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Modern Hypolipidemic Therapy in Patients with Arterial Hypertension with High Cardiovascular Risk Under Conditions of Long-Term Ambulatory Observation

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ABSTRACT

Globally, more human beings die from cardiovascular sickness (CVD) than from another motive. An envisioned 17.5 million humans died from CVD in 2012. Eighty % of those deaths are because of coronary heart assaults and strokes; greater than three-quarters of all deaths occurred in low- and center-earnings countries. In 2012, 34% of all deaths from CVD befell earlier than the age of 70 years. CVD disproportionately impacts low- and middle-earnings nations; in many nations, the financial and social burden is maximum a few of the negative and socially deprived.

Key Words: Atorvastatin, Rosuvastatin, Atherosclerosis, Hypercholesterolemia, Endothelial dysfunction, Arterial stiffness, Cardiovascular risk

INTRODUCTION

Atherosclerosis is presently the maximum not unusual pathogenic issue inside the development of severe cardiovascular pathology, which has a high frequency of fatal consequences¹. Given that the diseased heart and blood vessels remain the most common cause of dying among adults in our country and other evolved countries, the prevention and remedy of atherosclerosis are the premises for lowering mortality from the pathology of the cardiovascular device².

MATERIALS AND METHODS

Increases in blood lipids, and especially LDL cholesterol of low-density lipoproteins (HPSL), in addition to total cholesterol, triglycerides (TG) are the main causes of the improvement and progression of the atherosclerotic manner within the arterial bed. unluckily, in the Russian Federation, the prevalence within the population of expanded blood levels

of cholesterol and HSLNP stays excessive and exceeds the same signs in the USA³. On this regard, the correction of blood levels of atherogenic lipids is presently considered as a fundamental factor in decreasing cardiovascular mortality.

Verification of the main parameters of the blood lipid spectrum and the need for a lipid-reducing remedy to prevent the development of atherosclerosis is executed according to the goal values of the principle lipid fractions inside the blood. The values of goal lipid tiers are decided via the diploma of risk of fatal headaches, which can be decided by the score table (for people reaching 40 years of age), and, in flip, rely upon the presence and severity of the maximum significant danger elements: systolic blood strain (SBP), gender, age, smoking and, most significantly, overall LDL cholesterol (cholesterol) within the blood (Fig. 1). The values obtained in the desk (in%) indicate the degree of possibility of developing a fatal myocardial infarction or stroke within the subsequent 10 years in a selected individual.

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Figure 1: SCORE scale for calculating fatal cardiovascular risk.

The scale of rating - In Europe, in 2003, based totally on 12 cohort studies and information on 205178 sufferers, the score scale becomes created ³. It replaced the Framingham scale inside the hints ¹² of the third ECU operating organization on the Prevention of Cardiovascular diseases in 2003, and its interpretation turned into adjusted inside the pointers of the 4th European operating group in 2007 ¹.

Mainly, primarily based on the records from the cohort study of the MONICA mission, the approximate correlation among the 10-year threat of cardiovascular death and worldwide cardiovascular danger changed into modified. If within the 2003 recommendations the concept of a high hazard of cardiovascular death (5% within the next 10 years) turned into correlated with the worldwide chance of a cardiovascular occasion > 20% (in the subsequent 10 years), then inside the 2007 pointers, the five% danger of death is already equated to 10% international threat. Although, the concept of excessive threat (as in the recommendations of 2003 described by way of the danger of demise > five% in the next 10 years) endured to function a criterion for reaching the goal degree of LDL cholesterol ("awful cholesterol") <2.5 mmol / l. In 2007, this event significantly removed European recommendations from American ones, where the indication for such a significant reduction in cholesterol since 2002 remains the risk of non-fatal myocardial infarction or cardiac death > 20% ¹³.

Among 1660 patients included in the study, 27.6% (458) were men and 72.4% (1202) women. The median age with an interquartile range was 67.8 (58.8; 76.1) years. The distribution of patients by age categories is presented in Figure 2.

