عنوان مقاله:

The effects of interval aerobic training on mesenchymal biomarker gene expression, the rate of tumor volume, and cachexia in mice with breast cancer

محل انتشار:

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خلاصه مقاله:

Objective(s): It seems that regular exercise can have inhibitory effects on the progression of breast cancer. This study, therefore, aimed to investigate the influences of interval aerobic training on mesenchymal biomarker gene expression, muscle cachexia, and tumor volume changes in mice with breast cancer.Materials and Methods: Thirty-two female Balb/c mice were allocated to four groups: Exercise Tumor Exercise, Rest Tumor Rest (Control), Rest Tumor Exercise, and Exercise Tumor Rest. Interval aerobic training was done 6 weeks before and 4 weeks after tumor induction. Weight test and inverted screen test were carried out as muscle function tests. Data were analyzed using one-way ANOVA and HSD post hoc.Results: The results showed a significant decrease in gene expressions of Twist, Vimentin, and TGF-β in Exercise Tumor Exercise group in comparison with the Control group ($P<0.05$). Remarkable reduction of the rate of tumor volume was also observed in two training groups (Rest Tumor Exercise, Exercise Tumor Exercise) compared with the control group. According to function tests' results, muscle functions were diminished due to cancer, but interval aerobic training can keep muscles in a normally-functioning state in cancer ($P<0.05$).Conclusion: Considering final results, a period of interval aerobic training can be used not only as a prevention method, but also help cancer treatment and impede cachexia by tumor volume reduction, decrease mesenchymal biomarker gene expression, and increase muscle strength functions.

کلمات کلیدی:

Breast Cancer, Cachexia, Interval aerobic training, TGF-β, Tumor Volume, Twist, Vimentin