



Integrated Treatment Approaches Dyslipidemia in Patients with Coronary Heart Disease

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Received 22nd Sep 2022,
Accepted 23rd Oct 2022,
Online 30th Nov 2022

Abstract:

The risk of developing coronary artery disease increases significantly with an increase in blood levels of cholesterol and low-density lipoprotein (LDL).

It is known that it is not always possible to achieve target levels of blood lipids in patients with coronary artery disease with standard therapy. We examined 100 patients with ischemic heart disease (IHD): stable angina II-III functional class - study group (60 patients) and comparison group (40 patients). As a result of research, we have obtained data that the combination of plasmapheresis, ultraviolet blood irradiation and statins can reduce the level of total cholesterol in patients with II FC by 2.7%, III FC by 23.3%, LDL levels in patients with II FC by 30.4%, III FC by 37.3% ($p < 0.05$). After complex therapy, the achieved level of lipidemia can be maintained by lower doses of statins.

Key words: coronary heart disease, stable angina pectoris, blood lipids, plasmapheresis, ultraviolet blood irradiation.

Currently, coronary heart disease (CHD) occupies a leading position among other cardiovascular pathologies. According to the latest data, about 10 million people of working age in Russia suffer from coronary heart disease, more than a third of them suffer from stable angina [3, 4].

Among patients with coronary artery disease, the annual mortality rate is 2% per year [8]. Thus, coronary heart disease is not only a serious medical but also an economic problem due to the high mortality and disability of the population with this pathology. It is known that, despite intensive monitoring, treatment, management and expensive medical preventive measures aimed at combating this disease, we are seeing a steady increase in coronary artery disease among the population [1]. According to the literature, it is known that an increase in the level of cholesterol and low-density lipoproteins (LDL) in the blood significantly increases the risk of developing coronary artery disease [9, 10, 11]. The pathogenesis of atherosclerosis is based on interrelated processes of metabolic disorders, lipid transport and inflammation of the vascular wall. Currently, statins are most often prescribed for the treatment of patients with coronary artery disease with a lipid-lowering goal. To date, it has been proven that this group of drugs has an effect on inflammation, the state of the

endothelium, and oxidative stress, which contributes to the stabilization of atherosclerotic plaque and prevents lipid infiltration in the vascular wall [2, 6, 7]. But studies in recent years have shown that therapy with standard doses of statins does not completely eliminate the risk of cardiovascular events and does not always lead to the achievement of target blood lipid levels [5]. Thus, finding new approaches to the treatment of coronary artery disease and the impact on risk factors for coronary heart disease is undoubtedly an important and necessary promising direction in medicine. that this group of drugs affects the processes of inflammation, the state of the endothelium and oxidative stress, which contributes to the stabilization of atherosclerotic plaque and prevents lipid infiltration in the vascular wall [2, 6, 7]. But studies in recent years have shown that therapy with standard doses of statins does not completely eliminate the risk of cardiovascular events and does not always lead to the achievement of target blood lipid levels [5]. Thus, finding new approaches to the treatment of coronary artery disease and the impact on risk factors for coronary heart disease is undoubtedly an important and necessary promising direction in medicine. But studies in recent years have shown that therapy with standard doses of statins does not completely eliminate the risk of cardiovascular events and does not always lead to the achievement of target blood lipid levels [5]. Thus, finding new approaches to the treatment of coronary artery disease and the impact on risk factors for coronary heart disease is undoubtedly an important and necessary promising direction in medicine. But studies in recent years have shown that therapy with standard doses of statins does not completely eliminate the risk of cardiovascular events and does not always lead to the achievement of target blood lipid levels [5]. Thus, finding new approaches to the treatment of coronary artery disease and the impact on risk factors for coronary heart disease is undoubtedly an important and necessary promising direction in medicine.

Purpose of the study: to develop and implement an integrated approach to the treatment of dyslipidemia in patients with coronary heart disease: exertional angina.

Material and research methods

The study included 100 patients with coronary heart disease (CHD): stable angina II-III functional class. The average age of the examined patients was 53.72 ± 0.86 years. Patients were followed up from 1 month to 3 years. The exclusion criteria were patients with a history of acute cerebrovascular accident, heart defects, atrial fibrillation, life-threatening cardiac arrhythmias, decompensated and subcompensated diabetes mellitus, oncological diseases, thyroid dysfunction, severe somatic diseases (renal, liver, respiratory failure), alcohol abuse. Clinical, instrumental and laboratory the indicators of patients of these representative groups were assessed in dynamics on the 11th and 21st days of IHD treatment. As a result of the analysis of the study, all patients after the diagnosis of stable angina were divided into three groups depending on the treatment. The first group consisted of 30 patients who received standard IHD therapy in combination with statins (atorvastatin 40 mg/day) and methods of extracorporeal hemocorrection (EGC); the second group included 30 patients who received standard IHD therapy, low-dose statins (atorvastatin 10 mg/day) and hemocorrection methods; the third group included 40 patients who received only standard medical therapy for coronary artery disease, including statins (atorvastatin 40 mg/day), without hemocorrection methods. In this work, we used physical, «Schiller» (Switzerland), «Mi-ngograf-82» firms «Simens-Elema» (Sweden), Echo-KG including Doppler was carried out on the device «Toshiba 140A» (Japan), coronary angiography,

