Abstract

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Diploma Thesis

Soluble endoglin effects on membrane endoglin signaling in mouse aorta.

Background: The aim of this study was to observe and evaluate the influence of the long-term (12 months) effect of high levels of soluble endoglin on membrane endoglin signalization in the mouse aorta. Specifically, we observed and compared the expression of proteins endoglin, eNOS, and pSmad2/3 in control and a test Sol-Eng^{+} group of mice.

Methods: Two groups of 12-months-old mice with a difference in the level of soluble endoglin were used in this study. Both groups were originated in the same line of transgenic mouse strain CBAxC57BL/6J and fed with ordinary laboratory diet. Western blot technique was used to analyse the expression of individual proteins endoglin, eNOS, and pSmad2/3. The concentration of human soluble endoglin and soluble form of VCAM-1 molecule was evaluated by ELISA analysis. Total cholesterol levels and triglycerides in the plasma were detected by biochemical analysis.

Results: Western Blot analysis showed no statistically significant differences in the expression of the membrane endoglin, eNOS enzyme and pSmad2/3 in the aorta between control and test Sol-Eng^{+} group. ELISA analysis also showed no significant differences in level of sVCAM-1 molecule and biochemical analysis showed no statistically significant differences in cholesterol and TAG levels between control and test group as well.

Conclusions: We showed that a high level of soluble endoglin in the plasma does not negatively affect the function of the endothelium in 12-months-old Sol-Eng^{+} mice. No alteration appeared in the endoglin/Smad2/3/eNOs signalization in these mice.

Keywords: blood vessels, endothelium, endothelial dysfunction, endoglin, soluble endoglin, Western blot