Most of the patients were represented by the elderly. Among all patients included in the Register, 25.2% (419) were people aged 60 to 69 years; 31.4% (522) are people aged 70 to 79 years.

Figure 2: Distribution of patients by age categories.

The proportion of women significantly exceeds the proportion of men in all age groups, starting from the age of 50 years and older.

Example 1: To reduce the cardiovascular risk and the risk of cancer, a certain Mr. Abdullayev has 100 cu According to a special scale; the risk of death from cardiovascular disease in Mr. Abdullayev was calculated in the next 10 years. It amounted to 8%. And the risk of dying from cancer was estimated at 4%. Two effective preventative interventions are available. Intervention A reduces the risk of death from a cardiovascular event by 25% relative to the absolute risk present. Intervention B reduces the risk of death from cancer by 75% relative to the absolute risk. Each intervention costs 100 cu Due to limited funds, Mr. Abdullayev must choose one of these interventions. If he chooses intervention A, he will reduce the risk of death from cardiovascular disease by a quarter of the risk that he had, that is, by 2%. If he chooses intervention B, he will reduce the risk of death from cancer by three-quarters of the risk that he had at the beginning, that is, by 3%. This assessment shows that investing in intervention B is more effective than in intervention A. In this example, it can be seen that the assessment of cardiovascular risk in this particular person made it possible to choose the optimal method of prevention. Although there is a well-known and effective way to prevent death from cardiovascular disease, in his investing limited resources in this method is not the most effective in preventing death from any cause.

Example 2: An effective medicine is available on the market that prevents blood clotting and therefore reduces the risk of blood clots and, with regular use, reduces the risk of non-fatal myocardial infarction and cardiac death by 40% relative to the existing risk. But at the same time, this medicine gives an absolute increase in the risk of severe bleeding from the

gastrointestinal tract and death from this bleeding by 5% in the next 10 years. According to the Framingham scale, the risk of non-fatal myocardial infarction or cardiac death in the next 10 years for Mr. Yuldashev was 10%, and for Davidov - 20%. Thus, this medicine can reduce the risk in Mr. Yuldashev by 4% and in Davidov by 8%. The risk of bleeding and death from bleeding in both increases by 5%. Mr. Yuldashev is more likely to develop a serious complication of taking the drug than a decrease in cardiovascular risk, and Davidov is less. Therefore, Mr. Yuldashev from this medicine will get more harm than good, and Davidov this medicine will be the best way to prevent it.

RESULTS AND DISCUSSIONS

Research results show Rosuvastatin in treating the process. The results obtained in the study showed that therapy with atorvastatin led to a decrease in the content of cholesterol by 26%, HPSLP by 36%, TG by 24% (Table 1), but not to achieve the target level. The replacement of atorvastatin with rosuvastatin (Rosucard drug) was accompanied by a decrease in the level of cholesterol, cholesterol, and TG, which by the 6th month of therapy decreased by 20.53 and 8% (Table 1), respectively, and reached the target value and remained so during the subsequent therapy. The concentration of endothelin-1 under the influence of atorvastatin therapy decreased by 45%, however, the replacement of atorvastatin with rosuvastatin led to a decrease in the level of endothelin-1 by the 6th month of therapy by another 22%, by the 12th month - by 27% (Table 2). Along with increasing the coefficient of endothelial dysfunction as a result of annual therapy with atorvastatin (12%), therapy with rosuvastatin (Rosucard drug) allowed to increase the coefficient by another 15% by the 6th month and by 24% by the 12th month of treatment (Table 2). The improvement in vascular endothelial function was combined with a decrease in CRP under the influence of atorvastatin by 22% and additionally under the influence of rosuvastatin by 20% by the 6th month, by 24% by the 12th month.

