.

Thus, speaking about the processes of aging and the development of atherosclerosis of cerebral vessels, one can think of two mutually dependent processes, the birth of which is death. And the statement that DTA is a disease of age is a deeply philosophical issue that requires systematic scientific research and justification.

## CONCLUSION

In patients with stage 2 CCI without ADS in the elderly, the reaction to the tilt test was adequate, and in patients with stage 2 CCI with ADS, its severity was significantly reduced. These changes occur against the background of “rhythm rigidity” - the absence of a difference between the morning and evening CIG values in the elderly. This occurs against the background of activation of sympathetic regulation and a significant tension of regulatory structures.

## REFERENCES

1. Baevsky R.M., Ivanov G.G. Heart rate variability: theoretical aspects and possibilities of clinical application - Moscow: Medicine, 2000. –P. 295.
2. Wayne A.M. —Vegetative Disordersǁ – Moscow: 2000. – P. 749.

Published: February 10, 2022 | Pages: 06-10

3. Khasanov, A. (2016). About several infrastructure constructions of the Great Silk Road. Int'l J Innov Sci Eng Technol, 3(6), 295-299.
4. Inogamov, B. I., & Khasanov, A. O. (2021). Taking Into Account Socio-Functional Factors in the Design of Housing. Design Engineering, 2587-2589.
5. Kurtieva, S., Nazarova, J., & Mullajonov, H. (2021). Features of Physical and Generative Development of Modern Teenagers Living in Uzbekistan. NeuroQuantology, 19(7), 57.
6. Zukhritdinova, D., & Nazarova, J. (2021). Clinical Structure of Headache Syndrome in Adolescents with Autonomic Dystonia Syndrome. European Journal of Molecular & Clinical Medicine, 7(11), 4487-4493.