

Dynamics of Lipid Change Indexes on the Background of Physical Rehabilitation of Patients Affected with Myocardial Infarction

Naira Chabashvili

Medical Rehabilitation Department of Tbilisi State Medical University

Abstract

In our study have been determined changes of lipid indexes (total cholesterol, α -cholesterol, β -cholesterol, pre- β -cholesterol, triglycerids) in blood serum on the background of physical rehabilitation in 307 patients with myocardial infarction. The results of study showed that the statistical improvement of these data takes place in patients undergone physical rehabilitation together with the appropriate diet and hypolipidemic therapy.

Keywords: *myocardial infarction, lipid indexes, physical rehabilitation, diet, hypolipidemic therapy*

Introduction

Cardiovascular diseases (CVD) remain one of the main problems of over-privileged world. Despite of achievements, made for the last 20 years, according to the data of International Health Care Organization, CVD induced mortality was not reduced significantly (1). In the last years a number of investigations has been devoted to the pathophysiology of CVD, though the exact reasons of thrombogenesis in coronary vessels as well as atherosclerosis has not been established (3).

In CVD pathogenesis the leading role belongs to atherosclerosis. As more the duration of atherosclerotic changes the more the possibility of thrombogenesis (2). It is known that reduction of cholesterol level reveals more expressive effect in CVD patients than in patients without coronary diseases. The conducted investigations have shown that reduction of cholesterol level causes the stabilization or sometimes decrease of plaque-induced vessel stenosis (4). Therefore the secondary prevention of CVD has a very important meaning that implies dietotherapy, physical activities, life-style settlement and hypolipidemic treatment (5,6,7,8).

The aim of our observation is study of dynamics of lipid change indexes in patients with acute myocardial infarction on the background of physical rehabilitation.

Material and methods

Have been studied 307 patients of age 39-70: among them 216 (74,4%) men and 91 (29, 6%) women. The main group was consisted of 207 (67,4%) patients. They have undergone physical rehabilitation. The control group included 100 (23,6%) patients.

Together with the general clinical studies, has been determined the indexes of lipid changes: total cholesterol, α -cholesterol, β -cholesterol, pre- β -cholesterol, triglycerids and coefficient of atherogenity. The program of physical rehabilitation has been established at the stationary stage taking into consideration the class of severity in studied patients. After 3 months of myocardial infarction the patients have undergone physical rehabilitation using individual programs: walking - 20-30 min and exercises on Veloergometer - 15-20 min (3-5 times a week). The patients monitoring were performed in 0, 3, 6 and 9 months after discharging from hospital. The patients of both groups were on hypolipidemic diet, 21 patients of them were taking Simvastatin.

	Main group	Control group
Total cholesterol	218,3±3,0	224,1±2,6
β- cholesterol	168,8±1,9	170,2±3,1
Pre-β- cholesterol	36,2±1,5	39,2±1,1
Triglycerids	157,9±5,2	156,2±8,3
Coefficient of atherogenity	3,5±0,3	3,9±0,9

Tab.1 Lipid change indexes after physical rehabilitation.

	Main group	Control group
Total cholesterol	201,3±2,6	258,8±4,6
α- cholesterol	46,5±2,1	46,9±1,2
β- cholesterol	158,8±1,9	180,2±3,1
Pre-β- cholesterol	64,2±1,5	36,2±1,1
Triglycerids	212,6±3,0	188,2±3,8
Coefficient of atherogenity	3,4±0,3	4,6±0,9

Tab.2 Lipid change indexes in groups with and without simvastatin treatment.

Results

The studies of lipid change indexes in blood serum of main group patients showed that: the level of total cholesterol was – 247,3 ± 3,89mg%; α - cholesterol – 43,65 ± 1,15 mg%; β-cholesterol – 169,1 ± 3,48mg%; pre-β-cholesterol – 34,59 ± 1,39 mg%; triglycerids – 182,2 ± 7,6 mg%; and coefficient of atherogenity – 5,18±0,15mg%.

In blood serum of control group patients have been determined: the level of total cholesterol – 251,05 ± 5,3mg%; α-cholesterol – 44,4 ± 1,5 mg%; β- cholesterol – 170,2 ± 4,3 mg%; pre-β-cholesterol – 35,8 ± 2,3 mg%; triglycerids – 177,1 ± 11,8 mg%; and coefficient of atherogenity – 5,14 ± 0,21 mg%.

After undergoing physical rehabilitation have been received the following data: in both main and control groups have been reduced the level of total cholesterol by 18% and 10,7% relatively; has been also decreased triglycerids' level by 33% and 11,8% relatively; has been increased α- cholesterol level by 10 and 3,7% relatively; the levels of β- and pre-β-cholesterol were not changed (Tab.1).

The difference between the data of the main and the control groups have not been proved statistically. Therefore lipid change indexes have been studied in patients with and without treatment through Simvastatin administration, whereas the last ones (without this treatment) have undergone physical rehabilitation. The received data are given in Tab.2.

As it is shown in table: cholesterol level has been reduced by 23,2% in patients undergone Simvastatin treatment and by 4,2% in patients without this treatment; α-cholesterol level has been increased by 17,6% and in non-treated patients by 3,8%; β-cholesterol level has reduced by 11,3% and in non-treated patients by 3,4%; pre-β-cholesterol level has reduced by 6,7% and in non-treated patients has not been changed practically; triglycerids level has reduced by 11,97% and in non-treated patients by 3,1%; coefficient of atherogenity has been returned to the norm level, while in non-treated group remained increased.

The results of study revealed that the data of I group patients has been improved statistically in comparison with II group which proves that the physical rehabilitation – doesn't induce lipid change improvement without hypolipidemic diet and appropriate pharmacotherapy.

References

1. Шевченко Ю.Л. и др. Проблемы реабилитации при лечении патологии сердца. Проблемы реабилитации #1, 1999. ст. 102-109.
2. Чазов Е. И. Возможности реального улучшения прогноза и качества жизни больных ИБС. Терапевтический архив #9, ст. 10-18.
3. Alpert G.S., Chetlin M.D. Update in cardiology. Ann Intern med 1996; 125: 40-46.
4. Anderson T.G. The effect of cholesterol-lowering and antioxidant therapy on endothelium dependent coronary vasomotion. N Eng J Med 1995; 33:488-493.
5. Dufaux B. Plasma lipoproteins and physical activity: a review. Int J Sports Med 1982; 3:123-136.
6. Haskel W.L. Exercise-induced changes in plasma lipids and lipoproteins. Preventive medicine 1984; 13:23-36.
7. Superco HR. Modification of plasma cholesterol through exercise. Postgrad Med 1985; 78:64-65.
8. Wood PD. Changes in plasm lipids and lipoproteins during weight loss by dieting versus exercise in overweight men. N Engl J med 1988; 319: 1173-1179.

Динамика показателей липидных изменений в пациентах с инфарктом миокарда на фоне физической реабилитации

Наира Чобаивили

Кафедра медицинской реабилитации Тбилисского государственного медицинского университета

Р Е З Ю М Е

Были изучены изменения показателей липидных изменений (общий холестерол, α -холестерол, β -холестерол, пре- β -холестерол, триглицериды) в сыворотке крови в случаи 307 пациентов с инфарктом миокарда на фоне физической реабилитации. Исследования показали, что эти показатели статистически улучшаются в пациентах, которые проходят физическую реабилитацию и в то же время находятся на диете и гиполипидемическом лечении.

Ключевые слова: *инфаркт миокарда, липидные изменения, физическая реабилитация, диета, гиполипидемическое лечение*