Table 1: The level of blood lipids in patients with hypertension of high and very high cardiovascular risk during statin therapy

Significa- tive	Original- ly (M ± m), n = 114	After 1 year treatment atorvastatin (M ± m), n = 114	After 6 weeks treatment rosuvastatin (M ± m), n = 114
XC mmol / l	6,95±0,43	5,15±0,32*	4,35±0,34
HSLNP, mmol / l	4,74±0,21	3,64±0,14*	2,41±0,13**
HSLONP, mmol / l	1,08±0,05	0,83±0,04*	0,69±0,03**

HSLVP, mmol / l	0,97±0,05	1,05±0,05	1,21±0,05**
TG mmol / L	2,35±0,11	1,81±0,08*	1,52±0,08**

After 12 weeks treatment rosuvastatin (M ± m), n = 114	After 6 months treatment rosuvastatin (M ± m), n = 114	After 12 months treatment rosuvastatin (M ± m), n = 114
3,93±0,25**	3,88±0,25**	3,90±0,24**
1,92±0,08**	1,72±0,09**	1,67±0,07**
0,68±0,03**	0,73±0,04	0,74±0,03
1,24±0,05**	1,23±0,06**	1,26±0,05**
1,49±0,06**	1,60±0,07**	1,63±0,08

Note: * - significant difference with the initial value, $p < 0.05$; ** - significant difference with the value after therapy with atorvastatin, $p < 0.05$.

Among patients who underwent determination of HDL cholesterol, 19.1% (26) had values less than or equal to 1.0 mmol / L, in 77.9% (106), the values ranged from 1.01 to 2.0 mmol / l, in 2.9% (4) the HDL cholesterol level exceeded 2 mmol / l. In 73.9% (258), the TG level was less than 1.7 mmol / L, in 21.5% (75) patients the TG values were from 1.71 to 3.0 mmol / L, 7.4% (16) had a TG level in excess of 3.0 mmol / L.

When assessing the achievement of the target values of lipid parameters depending on the risk category, it was revealed that among very high-risk patients, 54 (3.8%) patients had a target level of OXC ≤ 4 mmol / l, among the high-risk patients, a target level of OXC ≤ 4.5 mmol / l had only 1 (5.6%) patient, among patients with moderate risk of the target level of total cholesterol ≤ 5 mmol / l reached 21 (22.1%) patients, among patients with low risk - 13 (52.0%) patients (target level of OXS ≤ 5.5 mmol / l).

In 97.3% (1256) patients there was evidence of whether they were receiving lipid-lowering therapy at the time of determining the parameters of total cholesterol. The level of total cholesterol in patients not receiving lipid-lowering therapy at the time laboratory tests, amounted to 5.53 (4.7; 6.29) mmol / l, in patients who were at the time of the laboratory study on lipid-lowering therapy - 5.52 (4.55; 6.39) mmol / l, while the indicated differences were not statistically significant ($p = 0.72$).

Ultrasound duplex scanning (DDS) of the brachycephalic arteries for the entire observation period of the patient according to the outpatient data was performed in 8.55% (142) among all patients and in 7.9% (102) among patients with blood lipid levels, while these differences were not statistically significant ($p = 0.52$). There were no statistically significant differences in the frequency of ultrasound examination

of the carotid arteries in patients with and without blood lipid data - 7.9% (102) and 10.8% (40) ($p = 0.08$), respectively. Among all cases of carotid artery ultrasonography, in 70.4% (100) cases, the study revealed ASB, in 21.1% (30) - CMM thickening of more than 9 mm, and only in 15.5% (22) cases revealed intact brachiocephalic arteries²¹.

CONCLUSION

1. The usage of rosuvastatin (Rosucard drug) in patients with excessive and really high SSRs who have no longer reached the target levels of atherogenic lipids due to therapy with atorvastatin, offers a lower in the stage of LDL cholesterol and HPSLP to target values.
2. The use of rosuvastatin (prepare Rosucard) is observed with the aid of a decrease inside the interest of inflammatory methods inside the vascular wall, improving the characteristic of the vascular endothelium, will increase the effectiveness of the prevention of fatal and non-fatal complications in this category of sufferers.

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