عنوان مقاله:

The effect of exercise training on the level of tissue IL-۶ and vascular endothelial growth factor in breast cancer bearing mice

محل انتشار:

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خلاصه مقاله:

Objective(s): The goal of this study was assessing the prophylactic effect of exercise and its role as an adjuvant therapy on level of cytokines involved in angiogenesis in estrogen-dependent breast cancer. Materials and Methods: Forty female BALB/c mice were randomly assigned to exercise-tumor-exercise (ETE), exercise-tumor-rest (ETR), rest-tumor-exercise (RTE) and rest-tumor-rest (RTR) groups. After orientation in the environment, two groups of mice performed continuous endurance exercise for ۸ weeks, and thereafter estrogen-dependent MC۴L۲ cancer cells were injected to them. Then, one group of each of trained and non-trained mice performed endurance exercise ۵ days per week for ۶ weeks. Tumor volume was measured by a digital caliper weekly. Finally, the mice were sacrificed; tumor tissue was removed, immediately frozen and kept in -۷۰°C. Tumor sample was homogenized; levels of cytokines were measured and quantified using ELISA. Results: There was significant reduction in the level of interlukin-۶ (IL-۶) (P=۰.۰۰۱), Vascular endothelial growth factor (VEGF) (P=۰.۰۰۰۱) and tumor volume (P=۰.۰۰۰۱) among the groups performing endurance exercise after malignancy (RTE and ETE) in comparison with groups not performing

endurance exercise (ETR and RTR), and these results were in agreement with tumor growth rate. Conclusion: Exercise can cause reduction in levels of pro-inflammatory cytokines in tumor tissue. Decreased IL-۶ production could reduce the generation of VEGF, resulting in reduced intra-tumor angiogenesis. Due to reduction of the level of these cytokines in groups doing exercise before and after malignancy, exercise is presumed to be an adjuvant therapy in .estrogen-receptor dependent tumors in addition to its effective prophylactic role

کلمات کلیدی:

Endurance training, Estrogen receptor depen-dent cancer, IL-۶, VEGF