

compression device made it possible to determine the subtype of the mobility of nerve centers as a sign that complements the main type system reaction. If BP parameters returned to the background levels 3 minutes after the exposure nivelation, the subtype of normal mobility was diagnosed. In the other case, when BP parameters returned to the baseline level after 5 minutes and later after decompression, an inert subtype of mobility was diagnosed. The subtype of normal motility was diagnosed in 53,3 % (n=16) of subjects with the main hypertonic response type, 53,6 % (n=30) of the subjects with the main hypotonic response and 38,2 % (n=13) with the main dystonic response type of response of the cardiovascular system. The inert subtype of the motility of the cardiovascular system was found in 46,7 % (n=14) of people with a hypertensive main type of response, in 50,9 % (n=26) of people with a hypotonic main type of response and 61,8 % (n=21) – with dystonic.

**Conclusions.** The resulting typological changes in blood pressure parameters changes under the conditions of the compressive influence on the eyeballs we can revealed a tendency to hypertension, hypotension, dystonic states and such types of cardiovascular system reactions, possibly, can be used for prediction of the development of arterial hypertension in persons with a hypertensive type of cardiovascular system response. The risk of arterial hypertension may be highest in persons with a hypertensive inert type of cardiovascular system reaction to the compressive influence on the eyeballs. Additional studies are being conducted to confirm this assumption.

### **Study of the influence of the effects of antihypertensive therapy on the functional state of the BP regulation system in patients with essential hypertension stage II and a normal body mass index**

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The data of the multiple modern multicenter studies convincingly demonstrates that the pathogenesis of essential hypertension includes a great number of pathophysiological mechanisms, therefore, for the adequate treatment of arterial hypertension in most patients, the combined use of antihypertensive drugs is appropriate. To monitor the effectiveness of antihypertensive therapy, a wide range of diagnostic procedures are used - from general clinical tests, routine blood pressure (BP) measurement, to echocardiographic research etc. But these methods do not provide detection and evaluation

of the individual reactivity of the blood pressure regulation system at rest in response to changes in the regulation constant. Determining the functional state of the blood pressure regulation system before and after of antihypertensive therapy will allow to establish the adequacy of antihypertensive therapy not only based on the obtained blood pressure parameters from a one-time measurement of blood pressure or daily monitoring, but also on the basis of the revealing of the tendency to react according to the hypertensive type with drugs.

The goal of the present study was to investigate the effects of combination of angiotensin-converting enzyme (ACE) inhibitors and a selective imidazoline receptor agonist on the functional state of the blood pressure regulation system in male patients with essential hypertension (EH) stage II with a normal body mass index.

**Material and methods.** 120 male patients with a normal body mass index with stage II essential hypertension with mild and moderate hypertension, aged 45-57 years (average age was  $51 \pm 5,9$  years), who did not receive any medication during the 3 months prior to inclusion in the study, were examined. As for antihypertensive therapy, all subjects were prescribed the ACE inhibitor Perindopril 5 mg (Prestarium, SERVIER, France) and the imidazoline receptor agonist Moxonidine 0,3 mg (Moxogamma, Woerwag Pharma, Germany). Before the initiation of antihypertensive therapy and at the end of the 12th week period of antihypertensive therapy, systolic blood pressure (SBP) and diastolic blood pressure (DBP) were determined in the initial state and under conditions of compressive influence on the mechanoreceptor structures of the abdominal cavity organs (MRSACO) with a value of 10; 20; 40; 60; 80; 100 mm Hg, immediately and 3 and 5 minutes after the end of compressive influence. Pulse arterial pressure (PBP) and mean dynamic arterial pressure (MDP) were determined according to well-known formulas. Statistical analysis of the obtained data was performed by methods of parametric and non-parametric statistics on a personal electronic computer using Microsoft Excel software and STATISTICA Version 6.0.

**Results.** Before the start of treatment, one, main – hypertensive, type of response of the blood pressure regulation system was identified, which was characterized by a significant ( $P < 0,05$ ) increase in SBP, DBP, PBT, and MDP during compressive irritation of the MRSACO. After 12 weeks, on the background of antihypertensive therapy, target blood pressure levels were achieved in all (100 %) patients. At the same time, 2 main types of response of the blood pressure regulation system to compressive irritation of the compressive influence on the mechanoreceptor structures of the abdominal cavity organs were identified - normotonic and hypotonic. The normotonic type of response (48 examined (40 %) was characterized by the absence of significant ( $P > 0,05$ )

changes in blood pressure parameters (SBP, DBP, PBT, and MDP). The average blood pressure value at rest were  $132,1 \pm 3,3$  mmHg SBP and  $83,4 \pm 2,1$  mmHg for DBP. The second, hypotonic type of MRSACO response (60% of the examined subjects,  $n=72$ ) was characterised by a significant ( $P<0,05$ ) decrease in SBP, DBP, PBT, and MDP due to compressive influence on the mechanoreceptor structures of the abdominal cavity organs.