radiography, ultrasound of the abdominal organs), laboratory (general clinical, biochemical, immunochemical) research methods. The blood serum lipid profile was studied using a CIBA-CORNING EXPRESS PLUS biochemical analyzer (England). The extracorporeal hemocorrection (EGC) used by us in the course of the study was aimed at quantitative and qualitative changes in the cellular, protein, water-electrolyte, enzymatic and gas composition of the blood by processing the blood of the extraorganism. The EGC methods used by us (plasmapheresis and UVR of blood) had a wide range of effects on the body: detoxification, rheocorrection and immunocorrection. When using plasmapheresis, there was a rapid normalization of lipid levels, with a persistent decrease in the concentration of cholesterol, triglycerides, low density lipoproteins, normalization of circulating immune complexes, increase in the concentration of high density lipoproteins. In the complex treatment of patients with coronary artery disease, we used UVR of blood in order to improve the rheological properties of blood (reducing blood viscosity, adhesion and aggregation of blood cells, restoring the number of blood cells and the patient's immune status). During the study, the method of medium-volume discrete plasmapheresis from venous access was used. Blood sampling was carried out, followed by restoration of the number of blood cells and the immune status of the patient). Blood sampling was carried out, followed by its centrifugation in a refrigerated centrifuge RS-6 with a speed of 2,000 per 1 minute for 15 minutes at a temperature of 22°C. During centrifugation, the patient was administered a 0.9% sodium chloride solution in a volume of 100-150 ml. After centrifugation was completed, plasma was removed. The diluted erythrocyte mass (0.9% sodium chloride solution in a volume of 100-150 ml) was reinfused to the patient jet or drip, depending on the state of the patient's hemodynamics. The entire plasmapheresis procedure was carried out with constant contact with the patient. and control of heart rate and blood pressure. The method of ultraviolet blood irradiation used in the work included the use of a bottle with 0.9% sodium chloride solution and a standard system such as PR 11-01 or PK 11-05, which is attached to the bottle and filled with a solution according to generally accepted rules. An auxiliary sterile needle with a diameter of 0.9-1 mm was inserted into the rubber part of the system, and a sterile light guide was passed through it with installation in the lumen of the needle. Then the cubital vein was punctured, and drip (40-60 drops per minute) injection of the solution began. The cannula and system were fixed to the skin the patient's forearm, and the optical connector of the light guide using an adapter to the OVK-3 apparatus. All studied patients received treatment in accordance with the recommendations of the European Society of Cardiology and the All-Russian Society of Cardiology for the management of patients with stable angina [4].

Results and discussion

As a result of the analysis of the study, the data of the study were obtained and evaluated. There was a positive trend in changes in the lipid profile of patients in the first and second subgroups of the study. The initially elevated level of total cholesterol significantly decreased in the 1st subgroup of the study: in patients with angina FC II by 21.7%, with FC III by 23.3% ($p < 0.05$). In the 2nd subgroup, there was also a positive trend in the level of total cholesterol: in patients with II FC by 25.2%, III FC by 23.8%. The maximum changes in LDL-C levels were registered in patients with stable angina II and III FC, receiving standard antianginal therapy in combination with hemorrhage methods and atorvastatin 40 mg/day (from 4.28 ± 0.86 mmol/l to 2.55 ± 0.84 mmol/l and from 4.16 ± 0.55 mmol/l to 2.61 ± 0.73 mmol/l, respectively ($p < 0.05$). The dynamics of triglycerides was characterized by a significant decrease in their average values in all patients of the first subgroup by 28.0% and 36.4%, in the second subgroup only in patients with FC III angina by 26.9% ($p < 0.05$). In the group of patients treated with statins, a significant decrease in the level of total cholesterol and LDL cholesterol was found, without changes in triglycerides and HDL cholesterol. The results of the study showed that the combination of standard IHD therapy with plasmapheresis and ultraviolet blood irradiation makes it possible to

influence the disease at the etiopathogenetic level, thereby enhancing the effect of drug therapy and reducing its volume.

Conclusion

Thus, according to the results obtained, in the first and second subgroups of the study, the appointment of plasmapheresis was accompanied by a positive trend in all indicators of the lipid profile. The maximum changes in the levels of total cholesterol and LDL cholesterol were registered in patients with stable angina pectoris receiving standard antianginal therapy in combination with plasmapheresis and ultraviolet blood irradiation and statins (TC - II FC - 21.7%, III FC - 23.3%; LDL cholesterol - II FC -30.4%, III FC -37.3% ($p<0.05$)). It was revealed that disorders of the plasma lipid profile, characterized by an increase in the level of small dense particles of low-density lipoproteins and triglycerides, as well as a decrease in the level of HDL cholesterol, are most pronounced in patients with functional class III of stable angina pectoris. Thus, the combination of plasmapheresis,

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