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Combined Antihypertensive and Hypolipidemic Therapy for Arterial Hypertension Hemodynamic Changes and Lipid Spectrum

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Abstract: Recently, there has been an increase in cardiovascular diseases, which are the main cause of death worldwide. Arterial hypertension (AH) is the main risk factor for cardiovascular diseases. The high incidence of a combination of hypertension and dyslipidemia in the population is of particular concern. In patients with hypertension, there is a doubling, and with a combination of hypertension and dyslipidemia, a tripling of the risk of death from cardiovascular diseases. Recently, the most interesting is the study of the combined effect of antihypertensive and lipid-lowering therapy on the incidence of cardiovascular complications in patients with hypertension. In this way, the goals of antihypertensive therapy at the present stage are to increase the life expectancy of patients by reducing the risk of developing complications of hypertension and improving the quality of life of patients with a decrease in clinical symptoms and minimizing the risk of developing side effects of therapy. The correct choice of tactics for the treatment of patients with allows you to maintain your ability to work, significantly prolong the life of the patient and improve his quality of life [1, 2, 4, and 5].

Purpose of the study. To compare the effect of two variants of combined antihypertensive therapy using an angiotensin-converting enzyme inhibitor and a thiazide diuretic and in combination with statins on blood pressure (BP), vascular wall stiffness, quality of life in patients with arterial hypertension (AH) and blood lipid spectrum [9, 11] .

Material and methods. 30 men aged 40-59 years old, suffering from mild and moderate hypertension according to the criteria of WHO/MOAG (1999) [12]. Patients were divided into 4 groups, comparable in age and other parameters.

The first group (n=22) received noliprel (perindopril 2 mg/indapamide 0.625 mg) once in the morning, if the target BP level was not reached.-noliprel forte (perindopril 4 mg / indapamide 1.25 mg).

The second group (n=22) received Enzix (enalapril 10 mg/indapamide 2.5 mg) once in the morning, with ineffectiveness - Enzix duo (enalapril 20 mg/indapamide 2.5 mg).

The third group (n=22) received noliprel (perindopril 2 mg/indapamide 0.625 mg) once in the morning, if the target BP level was not reached.-noliprel forte (perindopril 4 mg / indapamide 1.25 mg) in combination with atorvastatin at a starting dose of 10 mg / day.

The fourth group (n=22) received Enzix (enalapril 10 mg/indapamide 2.5 mg) once in the morning; if ineffective, Enzix duo (enalapril 20 mg/indapamide 2.5 mg) in combination with atorvastatin at a starting dose of 10 mg/day .

In all patients, at baseline and after 8 weeks, office blood pressure and heart rate were measured, 24-hour blood pressure monitoring was performed with the measurement of the vascular wall stiffness coefficient, and quality of life was assessed. In all groups, the condition of patients was assessed at baseline and at the end of the course of treatment.

The exclusion criteria were: age 59; CHF; angina pectoris and rest; violations of the heart rhythm of high gradations according to Lown V. (1971.); malformations of the heart and blood vessels; myocarditis, myocardial dystrophy; MI of any genesis in history; MI in history; atherosclerosis of peripheral vessels; renal, hepatic insufficiency; blood diseases; respiratory failure; AD 1 and 2 types; oncological diseases (3-4 st.); collagenoses; endogenous mental illness; bilateral stenosis of the renal arteries; angioedema in history; cough against the background of taking APF inhibitors in history; gout; diagnosed hyper- or hypokalemia; alcohol or drug addiction.

Results. In the 1st group, for 8 weeks of treatment, blood pressure decreased from 155±25/93±8 to 128±0.10/79±0.5 mmHg ($p<0.0001$). Heart rate significantly decreased from 75±0.8 to 71±0.6 beats/min ($p<0.001$).

In the 2nd group, after 8 weeks of treatment, blood pressure decreased from 157±0.14/94±0.8 to 131±11/81±6 mmHg ($p<0.001$). Heart rate significantly decreased from 75±0.4 to 72±0.2 beats/min. During 8 weeks of treatment with noliprel/noliprel forte, it was possible to reduce SBP by 27% and DBP by 13%, which made it possible to achieve the target level of blood pressure in 87% of patients.

