Abstract

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Immunohistochemical detection of macrophages in atherosclerotic lesions brachiocephalic artery.

Bachelor thesis

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Background: The aim of this bachelor thesis was to set imunohistochemic methods for detection of the macrophages in brachiocephalic artery apoE/LDLR receptor deficient mice. This thesis also deals with quantification of expression macrophages in group of mice which were fed with chow diet and in group of mice which were fed with low carbohydrate high protein diet.

Methods: For this study were used apoE/LDLR deficient female mice which were separated into two groups (in each group were 6 mice). The first group was fed with chow diet (control group) and the second one was fed with low carbohydrate high protein diet (LCHP). This diet was administered to the mice for 8 weeks. After that the imunohistochemical analysis was performed on the cuts of brachiocephalic artery which uses Immpress method with diaminobenzidin (DAB) for better visibility of macrophages. Afterwards was performed biochemical and stereological analysis.

Results: Biochemical analysis showed increased levels of total cholesterol in mice with LCHP diet. Immunohistochemical analysis showed presence of macrophages in vessel intima and also in vessel media. Stereological analysis showed that the LCHP diet increases area where macrophages cumulate in brachiocephalic artery.

Conclusion: In the mice with LCHP diet was observed increasing of total cholesterol in blood compared with the mice on chow diet. Stereological analysis showed higher presence of macrophages in atherosclerotic plaque at these mice. These results confirm proatherogenic and proinflammatory potential of LCHP diet.