عنوان مقاله:

Chronic effects of aerobic exercise on gene expression of LOX-۱ receptor in the heart of rats fed with high fat diet

محل انتشار:

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خلاصه مقاله:

Objective(s) :Lectin-like low density lipoprotein receptor (LOX-۱) has pivot role in vascular complications, which is upregulated in numerous pathological conditions. Since exercise has beneficial effects in prevention of hyperlipidemic complications, present study examined protective effects of aerobic exercise through reduction of LOX-۱ expression in heart during dyslipidemia. Materials and Methods: Four groups of rats were used (N=۲۵): Normal, Normal and exercise, High fat and High fat and exercise. High fat diet (HFD) was made by adding ۱۰% animal oil, ۲% cholesterol and ۰.۵% colic acid to standard rodent chow. Exercise protocol consisted of swimming ۱ hr/day, and ۵ days/week for ۸ weeks. Plasma lipids were evaluated at the end of experiment, ۴۸ hr after final session of exercise. At the end, rats were sacrificed and heart was removed for determination of malondialdehyde (MDA) content, and LOX-۱ expression. Results :HFD meaningfully changed lipid profile (>۵۰%), but chronic exercise had no significant effects on lipid profile. LOX-۱ expression was significantly increased in heart of rats fed with HFD, while swimming exercise considerably reduced gene expression of LOX-۱. MDA content was significantly enhanced in rats fed with HFD (۴.۳۷±۰.۶ nmol/mg, P<۰.۰۱) compared to normal group (۱.۵۶±۰.۴۸ nmol/mg), whereas swimming exercise decreased MDA level of heart in rats fed with HFD (۲.۲۸±۰.۳۲, P<۰.۰۱). Conclusion :Findings indicated that swimming exercise is able to diminish heart expression of LOX-۱ receptor concomitant reduction of oxidative stress. Since these parameters are involved in generation of dyslipidemic complications, swimming exercise is a good candidate to reduce these complications.

کلمات کلیدی:

Dyslipidemia, LOX-۱ receptor, Oxidative stress, Swimming exercise