

INFLUENCE OF ANTIHYPERTENSIVE DRUGS ON INSULIN RESISTANCE AND LIPID SPECTRUM INDICATORS

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Relevance: The mechanism of development of arterial hypertension and insulin resistance in overweight individuals is of great importance in the tactics of choosing drugs, dose and duration of use, as well as the combination of antihypertensive drugs, statins, biguanides, insulin drugs and hepato- and cardioprotectors. Hence, antihypertensive drugs, Losartan and Nebivolol, used to treat patients with excess body weight and/or insulin resistance, meet the following requirements: effectively reduce blood pressure throughout the day, do not have an adverse effect on carbohydrate, lipid, purine metabolism, have an organoprotective effect, and reduce the risk of MTR development.

Key words: Arterial hypertension, metabolic syndrome, lipid spectrum, HOMA index, insulin resistance.

Arterial hypertension and lipid metabolism disorders are one of the most pressing problems of modern medicine, associated with age, and hence an increase in body weight in most cases, the development of coronary artery disease, irregular and age-appropriate physical activity, alcohol consumption and smoking, and family history.

In blood plasma, lipids such as TC and TG are present in various forms, in combination with proteins, with apoproteins. The extent to which lipoproteins cause the development of atherosclerosis depends on the type, particle size and concentration in the plasma. HDL-C is not the cause of atherosclerosis, but they have an antiatherogenic effect. In contrast to LDL and, in particular, LDL and VLDL have an atherogenic effect if they are modified i.e. oxidized. VLDL do not have an atherogenic effect, but their increased concentration in the blood serum may cause the development of pancreatitis. Most of the total cholesterol is found in LDL, which, according to most researchers, is the cause of the increased risk of CVD, especially in men. In women, the level of risk in connection with cholesterol is lower before menopause, and after the period, the level of cholesterol increases, and the risk of developing CVD in women equalizes and even increases. A 10% increase in TC blood concentration is associated with a 27% increase in the risk of CAD, which is an indicator of a problem associated with DLP. On the other hand, a 10% decrease in the concentration of total cholesterol in the blood is associated with a 25% decrease in the risk of coronary artery disease

over 5 years. A decrease in the concentration of LDL cholesterol in the blood by 1 mmol/l. associated with a 19% reduction in risk from MI and 21% from IHD. In the CAMUS studies, Nebivolol was found to reduce insulin, leptin and blood glucose levels, reduce triglycerides and free fatty acids, and increase high-density lipoprotein levels. Of all the antihypertensive drugs that are currently used in the treatment of arterial hypertension in combination with metabolic syndrome and type 2 diabetes mellitus, only ACE inhibitors and ARB blockers reduce the level of insulin resistance to a lesser extent and Nebivolol 4 times more.

Purpose of the study: To evaluate the dynamics of insulin resistance and biochemical parameters of lipid metabolism in patients with metabolic syndrome during long-term therapy (6 months) with antihypertensive drugs.

Materials and methods of research: 70 patients were examined. Of these, 35 patients had arterial hypertension with varying degrees of obesity depending on their body mass index. The control group consisted of 35 patients with arterial hypertension with a normal body mass index. Laboratory data included general blood tests, blood sugar, biochemical parameters (triglycerides, total cholesterol, low-density lipoproteins - LDL, high-density lipoproteins - HDL), C-reactive protein, blood fibrinogen, prothrombin index, prothrombin time, glucose level fasting, glycosylated hemoglobin, blood insulin, insulin resistance index (HOMA index).

Results: Against the background of complex therapy of patients with hypertension and obesity, a significant decrease in central average daily, daytime and nighttime SBP was noted in all groups. In all groups there was a tendency towards a decrease in central DBP, which reached significant differences in group 2. When analyzing the average values of daily, daytime and nighttime blood pressure in the aorta, a significant decrease was revealed in all groups.

Indicators of lipid parameters of blood plasma of patients with hypertension and obesity are presented in table. 1.

Indicators	1 group (35)	2nd group (35)
Total cholesterol (mmol/l),	5.6±0.9	5.3±1.1
HDL cholesterol (mmol/l)	1.4(1.1-1.9)	1.3 (1.1-1.8)
LDL cholesterol (mmol/l)	3.3 (2.1-3.8)	2.9 (1.9-3.7)
Triglycerides (mmol/l)	1.4 (1.1-2.1)	1.9(1.3-2.4)

Note: HDL cholesterol is high-density lipoprotein cholesterol, LDL cholesterol is low-density lipoprotein cholesterol.

