

29th International Congress on

Prevention of Diabetes and Complications

September 27-28, 2018 | Berlin, Germany

Multi and interdisciplinary collaboration in improving the physical activity of patients with diabetes mellitus-type I: Results of 5 year study in Clinical Hospital Center Zagreb

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INTRODUCTION: The increasing incidence of diabetes is associated with constant lifestyle changes including non-traditional dietary patterns and lack of physical activity. Basic treatment of diabetes involves healthy eating, regular exercise and, in some cases, diabetes medication or insulin therapy. Physical activity is always part of the basic treatment of diabetes. There are many proven benefits of exercise in diabetes, e.g., reduction of insulin resistance, improvement of glycemic control and lipid profile. Exercise reduces body weight and increases cardiorespiratory capacity, it can reduce the demand for drugs and slow development of some diabetic complications. It is recommended that individuals perform moderate physical activity for 30 minutes daily, i.e. moderate-to-vigorous intensity aerobic exercise at least 5 days a week, or a total of 150 minutes per week. There is specific activity limitation in diabetic retinopathy, ischemic heart disease and for diabetic patients with loss of protective sensation. Hypoglycemia can occur during, immediately after, or hours after exercise. For people with type 1 diabetes willing to exercise (especially those planning professional sports or extreme exercise), it is important to balance insulin doses with food and activity.

RESULTS: In this study we report the 5 year results of study performed interdisciplinary with collaboration of Clinic for Rheumatic diseases and rehabilitation and Department of endocrinology in Clinical Hospital Center Zagreb. Patients attended structured, uniformed, 5 consecutive days educational program performed in small groups of 5-7 patients. The structured training program is based on the Düsseldorf and DAFNE programs. The program included daily consultations with a multidisciplinary healthcare team. The team was led by an endocrinologist-diabetologist and nurse-educator, also included a nutritionist, psychiatrist and a physiotherapist who provided education in exercise. Patients were also educated in self-management of diabetes, application of multiple daily insulin injections, carbohydrate counting and insulin doses calculations. Education included basic knowledge about the history and progression of disease, risks of acute and chronic complications and lifestyle modifications. So far in the last 5 years we included 250 patients in this program. Educational program is held 5 days a week, from September till June every year. Patients performed muscle strength training exercises, postural exercises, strengthening of the thigh muscles and strengthening of scapulohumeral muscles. The exercises were based on a gradual increase in the repetition, duration and intensity of the exercise. The level of physical activity was estimated by the International Physical Activity Questionnaire (IPAQ) using four dimensions: physical activity at work, physical activity in transportation, household work and physical activity in leisure time.

The results were presented in MET minutes weekly as continuous variables and classification in 3 stages of total body activity (high, moderate, low). Out of the total number of respondents 3 were excluded due to an incorrectly completed questionnaire and 1 because of the existence of a clinically significant functional definition of the lower limbs. The mean age of the patients was 32.96 years (SD 10.16), and the average duration of the disease was 15.00 years (SD 9.62). Of the total number of analyzes, 9 (37.5%) had developed complications of the underlying disease. The most common level of physical activity was the high level (66.7%), then moderate (20.8%) and low (12.5%). The median for the individual IPAQ dimension was 0.00 (0.00-21.600.00) for physical activity at work; 297.00 (0.00-1.386.00) for physical activity in transport; 727.50 (0.00-9.180.00) for home affairs and 678.00 (0.00- 6.714.00) for physical activity in leisure time. Median total body activity was 9,065.00 MET minutes per week (594.00-20.604.00) for men (N = 12.50%) and 5.335,50 (0.00-22515.00) for women sex (N = 12.50%) without statistically significant differences between groups. Significant proportion of subjects with type 1 diabetes (87.5%) belongs to the group of high and moderately active persons, contributing to improved disease control and prevention of late complications. There is no difference in the overall level of physical activity among the sexes.

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SUMMARY: Patients with diabetes should include physical activity as normal routine of daily activities. Results of our study showed that patients are interested in performing every day activities. Finally, diabetes is not an obstacle to participation in physical activities, even vigorous ones. When choosing the type of physical activity, personal preference must be also taken in consideration. Exercises should be carefully taken because of the risk of hypoglycemia.

Biography

Iva Zagar is a Research Associate in Clinical Diabetes where he completed his masters at Ekonomski fakultet during the class of 1998. He had done schooling in V. Gimnazij during the class of 1989 at Croatia and he lives in Zagreb, Croatia.

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