

mgr Katarzyna Agnieszka Kowalska

“Evaluation of effectiveness of complex diabetes education

Delivered by the multidisciplinary care team among patients with type 2 diabetes mellitus attending diabetes outpatient clinics”

ABSTRACT

Introduction. An integral part of diabetes therapy is diabetes education, implemented on the basis of a properly prepared educational programme.

Aim of the study. The aim of the study was to check the effectiveness of comprehensive health education delivered by the multidisciplinary care team in patients with type 2 diabetes, treated in diabetes outpatient clinics in Ostrowiec Świętokrzyski. The effectiveness of education was assessed based on the results of biochemical and anthropometric parameters of patients as well as their level of knowledge and attitude towards the disease.

Material and methods. The study was conducted among 174 patients with type 2 diabetes, divided into two groups. The study group consisted of 113 people (average age 65.73 years, duration of diabetes on average 11.52 years), who participated in diabetes education programme named „School of education for patients with type 2 diabetes” and physical activity classes for 26 weeks. 61 people were qualified to the control group (average age 65.18 years, disease duration average 9.71 years), who did not attend the education project. All the patients were subjected to biochemical and anthropometric tests (fasting glucose, total cholesterol, LDL, HDL, triglycerides, HbA_{1c}, body weight, waist circumference, hip circumference, BMI, WHR and arterial blood pressure) at week 0 and the 26th of the programme. The patients in the study group additionally completed two questionnaires, regarding educational needs, behaviors and attitudes related to diabetes. In order to assess the effectiveness of the comprehensive diabetes education by means of appropriate statistical methods, the study and control groups were compared in the 26th week of the educational programme and the study group before and after the education.

Results. Before the start of the educational program, the study group did not differ significantly from the control group (except HDL and blood pressure, whose values were statistically significantly higher for patients in the study group). In the 26th week of the educational program, patients in the study group achieved significantly better results in fasting glycemia (mean 125 mg/dl vs 177 mg/dl in the control group, $p < 0.001$), triglycerides (138 mg/dl vs 181 mg/dl, $p = 0.008$), HbA_{1C} (6.85% vs 7.52%, $p = 0.010$), body weight (79 kg vs 86 kg, $p = 0.002$), waist circumference (102 cm vs 108 cm, $p = 0.008$), hip circumference (111 cm vs 115 cm, $p = 0.007$) and diastolic blood pressure (76 mm Hg vs 85 mm Hg, $p < 0.001$). After 26 weeks of the educational programme, the patients in the study group statistically and significantly improved almost all the results, compared to the condition in 0 week. Average glucose fasting decreased from 135 to 125 mg/dl ($p < 0.001$), total cholesterol from 202 to 191 mg/dl ($p = 0.003$), LDL from 122 to 113 mg/dl ($p = 0.024$), triglycerides from 148 to 138 mg/dl ($p = 0.198$), HbA_{1C} from 7.17% to 6.85% ($p = 0.005$). Body weight decreased from 83 to 79 kg ($p < 0.001$), waist circumference from 108 to 102 cm ($p < 0.001$), hip circumference from 115 to 111 cm ($p < 0.001$), systolic pressure from 144 to 139 mm Hg ($p = 0.001$), and diastolic with 81 to 76 mm Hg ($p < 0.001$), BMI from 31 to 29 kg/m² ($p < 0.001$), WHR from 0.94 to 0.93 ($p < 0.001$). The only parameter that was deteriorated was HDL cholesterol (decreased from 54 to 50 mg/dl, $p = 0.006$).

Prior to the education among patients from the study group, the most popular topic was the principles of nutrition in diabetes (average M = 9.99 per 10 points), treatment methods (M = 9.95), physical activity and diabetes complications (in both M = 9.92), self-control (M = 9.89), psychological support (M = 9.87), disease (M = 9.85), risk factors (M = 9.84), prognosis (M = 9.81). The least interest was in pharmacology (M = 9.74) and herbs and dietary supplements (M = 9.65).

After 26 weeks of education, the study group improved behavior and attitudes towards the diabetes (3.633 for 5 points in 0 week vs 3.860 in week 26, $p = 0.004$): the awareness of behavior improved (3.794 vs 3.993, $p = 0.041$), self-control (3.883 vs 4.465, $p < 0.001$), adherence to the recommendations of the therapeutic team (3.336 vs 3.811, $p < 0.001$), attitude towards the disease (2.480 vs 2.829, $p < 0.004$).

Conclusions. Comprehensive diabetes education delivered by the multidisciplinary care team, including regular physical exercise, significantly improves biochemical and anthropometric parameters, i.e. fasting glycemia, triglycerides level, HbA_{1C}, body weight, waist and hip circumference, diastolic blood pressure values in patients in the

study group in comparison to patients in the control group. The remaining parameters, i.e. total cholesterol, HDL and LDL cholesterol, systolic blood pressure as well as BMI and WHR, did not differ significantly in both groups.

Diabetes education has a positive impact on the patients' knowledge and their awareness of the management of diabetes as a chronic disease. Participation in the educational program caused statistically significant reduction of the index values in patients from the study group, i.e. fasting glucose, HbA_{1C}, total cholesterol, LDL, systolic and diastolic blood pressure, body weight, waist and hip circumference, BMI, WHR, compared to the state at week 0 (triglyceride levels decreased insignificantly). Favorable changes were not observed with HDL.

Key words: type 2 diabetes, diabetes education, multidisciplinary care team, physical activity, self-control.