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The interaction effect of glibenclamide and aerobic training on c-peptide, insulin and insulin resistance in type 2 diabetic patients

Sardar, M.A.^{ab}, Shamsian, A.A.^a, Taghavi, M.^a^a Mashhad University of Medical Sciences, Mashhad, Iran^b Pardis of Mashhad University of Medical Sciences, Vakilabad Blv, Bahonar Blv, Mashhad, Iran

Abstract

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Background: Combination of physical activity and pharmacotherapy in diabetes may augment the effects of the drug and may allow lower doses of medication that can minimize the side effects. The goal of the study was to determine the effectiveness of aerobic training and Glibenclamide combination in type 2 diabetes. Methods: A total of 28 men with type 2 diabetes were divided to 3 groups randomly: Glibenclamide (5 mg daily) only, Glibenclamide (5 mg daily) plus aerobic training, Glibenclamide (2.5 mg daily) plus aerobic training. Aerobic training protocol was performed for 12 week, 3 days (session) a week, 45 minutes in a session (ergo cycle program at 60-70 % heart rate reserve). Fasting glucose, HbA1c, fasting insulin, c-peptide, and insulin resistance were measured at pre, mid and post treatment periods. Analysis of Variance test (ANOVA) were used to evaluate data. Results: HbA1c significantly decreased and c-peptide significantly increased in three groups ($P < 0.05$). There were also no between-group differences for c-peptide and HbA1c ($P > 0.05$). Fasting insulin concentration did not alter in three groups, however, insulin resistance decreased (no significant) after 12 weeks. Conclusion: In type 2 diabetic patients, Glibenclamide treatment alone or combination of aerobic training and Glibenclamide treatment, was effective in improving glycemic control in patients with type 2 diabetes. As a result, in patients with type 2 diabetes, the addition of aerobic training to Glibenclamide treatment allow lower doses of Glibenclamide to be used without impairment in glycemic control.

Author keywords

Aerobic training; C-peptide; Glibenclamide; HbA1c; Insulin resistance; Type 2 diabetes

Indexed Keywords

EMTREE drug terms: C peptide; glibenclamide; glucose; hemoglobin A1c; insulin

EMTREE medical terms: aerobic exercise; analysis of variance; article; clinical article; controlled study; drug effect; drug efficacy; heart rate; human; insulin resistance; male; non insulin dependent diabetes mellitus

Chemicals and CAS Registry Numbers: C peptide, 59112-80-0; glibenclamide, 10238-21-8; glucose, 50-99-7, 84778-64-3; hemoglobin A1c, 62572-11-6; insulin, 9004-10-8

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