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# ROLE OF MITRAL ANNULAR MOTION INDICES IN DYNAMICAL OBSERVATION IN PATIENTS WITH HYPERTENSION AND DIASTOLIC HEART FAILURE

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**Actuality:** Hypertension remains a great medical and social problem being one of the key factors of cardiovascular risk and playing an important role in pathophysiology of cardiovascular continuum. The latter is a sequence of interdependent processes and conditions that leads to the development of end-stage heart disease, the most common manifestation of which is chronic congestive heart failure (HF).

Given the fact that in the vast majority of patients with essential hypertension syndrome of HF is not accompanied by a decrease of left ventricular contractility, markers of systolic function (including ejection fraction) tend to have limited value in the short-term observation in these patients. The role of markers of left ventricular diastolic filling (which are changing more dynamically) in monitoring such patients is not fully understood.

**Purpose:** To investigate the role of mitral annular motion indices in dynamical observation in patients with hypertension and diastolic heart failure.

**Materials and methods:** 32 patients with essential hypertension and HF with preserved systolic function who achieved target BP during the period of hospitalization have been observed for 3 months. Diagnostics and verification of hypertension were performed according to National guidelines for the diagnosis and treatment of hypertension (2012), CHF – according to National guidelines for the diagnosis and treatment of heart failure (2013). All the patients at the beginning and at end of the observation period underwent transthoracic echocardiography with the estimation of

transmitral blood flow parameters, mitral annular diastolic motion indices, and establishing the type of left ventricular diastolic filling; among the patients included to our study, 19 had type I diastolic dysfunction (DD), 13 – type II DD.

After the 3-month period the differences in clinical presentation and exercise tolerance (using 6-minute walk) have been analyzed in subgroups of patients who achieved / did not achieve the 10% increase of Ea peak of mitral annular motion for patients with type I DD (n = 11 vs. 8, respectively), and 10% reduction of E/Ea ratio for patients with type II DD (n = 5 vs. 8, respectively).

**Results:** It was shown that a group of patients who achieved improvement in left ventricular filling was characterized by significantly greater reduction in the intensity of dyspnea ( $2,7 \pm 0,4$  points vs.  $1,6 \pm 0,3$ ,  $p < 0,05$ ) and fatigue ( $3,2 \pm 0,5$  points vs.  $1,8 \pm 0,5$ ,  $p < 0,05$ ) by visual analogue scale, and greater increase in the 6-minute walking distance ( $112 \pm 20$  m vs.  $63 \pm 13$ ,  $p < 0,05$ ). On inquiry, the quality of treatment was assessed as satisfactory by 14 (87,5%) patients of the 1st and 9 (56,3%) – of the 2nd group,  $p < 0,05$ .

**Conclusions:** Thorough assessment of left ventricular filling in early and late diastole in patients with hypertension and diastolic heart failure is justified given the proven link with clinical symptoms, quick dynamics under adequate therapy (early diastolic filling with Ea peak as the most specific marker), and high prognostic significance for the development of myocardial fibrosis with subsequent decrease of contractility (late diastolic filling with E / Ea ratio as the most specific marker).

# LEVEL OF TNF- $\alpha$ , sTNF-RI AND 8-ISOPROSTANE IN THE COMBINED THERAPY OF LACIDIPINE AND CANDESARTAN AT OVERWEIGHT HYPERTENSIVE PATIENTS

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One of the manifestations of the pathogenesis of such combined pathology as hypertension (AH) and obesity is the development of endothelial dysfunction (ED). Recent studies suggest a possible role of immune-inflammation activation mediated by pro-inflammatory cytokines, and oxidative stress (OS) in the development of ED.

**Aim:** Assessment of the level of TNF- $\alpha$ , sTNF-RI and 8-isoprostane, as the main marker of OS, at overweight patients with arterial hypertension in combined lacidipine (2 and 4 mg) and candesartan (4, 8, 16mg) therapy.

**Materials and methods:** The content of serum 8-iso-PgF<sub>2</sub> $\alpha$  (8-isoprostane), TNF- $\alpha$  and its soluble receptor type I (sTNF-RI) determined by ELISA. The obtained data were expressed in pg/mL, ug/ml and ng/ml respectively. 44 overweight hypertensive patients, (2–stage, 2-3 degree of AH, age– $54,7 \pm 0,58$  years), without preliminarily antihypertensive therapy were examined.

**Results:** The TNF- $\alpha$  level was decreased to 87,65

( $44,99 \pm 5,6$  compared with base line before treatment  $132,64 \pm 22,58$ ,  $p < 0,05$ ) which is 66,08%. Middle level sTNF-RI noted a reverse trend, ie increase its average 0,53 ng/ml (25,24%) after the treatment ( $2,63 \pm 0,53$  compared with before treatment  $2,10 \pm 0,16$ ). The decrease in TNF- $\alpha$  / sTNF-RI 72,9% (17,11 VS 63,16) indicates a change of ligand / receptor ratio on, ie the reduction of TNF- $\alpha$  on the background of sTNF-RI shows a significant decrease in the level of immuno activation after 10 weeks of treatment by ARA II + AC.

Decreased content of serum 8-isoprostane on 80,9% ( $2,42 \pm 1,49$  compared to baseline  $12,67 \pm 9,63$ ) and respectively 5,24 times becomes lower.

**Conclusions.** Lacidipine treatment in combination with candesartan is accompanied by a decrease in intensity of oxidative stress, which manifests a decrease in the level of 8-isoprostane and evidence of antiimmunoinflammatory and antiapoptotic effects during therapy.

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