Abstract

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Changes of endothelial expression of endoglin during atherogenesis

Diploma thesis

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Background: We observed the expression of endoglin in arteria brachiocephalica in the apoE$^{-/-}$/LDLr$^{-/-}$ deficient mice after feeding them with the low carbohydrate, high protein diet.

Methods: We used the female apoE$^{-/-}$/LDLr$^{-/-}$ deficient mice, which we divided into two groups after 6 animals. One of these groups were fed by AIN-93G diet (control group) and the second one by low carbohydrate, high protein diet. Stereological and immunohistochemical analysis was performed in tissue sections of arteria brachiocephalica by means of ImmPRESS^{TM} method with DAB detection.

Results: Biochemical analysis showed a significant increase levels of total cholesterol after feeding with low carbohydrate, high protein diet. Immunohistochemical analysis, we demonstrated endoglin expression in endothleial cells, mostly covering atherosclerotic plaques in both groups apoE$^{-/-}$/LDLr$^{-/-}$ deficient mice. Stereological analysis in mice fed with low carbohydrate, high protein diet showed weak endoglin expression when compared to group on chow diet.

Conclusions: Mice fed with low carbohydrate, high protein diet showed increased plasma levels of cholesterol and non-significant decrease of endoglin expression when compared with mice on chow diet. Hypercholesterolemia and progression of atherosclerotic lesion seems to affect endothelial expression of endoglin suggesting its role in the process of atherosclerosis.