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Clinical biochemical the effectiveness of telmisartan in patients with stable angina in combination with hypertension

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Abstract: The article presents the study of the membrane-stabilizing effect of telmisartan against the background of 8-week monotherapy in patients with stable angina in combination with arterial hypertention.

Keywords: coronary heart disease, arterial hypertension, telmisartan, systolic blood pressure, diastolic blood pressure, heart rate, free cholesterol (FCh), esters of cholesterol (ECh), general phospholipids (GPhL). Fraction of phospholipids follows: Lisaphosphatidylcholine (LPhch), sphingomylin (SM), phosphatidylcholine (PhCh), phosphatidylserine (PhS) and phosphotidylethanolamine (PhEA).

Relevence. Clinical manifestations of arterial hypertension (AH) and coronary heart disease (CHD) to some degree depend on taking place in the body of metabolic processes in which, various biologically active substances a system of immunity, take part vascular endothelium and uniform elements of blood, in particular erythrocytes and platelets, namely the cell membrane, violation of structural functional status which in turn, according to a number of experimental and clinical observations, plays an important role in the pathogenesis and

progression AH and coronary heart disease [1,2]. Membrane pathological processes are studied on an example of membranes platelet that are, in the opinion of many authoritative researchers, a model of the living cells of the body's and capable of largely reflect the functional status smooth muscle cells arterioles. In addition, they are direct participants pathological processes and affordable material obtained in the course of clinical examination and treatment of patients [2,4,5].

The purpose of research. Study membrane stabilizing effect telmisartan against the background of 8-week monotherapy in patients with stable angina in combination with hypertension.

Materials and methods

Examined 81 patients aged 38-76 years with verified diagnosis AH I-II degree in accordance with the classification WHO /ISAG (1999), and coronary heart disease, angina voltage mainly II class functional classification Canadian society of cardiology. Clinical examination of patients carried out on the basis of the Department of cardiology Institute postgraduate medical education; (№ 7 city hospital, clinic "Hayat medical centre" and Republican cardiology Center Tashkent. Group control was 25 healthy individuals at the age of 25 to 49.

All patients after 7-10 days examination out-patient were separated into 2 groups by random methods.

Patients 1 group (40 patient duration) took telmisartan (cartel production company OOO "Serene pharma") in a dose of 40-80 mg/day., Patients 2 nd groups (41patient, the duration) received enalapril (Berlipril, production company "Berlin Chemie") in a dose of 10-20mg/ day. Treatment continued to 8 weeks mainly in the form of monotherapy. All patients were carried out common methods of clinical research. All patients were agreed to participate in this research.

Blood pressure "office" was determined as the mean 3 measurements Blood pressure manual sphygmomanometer in sitting after 5-minute rest.

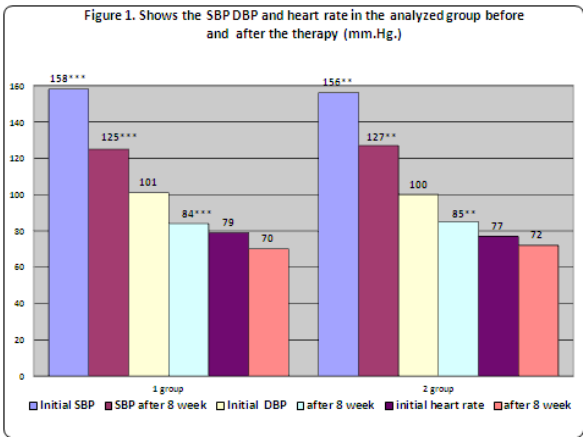
Veloergometric samples were slowly carried out with slightly increasing the load using E-3 "KETTLER" technology called velgometric that was made in (Germany), the initial load was 50 Watts with an increase by 25 Watts every 3мин. Registration indicators systolic blood pressure (SBP), diastolic blood pressure (DBP), heart rate and record ECG 12 standard leads were carried out at the end of every 3 minutes a load. Criteria termination of the samples were: the achieving submaximal heart rate, increasing in BP up to 220/130 mm Hg. and more (or the appearance of other contraindications to further conduct of the sample), the appearance of coronary depression segment T depth of 1 mm and more, the duration of 0.08 second. From the point of J from its combination with typical attack angina. In the last 2 cases, the sample is regarded as a positive. Sample was considered negative, if it has been achieved submaximal heart rate without clinical and ECG signs of ischemia, not informative - if the sample is not brought to the proper submaximal heart rate or to the criteria ischemia. When carrying out the test exercise tolerance was measured for the duration of the load and the power SBP DBP and heart rate at rest and at the duration of the load. All examined patients venous blood was taken from all examined patients in the morning on an empty stomach after 12 hours of starvation.

Blood stabilized EDTA (1mg/ml).To find out the exchange indicates membrane of platelets were used. For the study of indicators of lipid Exchange used membrane of platelets. Thin layer chromatography was used to obtain free cholesterol (FCh), esters of cholesterol (ECh), general phospholipids (GPhL). Fraction of phospholipids follows: Lisaphosphatidylcholine (LPhch), sphingomylin (SM), phosphatidylcholine (PhCh), phosphatidylserine (PhS) and phosphotidylethanolamine (PhEA).

