

EVALUATION OF HAEMODYNAMIC STATE IN EARLY STAGES OF ARTERIAL HYPERTENSION IN YOUNG MEN

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Arterial hypertension (AH) in the Russian Federation, as well as in all countries with advanced economy, is one of the burning medico-social problems. A considerable increase of AH patient census among non-adults frightens, while the diagnostics of the arterial tension (AT) increase in young people and the level of AH early stages detection stay unsatisfactory. From this perspective the most applicable methods are the ones of functional diagnostics, which allow detecting the states on the edge of the norm and pathology, early and super early changes on the part of the blood circulatory system for the purpose of probable cardiovascular diseases prognostication. To the advanced noninvasive methods of haemodynamics diagnostics the polyrheocardiography method integrating the research of central haemodynamics according to Kubichek and rheography of the pulmonary artery and aorta is referred.

The purpose of the present study was in the evaluation of haemodynamic changes of the systemic and pulmonary circulations in arterial hypertension early stages in young men by the computer polyrheocardiography method.

For the investigation of the systemic and pulmonary circulations haemodynamics state 38 men aged from 18 to 50 (the average age $35,1 \pm 3,2$) were examined. At the AH classification the Russian recommendations worked out by the Committee of Experts of the All-Russia Scientific Society of Cardiologists in 2004 were used. The first group consisted of 12 men with high normal AT, the second one – 13 patients with the AH of the first stage, and the control group made 13 practically healthy men matching in age. Coronary heart disease, backward heart failure, secondary hypertension and endocrinopathy patients were excluded from the examination.

For the purpose of the systemic and pulmonary circulations haemodynamics state determining the method of polyrheocardiography was used with the help of the “Rheo-Spectrum” multifunctional computer rheograph of the Russian firm “NeuroSoft”. The statistical treatment of the materials was carried out by methods of descriptive statistics using the application program package “Statistica 6.0” and nonparametric techniques of valuation.

As a result of the carried out central haemodynamics investigation in both study groups the increase of the average haemodynamic pressure of different manifestation degree against normosistolia has been detected: at the high normal AT – by 9% and at the

AH of the first stage – by 15% compared to the control group. In all patients including the control group the hypokinetic type of central haemodynamics was detected. The central haemodynamics state peculiarity in AH patients became the increase of vascular resistance: in the first group the total peripheral resistance (TPR) is increased by 39% and in the second group – by 7% compared to the control group, that testifies to the increase of the left ventricle afterload in the early AH stages. The cardiac output decrease in AH patients compared to the control group didn't exceed 2%. With the AT degree increase in the study groups the left ventricle preload decreased as evidenced by the left ventricle end diastolic pressure decrease. The TPR increase leads to the left ventricle contractive activity increase: in the group with high normal AT the Blumberger's coefficient was increased by 40% and at the first stage AH – by 81%. The detected changes of the systemic blood flow in the pulmonary circulation in the second group patients were characterized by hypertonia of small and medium arteriae, hypotonia of veins and they were manifested with the increase of slow blood filling time by 7% and the decrease of the rheographic diastolic index by 21% compared to the control group. The pulmonary hypertension has been detected in both groups of study, but the most frank it is in the patients with high normal AT.

Thus, early haemodynamic changes in both blood circulations have been detected by the polyrheocardiography method in young men in early stages of AH. The pulmonary hypertension progression preceding the left ventricle failure development is registered; diastolic dysfunction forthcoming against this background is the following reason for tension rise within the pulmonary artery system on account of the bulk factor including and vascular pulmonary resistance intensity.

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TRACE SUBSTANCES OF ANTIPARASITIC MEDICAL PLANTS

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In spite of medical substances organic synthesis success the vegetational resources still remain one of the basic sources of medical substances obtaining. The Kuzbass flora has great resources of medical plants with antiparasitic properties. A considerable increase of the contaminated with helminthoses people served the primary factor predisposing to Kuzbass antiparasitic action medical plants trace substances composition studies. Of all the examined on helminthoses – enterobiasis makes 68%, ascariasis – 19%,

opisthorchiasis – 12% and 1% falls at other less common parasitoses.

