

THE EFFECT OF CARNITINE ADMINISTRATION ON THE STATIN-ASSOCIATED MYOPATHY DEVELOPMENT UNDER NUTRITIONAL DISLIPOPROTEINEMIA WITH HYPERLIPIDEMIA IN GUINEA PIGS

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Introduction. Today cardiovascular diseases are the important problem, which ranks leading positions of mortality in the world. Among the reasons of this diseases group is atherosclerosis development. Statins are the most commonly prescribed drugs for the atherosclerosis treatment, that shows myotoxicity accompanied by the development of myopathy, and in serious cases, rhabdomyolysis. One of the causes of myopathy could be a carnitine deficiency. Carnitine is a vitamin-like compound that activates the fatty acids oxidation and normalizes the energy supply of muscle tissue and prevents myocyte apoptosis.

The **aim** of our work was to study the applicability of L-carnitine using for the prevention of the statin-associated myopathy formation in guinea pigs.

Materials and methods. Studies were carried on male guinea pigs, which was modeled nutritional diislipoproteinemia with hyperlipidemia. Animals were administered fluvastatin (Lescol XI, Novartis, Switzerland) or a combination of fluvastatin with L-carnitine (L-carnitine, "Farmakom", Ukraine). Content of α -cholesterol, β -cholesterol concentration of myoglobin, lactate, the enzyme activity of lactatedehydrogenase (LDG) and creatinephosphokinase (CPK) was determined; the atherogenic coefficient (AC) was calculated.

Results and discussion. In animals with control pathology, the content of β -cholesterol grew in 3.61 times, and α -cholesterol content was reduced by 75%, AC was significantly increased in 20.25 times. In animals treated with fluvastatin β -cholesterol level was significantly decreased by 45.7%, and α -cholesterol were not significantly different from intact animals, the AC returned to normal value. However, the myoglobin and lactate content were significantly increased (in 2.8 and 2.3 times respectively), the activity of LDG increased by 18.97%, and CPK – in 1.34 times, that indicate the statin-associated myopathy formation. The combination of fluvastatin and L-carnitine were accompanied by a more correction effect of dyslipidemia and offset by negative changes in the indices of muscle damage, due to normalization of myocyte energy maintaining and inhibition of apoptosis.

Conclusions. The researches carried out testify to expediency of L-carnitine using to the prevention of statin-associated myopathy development associated with long term use of these lipid-lowering drugs.