Original Paper

Effect of regular exercise training on apelin and tumor necrosis factor alpha levels in hypertensive postmenopausal women with type 2 diabetes mellitus

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Abstract

Background and Objective: The comorbidity of type 2 diabetes mellitus (T2DM) and hypertension may exacerbate chronic inflammation and regular exercise training considered as an important therapeutic approach for such patients. This study was done to evaluate the eight weeks effects of regular exercise training on apelin and tumor necrosis factor alpha (TNF-α) plasma levels in hypertensive postmenopausal women with T2DM.

Methods: This quasi-experimental study was conducted on 20 postmenopausal women with hypertension and T2DM. Subjects non-randomlly allocated into intervention and control groups. Training program consisted of 25-40 minutes of aerobic exercise at 50-70 percent of maximal heart rate, 3 sessions per week for 8 weeks. The plasma level of apelin, TNF-α and glucose was measured, subsequently.

Results: 8 weeks exercise training was significantly reduced apelin, TNF-α, and glucose levels in the intervention group compared to the control group ($P<0.05$).

Conclusion: Aerobic exercise can mediate some of its favorable effects on hypertension pathological conditions associated with type 2 diabetes mellitus by reducing plasma apelin and TNF-α levels.

Keywords: Hypertension, Type 2 diabetes mellitus, Aerobic exercise, Apelin, Tumor necrosis factor alpha, Diabetes, Menopause

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