The effects statins administration on atherogenic process in the experimental model of atherosclerosis.

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The aim of this rigorous work was to detect and quantify the changes of endothelial expression of VCAM – 1 (the marker of endothelial dysfunction) and endoglin (the marker of angiogenesis) in vessel wall of apoE deficient mice. Endoglin is a part of the receptor complex of the transformation growing factor beta (TGF – beta). Statins are the most considerable substances for the treatment of hyperlipidemia and blood - vessel complications (atherosclerosis). Statins decrease levels of LDL cholesterol and also of triglycerides. Moreover, pleiotropic effects take important part in statin´s benefit: the decrease of activity of inflammatory and prothrombotic processes.

We used apoE deficient mice as the model of atherosclerosis, fed by standard laboratory diet. We analyzed the levels of total cholesterol in blood and we observed expression of VCAM - 1 and endoglin in aortic sinus and part of aortic arch in all mice. Total cholesterol concentrations were assessed enzymatically by conventional diagnostic methods and spectrophotometric analyses. To display VCAM-1 and endoglin expression in aortic sinus and part of aortic arch we used imunohistochemical methods and for quantification of VCAM-1 and endoglin expression we used stereological methods.

The results of study showed that four-weeks of atorvastatin administration did not affect levels of total cholesterol. On the contrary the administration of atorvastatin decreased endothelial expression of VCAM – 1 and endoglin when compared with the control group of mice.

The results of this analysis confirmed anti-inflammatory effects of atorvastatin on vessel endothelium and simultaneously they revealed its possible influence on TGF-beta signalisation.