Abstract

Estrogen deprivation in postmenopausal women increases cardiovascular risk. Cardiovascular risk as a result of atherosclerosis is able to induce an inflammatory disease as far as cyclooxygenase-2 (COX-2) expression. The purpose of the study was to investigate the role of COX-2 on exercise training in female LDL-receptor knockout ovariectomized mice. A total of 15 female C57BL/6 mice and 15 female LDL-KO mice were distributed into 6 groups: sedentary control, sedentary control ovariectomized, trained control ovariectomized, LDL-KO sedentary, LDL-KO sedentary ovariectomized and LDL-KO trained ovariectomized. The ascending part of the aorta was stained with H&E and COX-2 expression was assessed by immunohistochemistry. Results revealed that ovariectomy as well as exercise training were not able to induce histopathological changes in mouse aorta for all groups investigated. LDL-KO mice demonstrated plaque containing cholesterol clefts, foamy histiocytes and mild inflammatory process for all groups indistinctly. Ovariectomy induced a strong immunoexpression in atherosclerosis lesion of LDL-KO mice. Nevertheless, a down-regulation of COX-2 expression was detected in LDL-KO trained ovariectomized when compared to LDL-KO sedentary. Our results are consistent with the notion that exercise training is able to modulate COX-2 expression in LDL-KO mice as a result of COX-2 down-regulation.

Keywords

Atherosclerosis, Cyclooxygenase-2, exercise, menopause.