The role of inorganic plant elements is many-sided: they are parts of cellular structures, take part in biochemical processes, determine the conformation of organic molecules and membrane permeability, influence the living body signaling system functioning, and the main thing is that they take part in the processes of biosynthesis of plant active agents which are necessary for their medical properties manifestation. According to one of the classifications chemical elements are subdivided on the grounds of their importance for the plants: 1) essential macroelements (magnesium, calcium, potassium, nitrogen, phosphorus, sulphur) and microelements (manganese, molybdenum, nickel, cuprum, ferrum); 2) useful elements (sodium, cobalt, chrome, selenium, aluminon). We succeeded to find out all the numerated above substances in Kuzbass antiparasitic action medical plants: absinthium, mugwort, ginger plant, sown garlic, field pumpkin, bulb onion, wild carrot, poisonberry, common hop, garden huckleberry, horseradish, horseheal. Anthelmintic properties of these plants are assured by mineral substances partaking in the synthesis of alkaloids, flavonoids, glycosides, terpenoids. At the same, time geochemical factors and infestation with phytohelminths, which stimulate the accumulation of a range of elements (molybdenum, selenium, chrome, ferrum) in host-plant tissues, influence the content of mineral elements in the plants. These elements shortage in the soil promotes the plants protective properties reduction intensifying pathological processes in their nature at the phytohelminths infestation.

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FASTING-DIET THERAPY INFLUENCE ON SALT GUSTATION THRESHOLD

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Arterial hypertension (AH) is the most common disease concerning cardiovascular pathology. Its connection with heavy consumption of sodium salt is evident. The carried out research (Volkov V.S. and co-authors, 2004) testify the existence of high salt gustation threshold (HSGT) in arterial hypertension teenagers. However, more than a half of the teenagers with AH are overweighted. In this context the HSGT level in teenagers with AH in combination with overweight with Quetelet index more than 25 and fasting-diet therapy influence on HSGT.

56 teenagers with AH combined with overweight were examined. The average age was 14 years old ($\pm 2,6$). Besides general clinical-laboratory research the HSGT was studied according to the modified method of Henkin R. (Konstantinov Ye.N. and co-authors, 1983). In accord to the HSGT level the examined patients were divided into three groups: 4 (8,4%) teens had the HSGT level below normal one, 2 (4,2%) – had a medium HSGT level and 50 (87,4%) teens had a higher level of HSGT.

We also raised a question of the HSGT disturbance remoteness. On this basis the examination of 150 teens aged from 14 to 17 was carried out. The analysis of the findings testified that 130 (86,7%) teens have a higher level of HSGT. In the given group the HSGT study in 36 children with periodical arterial pressure rise against the background of overweight. The research data found out the HSGT increase both in the teenagers and their mothers.

A fasting-diet therapy in agreement with the guideline of the USSR MHC (1990) was carried out. The cycle lasted 19 days. Due to curative measures the HSGT decrease was registered in 50 (89,3%) of 56 teenagers. Not only the dynamics of arterial pressure decrease in all the patients was noticed, but also body weight losing by 6,4 kg.

So, it is detected that the HSGT level increase in teenagers has a burdened heredity. the carried out fasting-diet therapy has not only a positive effect at AH and decreases body weight, but also promotes the salt gustation threshold decrease.

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PATHOLOGIC ANATOMY AND MOLECULAR BIOLOGY ON THE BOUNDARY OF MILLENNIA

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The role of pathoanatomy in the development of biomedical sciences is of great value and diversity. A wide introduction of biochemical methods, and in morphology – histological chemistry, allowed studying metabolic and molecular changes. The progress of molecular biology and immunohistochemistry, in situ hybridization became the foundation for creation of a new discipline – molecular pathology studying molecular biology of general pathologic processes and diseases in the level of structure, functional activity and gene expression changes.

The pathoanatomy gradually co-opted current achievements and up-dated engineering solutions of such sciences as anatomy, physiology, chemistry, microbiology, immunology, genetics, cellular and molecular biology. Nowadays it has got an opportunity to