When analyzing the lipid profile data, attention is drawn to a moderate increase in the level of total cholesterol and LDL in both groups, while an increase in

triglycerides is observed only in patients with grade 2-3 obesity. Moreover, the average level of HDL cholesterol in both groups was above 1.2 mmol/l, which is a favorable factor. However, obesity of 2-3 degrees (group 2) is accompanied by a significant increase in the level of fasting insulin and the calculated index of insulin resistance (HOMA-III) compared to patients of the 1st group. The average HOMA-III value in group 2 exceeds the threshold (<2.7), which indicates impaired carbohydrate metabolism and a higher risk of developing diabetes mellitus in these patients. According to the literature, grade 2-3 obesity is often accompanied by more pronounced disorders of lipid and carbohydrate metabolism. However, in our study, despite more pronounced disorders of lipid metabolism in patients of group 2, the lack of significant differences between groups is apparently due to the selection criteria, according to which patients with clinical signs of atherosclerosis were excluded from the study.

Indicators	1 group (35)	2nd group (35)
Glucose (mmol/l),	5.4 (5.1-6.5)	5.7 (5.1-6.7)
Fasting insulin (μ U /ml)	8.9 (6.9-14.5)	13.8 (9.9-19.7)1
HOMA-IR	2.1 (1.6-4.2)	3.5 (2.2-5.7)*

Dynamics of laboratory parameters during therapy with Losartan and Nebivolol : In all groups, an increase in insulin levels and the calculated index of insulin resistance (HOMA - IR) was initially noted. By the end of complex therapy, the insulin level and the calculated index of insulin resistance (HOMA - IR) decreased to threshold values, but a significant decrease was detected in the 1st and 3rd groups of patients compared to the first visit. There were no significant differences between the groups.

Conclusions: For hypertension, treatment of concomitant obesity with Nebivolol at a dose of 5 mg/ day and losartan 50 mg and 100 mg is effective and safe enough in combination for use in the therapeutic practice of a general practitioner and a cardiologist. To ensure the safety of treatment and assess the effectiveness of antihypertensive therapy, ABPM is also recommended to obtain more complete information on the degree of blood pressure control.

Literature:

1. Dilshodovna , A. M., Odylovna , K. F., & Samveilovna , P. K. (2022). Peculiarities of Psychological Disorders in Patients with Acute Coronary Syndrome.

INTERNATIONAL JOURNAL OF HEALTH SYSTEMS AND MEDICAL SCIENCES , 1 (6), 203–207. Retrieved from <http://inter-publishing.com/index.php/IJHSMS/article/view/695>

2. Kristina Samvelovna Pulatova , Timur Mukhitdinovich Pulatov , Mukhammad Olimovich Esankulov THE SPECIFIC FEATURES OF ARTERIAL HYPERTENSION IN OWERWEIGHT PATIENTS WITH PSORIASIS // Academic research in educational sciences. 2021. No. 2. URL: <https://cyberleninka.ru/article/n/the-specific-features-of-arterial-hypertension-in-owerweight-patients-with-psoriasis> (access date: 05/13/2023).
3. Pulatova K. Analysis of Ecg and Echo Results in Hypertensive Patients Depending on Bmi Degrees //International Journal of Health Systems and Medical Sciences. – 2023. <https://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/1193>
4. Abdulloeva , M., Pulatova , K., & Mirzaev , R. (2023). ORTIQCHA VAZN VA ARTERIAL GIPERTONIYA BILAN OG'RIGAN YOSHLARDA YUZAGA KELADIGAN JINSIY ZAIFLIK. *Eurasian Journal of Medical and Natural Sciences* , 3 (4 Part 2), 91–94. retrieved from <https://in-academy.uz/index.php/EJMNS/article/view/13515>
5. Nasyrova Zarina Akbarovna , Abdulloeva Maftuna Dilshodovna , Usarov Shohruh Abduvahob Ugli STRATIFICATION OF RISK FACTORS IN CORONARY HEART DISEASE // JCRR. 2021. No. 3. URL: <https://cyberleninka.ru/article/n/stratifikatsiya-faktorov-riska-pri-ishemicheskoy-bolezni-serdtsa> (date of access: 05/13/2023).
6. Пулатова К. ИЗМЕНЕНИЯ ГЕМОДИНАМИЧЕСКИХ ПОКАЗАТЕЛЕЙ БОЛЬНЫХ С ИЗБЫТОЧНЫМ ВЕСОМ ПРИ ИШЕМИЧЕСКОЙ БОЛЕЗНИ СЕРДЦА //Евразийский журнал медицинских и естественных наук. – 2024. – Т. 4. – №. 1. – С. 68-71.
7. Bakhtiyarovich A. A., Samvelovna P. K. Peculiarities of the Influence of Metabolic Syndrome on the Course of Coronary Heart Disease //American Journal of Pediatric Medicine and Health Sciences (2993-2149). – 2023. – Т. 1. – №. 8. – С. 396-400.