In group 3, over 8 weeks of treatment, blood pressure decreased from 159±23/93±8 to 127±10/77±5 mmHg ($p<0.0001$). Heart rate decreased from 74±0.7 to 69±0.5 beats/min ($p<0.001$).

In the 4th group, by the 8th week of treatment, blood pressure decreased from 160±14/95±8 to 129±11/81±6 mmHg ($p<0.001$). HR from 74±0.9 to 70±0.5 beats/min ($p<0.001$).

When assessing the quality of life, defined as a person's satisfaction with their physical, psychological and social state, there was a pronounced decrease in this indicator among patients with hypertension. In addition, there are data in the literature on the deterioration of in patients with AH [7, 10]. At the same time, correlation dependence between the level of blood pressure and a number of indicators characterizing is revealed [10]. In 90–95% of cases, patients with hypertension need lifelong medication [5, 6, and 10]. In this regard, it is very important that the chosen method of treatment not only effectively stabilizes blood pressure, but also does not worsen the patient's , if possible, improves it [5].Initially, indicators in patients of all groups were comparable. Quality of life was assessed using the SF-36 questionnaire, which includes physical and mental health. The parameters of physical health (PH) included: physical activity, role physical functioning, pain and general health. Mental health (HH) parameters were taken into account: vitality, social activity, role emotional functioning, as well as comparison of patients' well-being (SS) [3, 13].

After the treatment, patients showed a decrease. Questioning conducted after 8 weeks of therapy showed that the use of atorvastatin significantly improved the well-being of patients. That is, patients who received combined therapy with statins noted an improvement in the quality of life compared with patients who received only standard antihypertensive therapy [9].Side effects were rare, were reversible and, as a rule, did not require discontinuation of treatment.

The stiffness of the vascular wall was assessed using two indicators-carotid-femoral pulse wave velocity and Alx using applanation tonometry-and amounted to 19.8±0.3 m/s in group 1, 38±2%; in group 2 - 18.6±0.2 m/s, 39±4%, in group 3 - 18.8±0.3 m/s, 38.5±2%; in group 4 - 18.9±0.2 m/s, 37±2%, respectively [8]. After 8 weeks in group 1 - 10.6±0.5 m/s, 23±3%; in group 2 11.4±0.3 m/s, 29±2%; in group 3 - 9.8±0.3 m/s, 21.0±2%; in group 4 - 10.2±0.2 m/s, 22±2%, respectively. A decrease in the index of vascular wall stiffness was revealed in patients of all 4 groups, more pronounced in groups receiving combined therapy with statins.

The use of atorvastatin at a dose of 10 mg for 8 weeks led to a significant decrease in lipid parameters in patients of groups 3 and 4. There was a decrease in total cholesterol levels by 20%, LDL cholesterol-by 28.9%, TG by 17% (all $P<0.05$), increased content of HDL cholesterol-by 9.3%. In groups 1 and 2, after treatment with antihypertensive drugs, a decrease in total cholesterol levels by 7.2%, LDL cholesterol-by 11.2%, TG-by 9%, increase in HDL cholesterol-by 3.4% [2, 6]. Thus, the use of atorvastatin at a dose of 10 mg for 8 weeks, along with standard therapy, significantly reduced the levels of total cholesterol, LDL cholesterol and triglycerides, which confirms the antiatherogenic effect of the drug.

Conclusions. After 8 weeks of treatment in all 4 groups, there were favorable changes in the parameters of daily monitoring of blood pressure, coefficient of vascular wall stiffness, improvement in the quality of life, more pronounced in groups receiving combined therapy with statins. The use of atorvastatin at a dose of 10 mg for 8 weeks in the standard therapy of patients with uncomplicated arterial hypertension leads to a pronounced decrease in total cholesterol, low-density lipoprotein cholesterol and triglycerides, respectively, by 20%, 28.9% and 17%.

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