**Conclusions.** Effects of combined antihypertensive therapy with angiotensin-converting enzyme (ACE) inhibitors and a selective imidazoline receptor agonist on the functional state of the blood pressure regulation system in male patients with hypertension (CH) stage II with a normal body mass index were investigated. Combined antihypertensive therapy with the use of an ACE inhibitor (perindopril) and an agonist of imidazoline receptors (moxonidine) makes it possible to achieve target blood pressure levels and has a positive effect on the functional state of the blood pressure regulation system. The developed such functional test can be used to control the adequacy and efficacy of antihypertensive therapy.

### **Predictors of hospitalisation caused by chronic heart failure decompensation in elderly with arterial hypertension: a six-month survey in a real-life cohort**

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**Background.** Chronic heart failure (CHF) is one of the leaders among chronic ambulatory care-sensitive conditions in terms of hospitalisation frequency and its associated cost, with the most affected age group being the elderly. Therefore, finding predictors of CHF decompensation that are easy to use in outpatient settings is crucial.

**Purpose.** To determine the factors that increase the likelihood of being hospitalised because of decompensation of CHF associated with arterial hypertension (AH) in the elderly in real-life ambulatory settings.

**Methods.** The study included 93 ambulatory patients diagnosed with CHF caused by AH. Their

median age was 64 [62; 68] years, male proportion – 38 % (95 % CI 28–48 %). We collected the demographic data, clinical information (including analysis of patient's medical notes to assess estimated glomerular filtration rate according to the Chronic Kidney Disease Epidemiology Collaboration equation (eGFR) during the previous year), and results of actual eGFR. We evaluated the exercise tolerance with the 6-minute walk test (6MWT). To assess the quality of life (QoL), all patients filled out the Minnesota Living with Heart Failure questionnaire (MLWHFQ). The primary endpoint in our study was hospitalisation caused by CHF decompensation in the next six months. We used univariate logistic regression to calculate the odds ratio.

**Results.** During the follow-up period, 21 of 93 patients were hospitalised for CHF (23 % (95 % CI 15–32 %)). If compared with non-hospitalised, hospitalized patients had a longer duration of AH (10 [8; 11] vs 8 [7; 10] years,  $p=0,02$ ), a higher median of systolic blood pressure (SBP) (149 [143; 152] vs 142 [137; 148] mm Hg,  $p<0,01$ ), covered the shorter distance in the 6MWT (287 [282; 311] m vs 364 [309; 404] m,  $p<0,01$ ), scored more according to MLWHFQ (49 [44; 57] vs 40 [30; 47] points,  $p<0,01$ ). The difference was found in eGFR level – 59,8 [56; 70,2] vs 69,9 [64,2; 79,7] ml/min/1,73 m<sup>2</sup>,  $p<0,01$ , and proportion of patients with eGFR  $<60$  ml/min/1,73 m<sup>2</sup> – 62 % (95 % CI 41–79 %) vs 19 % (95 % CI 11–31 %),  $p<0,01$ , for hospitalised and non-hospitalised patients respectively. ROC analysis found cut-off values connected with hospitalisation that were  $>41$  points for MLWHFQ and  $\leq 311$  m for 6MWT. In our study the following variables were associated with the primary endpoint: SBP  $\geq 140$  mm Hg – OR 6,05 (95 % CI 1,28–28,6), eGFR  $<60$  ml/min/1,73 m<sup>2</sup> – OR 6,73 (95 % CI 2,34–19,35), QoL  $>41$  points – OR 8,4 (95 % CI 2,27–31,1), 6MWT  $\leq 311$  m – OR 11,1 (95 % CI 3,3–36,88).

**Conclusions.** The result suggests that in the studied cohort of patients, the hospitalisation likelihood because of CHF decompensation increased substantially with uncontrolled AH and reduced GFR ( $<60$  ml/min/1,73 m<sup>2</sup>), and also if MLWHFQ scores exceeded 41 and the distance in 6MWT was  $\leq 311$  m. These findings can help to identify patients at risk of hospitalisation for more close supervision.