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NEBIVALOL ROLE IN METABOLIC DISORDERS IN PATIENTS WITH HYPERTENSION

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Arterial hypertension (AH) affects up to 80% of patients with type 2 diabetes. Their risk of premature death is significantly higher, and their life expectancy is reduced by 1/3 [1]. The prevalence of coronary heart disease (CHD) is 2-4 times higher, the risk of acute myocardial infarction (AMI) is 6-10 times higher and cerebral strokes are 4-7 times higher in patients with hypertension and type 2 diabetes than without it [2].

Increased mortality in patients with metabolic syndrome (MS) and type 2 diabetes is associated with three main risk factors: hypertension, hyperglycemia and hyperlipidemia. An important role in the pathogenesis of hypertension in MS and type 2 diabetes is played by an increase in the activity of the sympathetic nervous system (SNS), which is caused by hyperinsulinemia and hyperleptinemia. Both insulin and leptin, acting at the level of the hypothalamic nuclei, cause activation of a number of sympathetic nerves (renal, adrenal, visceral) and an increase in the concentration of catecholamines in plasma [3]. Patients with MS and type 2 diabetes with hypertension develop left ventricular hypertrophy much earlier, which is an important risk factor for sudden death due to asystole and the development of severe cardiac arrhythmias (LDC). LDC in patients with type 2 diabetes occurs in 37.7%, beta-blockers in this case can serve as a means not only of antiarrhythmic therapy, but also of preventing the development of LDC and asystole.

The main cause of death in almost 50% of patients with type 2 diabetes is myocardial infarction (MI). The results of numerous studies on the use of highly selective beta-blockers as a secondary prevention of recurrent MI and postinfarction angina pectoris have shown a 25% reduction in mortality and a 29% reduction in cases of recurrent MI. Moreover, in patients with type 2 diabetes, there was an almost 3 times greater decrease in mortality compared with patients without diabetes (37% and 13%, respectively) as a result of taking selective beta-blockers [5]. A significant decrease in mortality among patients with diabetes who underwent it was noted in the ISIS-1 study (The First International Study of Infarct Survival) [6], MIAMI (The Metoprolol In Acute Myocardial Infarction) [7] and The Goteborg Metoprolol Trial [8]. In The Bezafibrate Infarction Prevention Study (BIP), beta-blockers therapy was accompanied by a significant decrease in overall mortality and mortality from cardiovascular complications in patients with diabetes, primarily in those who had MI [5]. All patients suffering from type 2 diabetes and who have suffered AMI or unstable angina pectoris are indicated to be prescribed selective beta-blockers as a standard means of secondary prevention of coronary heart disease.

Nebivolol is one of the modern highly selective drugs. Its peculiarity is not only its exceptionally high β1 selectivity, but also its vasodilating effect [9-12]. The efficacy and safety of nebivolol therapy was demonstrated in the SENIORS study [9]. As a result of experimental studies, it was found that even the drug prescribed in relatively high doses does not lose its β1 selectivity due to the ratio of β1- and β2-blocking activity [13, 14]. NO, penetrating into platelets, prevents their aggregation, that is, prevents the formation of thrombosis. NO prevents the development of inflammation in the damaged endothelial wall of the vessel, thus slowing the progression of atherosclerosis. NO reduces the growth of smooth muscle cells, thereby reducing the progression of chronic heart failure. NO also has multiple physiological effects. As a neurotransmitter of the

central nervous system, NO is able to improve memory, possibly thereby preventing the progression of Alzheimer's disease. NO has antioxidant properties, neutralizing free radicals. In the respiratory system, it is a vaso- and bronchodilator. In the gastrointestinal tract, it stimulates normal intestinal peristalsis. In the urogenital system, NO is involved in the regulation of bladder functions. In addition, being an important mediator, it participates in the mechanism of erection in men. NO improves blood circulation of skeletal muscles, thereby increasing the flow of nutrients and oxygen to them and removing excess lactic acid. This is especially important for patients with type 2 diabetes and obesity.

Our studies indicate the effectiveness and safety of the use of Nebilet (nebivolol) in patients with MS and hypertension. Nebilet not only significantly reduced blood pressure during the day with a single dose, without disturbing its daily rhythm, but also had a positive effect on carbohydrate and lipid metabolism, which distinguishes it from all known drugs of this group. The ability of nebivolol to stimulate the synthesis of NO by the vascular endothelium led to a significant improvement in the state of brain perfusion detected by scintigraphy. An effective decrease in blood pressure against the background of taking a Non-ticket was accompanied by an improvement in HRV indicators (an increase in the initially reduced SVVR). The lack of improvement in HRV indicators or their deterioration during antihypertensive therapy is a factor that should be taken into account when selecting therapy. HRV dynamics better reflects the dynamics of the patient's well-being than the dynamics of blood pressure. Against the background of Nonbilet therapy, an average daily shortening of the initially elongated value of the QT interval was noted, which is also an important predictor of the effectiveness of antihypertensive therapy. At the same time, we did not detect a negative effect of nebivolol on the level of thyroid hormones, whereas the level of aldosterone in the patients we studied decreased significantly. Similar data on aldosterone were obtained by foreign researchers in patients with hypertension [15].

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