Original Article

Effect of Regular Aerobic Training and Arbutin on Cardiac Total Oxidant and Antioxidant Status in Alloxan-Induced Diabetic Rat

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Received: 23 Apr 2014
Revised: 9 May 2014
Accepted: 11 May 2014

Abstract

Background and Objective: Diabetes mellitus is associated with cardiomyopathic changes, can be mediated by an oxidative stress. We aimed to study the effects of regular aerobic training and arbutin supplementation on total oxidant status (TOS) and total antioxidant (TAS) status in the cardiac tissue of diabetic rats.

Material and Methods: fourty-two male Wistar rats with an average weight of 195 to 220 gr were randomly divided into 6 groups (7 rats per group) of control, diabetes, Arbutin, diabetes + Arbutin, diabetes + aerobic training and diabetes + aerobic training + Arbutin. Swimming training protocol consisted of 5 days/week for 6 weeks and each session was 5-36 min/day. Diabetes was induced with alloxan intraperitoneally and Arbutin (50 mg/kg) was administered subcutaneously.

Results: Induced- diabetes significantly increased TOS and decreased TAS in rat heart tissue (P = 0.000). Six weeks of supplementation with Arbutin, aerobic training and combination of aerobic training and Arbutin supplementation were associated with a significant decrease in TOS (88%, 91% ,103% Respectively) and increase in TAS (33% ,62% ,67% Respectively).

Conclusion: Compared to arbutin, aerobic training can be more effective in creating adaptation in the antioxidant defense system.

Keywords: Aerobic Training, Arbutin, Total Oxidant Status, Total Antioxidant Status, Diabetes.

This paper should be cited as: Shojaee M, Farzanegi P, Habibian M. [Effect of Regular Aerobic Training and Arbutin on Cardiac Total Oxidant and Antioxidant Status in Alloxan-Induced Diabetic Rat]. mljgoums. 2015; 9(1): 76-83[Article in Persian]