Clinical effectiveness of therapy was evaluated by the dynamics of the level of "office" SBP, DBP, the mean blood pressure, heart rate, the presence and severity of side effects, taking into account the number of attacks angina a week.

Results of the study

Level SBP decreased in 1st group with 158,6 ± 3.5 to 125,6 ± 5,2 mm Hg. (p <0,0001), with DBP 101 ± up to 84 ±, in 2 group with 156,8 ± 5,3 up to 127 ± 5,2 mm Hg. (p <0,0001), DBP 100 ± 85 ±. Reliable the dynamics of heart rate as in the 1st (79 ± 5,7 - 70 ± 5,6 beats in 1 min.) and in the 2nd group (77 ± 5,8-72 ± 5,1 beats 1 min.) not observed.



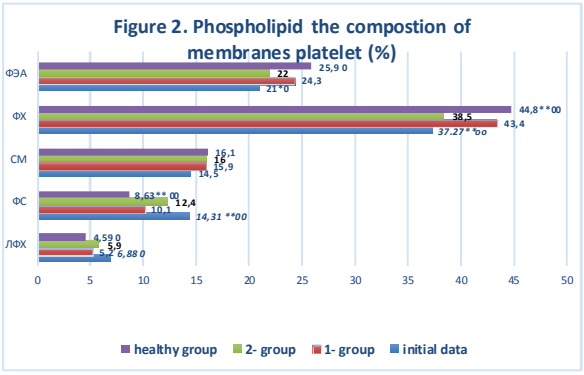
Note: ***p<0,0001; **p<0,0002 Reliability with respect to the initial values

Assessing the impact of telmisartan and enalapril at the for against angina the background of monotherapy, we witnessed significant angina attacks of angina. In one week the 1st group indicated 2,5 ± 0.5 to 1,15 ± 0,2, (p<0,0001); 2,4 ± 0,4 to 1,3 ± 0,2 (p<0,0002) in the 2 nd group.

Evaluating the dynamics of the parameters of characterizing the tolerance ischemia as a result of control VEM sample, we have received a significant increase in the threshold power with 99,4 ± 2,8 up to 112 ± 6,5 Watts (p <0,05) in 1 group and with 100,5 ± 3,7 to 112,3 ± 5,1 Watts in 2 group; duration of the load with 8,4 ± 0,6 to 9,9 ± 0,7 min. 1 group and with 8,5 ± 0,6 to 9,7 ± 0,6 min.2 group.

The number of "positive" tests decreased in the 1 group from 52% to 23%, and in 2nd group - from 51% to 25%.

In the present study, we examined the clinical effectiveness and the possibility membrane stabilizing actions telmisartan and enalapril in patients with arterial hypertension in combination with coronary heart disease, angina voltage at 8-week course monotherapy.



Note: ** (p <0.0002) in relation to the healthy group, (p <0.05) with respect to the initial values

As can be seen from the data obtained, dismetabolism was revealed, one of the main manifestations of which is a significant increase in the fraction of LFH by 66% ($p<0.05$), an equally important manifestation of phospholipid dysmetabolism is an increase in FS by 60% ($p<0.0002$) with respect to the healthy group. Along with the increase in individual classes of phospholipids, there is a decrease in PCh by 12% ($p <0.01$) and SM by 11% with respect to the healthy group.

These changes in phospholipid metabolism are important from the point of view of their effect on the functional state of thrombocytes, because there are data on the effect of phospholipids on the aggregation capacity of thrombocytes. Increasing the level of PhCh plays role importance in increasing the microviscosity and structure of cell membranes. The high content of LPhCh has a toxic effect on erythrocytes and platelets, as a result of which thromboses are detected, along with it, cytolytic action on cell membranes is inherent. The decrease in the level of PC in the platelet membrane causes a number of negative consequences, such as a violation of the microviscosity of the cell membrane. Reduced activity of electrolyte transport enzymes associated with the development of a number of CVD complications.

Results of biochemical studies of platelet cell membranes on the background of therapy showed that the most positive dynamics occurred in the 1st group of patients. It was established that LPhCh, PhS and PhCh were more sensitive to telmisartan. On the background of telmisartan, a significant decrease in LPhCh by 30% ($p<0,05$), PhS by 42% ($p<0,0001$) increase in PhCh by 17% ($p<0,01$) was revealed in relation to baseline values. In the 2nd-group of patients, a significant positive dynamics of phospholipid metabolism at the level of platelet membranes is not traced.

Correction of violations of the membrane-cell level in patients with AH I-II stage. in combination with IHD stable angina pectoris makes a definite contribution to the manifestation of hypotensive action of telmisartan and improvement of the course of angina pectoris.

Conclusions:

1. In patients with chronic coronary heart disease in combination with hypertension telmisartan and enalapril have expressed antihypertensive effect in most patients.

2. Reception telmisartan and enalapril in the form of monotherapy for 8 weeks in patients with stable angina voltage in combination with hypertension improves the clinical for angina, that is manifested omissions attacks angina, a decrease in the number of positive sample, an increase in the length of time and exercise as a result of control VEMP.

3. Telmisartan has a significant positive effect on membrane cell parameters and that can cause its anti ischemic effect.

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