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**CLINICAL, FUNCTIONAL AND NEUROHORMONAL ASPECTS TO IMPLEMENT THE
CONCEPT TO PREVENT SUBCLINICAL ATHEROSCLEROSIS IN A SHORT-TERM AND LONG-TERM**

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The question to determine subclinical atherosclerosis in the XXI century is somewhat disputable because the term " atherosclerosis ," some authors state, is misunderstandable including various variants of arteriosclerosis , each of them is not only characterized by structural features, but also pecific causes and mechanisms of occurrence. At a young age lipid-free intimal lesions of the arteries are formed with muscular-fibrous, fibrous hyalinized plaques, circular or focal muscle-elastic intimal hyperplasia - and therefore the question of screening and treatment of these patients is important. This definition makes it worthwhile to find modern transformation definitions of ischemic heart disease, and therefore a comparison of clinical and pathophysiological paradigm of subclinical atherosclerosis concerning the effectiveness of treatment is important.

To estimate prevention of subclinical atherosclerosis in a short-term (3 months) and long-term (1 year) prognosis by the functional and neurohormonal markers of atherogenesis .

The research is conducted on 164 patients who were admitted with bias diagnosis of cardialgia in the distribution of vegetative-vascular dystonia, coronary X syndrome, stable exertional angina pectoris of I-II functional classes. The following diagnostic methods in a short-term (3 months) and long-term (1 year) periodswere used: electrocardiography, echocardiography, extracranial duplex ultrasound scanning of the common , external and internal carotid arteries, stress-tests (tredmil test), the methods to examine the blood indices including general blood count, biochemical test, blood lipid level of homeostasis, neuromessenger vasoactive indicators (Pregnancy-associated plasma protein-A (PAPP-A)) and C -reactive protein (CRP).

In the absence of initial differences in PAPP-A and CRP in groups 1 and 2 at the beginning of examination and during treatment there is a significant decrease in PAPP-A in group 1 ($p < 0,001$) and group 2 ($p < 0,001$) against the ground of treatment, and PSA group 1 ($p < 0,001$) and in group 2 ($p < 0,001$), and increase and decrease of an average IMC through 6 vessels to the value of 0.9 mm at the beginning of testing is characterized by the odds ratio (OR) 4.15 , with the decrease in growth rate of PAPP- A 10-20% - OR 0.56 , CRP in groups 1 and 2 - OR 0.57.

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CHRONIC HEART FAILURE (PATHOGENETIC ASPECTS)

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Endothelial dysfunction is a characteristic feature of chronic heart failure (CHF), regardless of etiology, and one of the factors of systemic vasoconstriction and increased risk of thrombosis in case of this syndrome. The objective was to evaluate the impact of different modes of diuretic therapy on vascular endothelial function in patients with chronic heart failure during 6 months of treatment.

108 patients were examined (63 men and 45 women, age 56-82 years (average - $(68,1 \pm 0,9)$ years)) with stage III hypertension with coronary heart disease (CHD) and without it, CHF II-III NYHA functional class and ejection fraction $< 45\%$. All the patients included in the study were decompensated, requiring Loop diuretics and had no contraindications to their administration of term monitoring the patients was 6 months after inclusion in the study. All patients had the correction in treatment according to current treatment protocols of hypertension complicated by heart failure, with the obligatory presence of coronary artery disease and diabetes. Depending on the nature of diuretic therapy all examined patients with CHF were divided into 2 groups. Group 1 ($n = 55$) included patients who were assigned daily to diuretic therapy torasemide, group 2 ($n = 53$) - patients who were administered to furosemide therapy (drug intake 1-2 days or 2-3 consecutive days followed by a break for 1-2 days). Changes in the diameter of the brachial artery were evaluated using the diagnostic ultrasound scanner "LOGIQ 500", 7 MHz linear transducer of ultrasonic phased grid system. Echo-location of the brachial artery was performed in longitudinal section of 10-15 cm above the right elbow. The study was conducted in triplex mode (B-mode, color Doppler flow mapping, spectral analysis of the Doppler frequency shift). Endothelial function, defined as endothelium-dependent vasodilation (EDV), was assessed as the percentage increase in the diameter of blood vessels - from the source to the maximum during hyperemia.

In patients with CHF EDV was improving significantly under various schemes of diuretic therapy after 3 months of follow-up ($p < 0.0001$ as compared to the original index, calculated by Wilcoxon criterion). In patients who received furosemide EDV change of -3.5% before treatment to $+ 1.7\%$ in 3 months ($p < 0.0001$) and $+ 5.4\%$ after 6 months ($p < 0.0001$) . In patients with heart failure end their treatment regimen which included daily intake of torasemide, EDV changed from -3.8% before treatment to 3.1% after 3 months ($p < 0.0001$) and $+ 7.1\%$ after 6 months ($p < 0.0001$). After 6 months EDV in selected groups of patients under the influence of intermittent therapy with furosemide increased by 63.1%, while daily intake torasemide- by 97.9% ($p = 0.036$ between groups of comparison using Mann-Whitney). The study demonstrated that in patients with CHF the magnitude in changes of blood flow velocity in the brachial artery after 3 months of standard therapy with intermittent receiving furosemide increased by 6.2%, and the intake of torasemide - by 17.1% ($p = 0.026$); after 6 months of using the scheme with furosemide - increased by 22.5%, and with intake of torasemide - by 33.9% ($p=0.033$). With daily administration of torasemide, due