

1. ABSTRACT

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Oxidative stress and endothelial condition in myocardium of mice expressing high levels of soluble endoglin in plasma

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Background: In recent years, soluble endoglin is among others considered as a marker of endothelial dysfunction and plays a crucial role in many cardiovascular diseases. This study aimed to evaluate the expression of specific markers of endothelium protection, inflammation and oxidative stress in cardiac wall of transgenic model of mice with high plasma levels of human soluble endoglin, which was fed a high fat diet.

Methods: For this work, we used a female transgenic mouse model on a CBAXC57BL/6J background with high plasma levels of human soluble endoglin, fed a high fat (40%) and high cholesterol (1.25%) diet. As a control group, we used their female littermates showing undetectable levels of human soluble endoglin. The expression of the selected molecules eNOS, peNOS, VCAM-1, HO-1, SOD-3 and catalase was evaluated by Western blot analysis. Total cholesterol levels were detected by biochemical analysis. The levels of human soluble endoglin were detected by ELISA analysis.

Results: Biochemical analysis didn't show any significant difference in total cholesterol levels between both groups of mice. Western blot analysis also failed to demonstrate significant difference in the expression of selected proteins in the cardiac wall between the group of mice with high soluble endoglin levels and the control group.

Conclusion: From these results, there is possible to suggest that high levels of soluble endoglin in combination with high fat diet do not affect the expression of markers of endothelium protection, inflammation and oxidative stress in cardiac wall of transgenic mouse strain. However, final conclusions are the subject of ongoing studies.

Keywords: soluble endoglin, endothelial NO synthase, phosphorylated endothelial NO synthase, vascular cell adhesion molecule 1, heme oxygenase 1, superoxide dismutase 3, catalase, high fat diet, Western blot, oxidative stress, heart