INTRODUCTION

Diabetes mellitus is a heterogenic, chronic metabolic disease, characterized by dismetabolism of carbohydrates, lipids and proteins, especially hyperglycaemia, as a result of absolute or relative insulin deficiency, leading to specific affections of the cardiovascular system [1]. Therapeutic goals of the disease is achievement of metabolic balance, as the disease in the present day is incurable. Control of glycaemia and glycated haemoglobin values represents an important step, which is realized by healthy diet, or if necessary, by additional drug therapy with oral antidiabetics (patients with type 2 diabetes), or insulin. Daily physical exercise is recommended, which enhances glucose metabolism [1]. Glucose content of the diet should be below the quantity which the diabetic organism can metabolize. The minimal amount of carbohydrate intake for a diabetic individual, who is not losing weight and is not performing physical exercise, is about 200 g. A balanced diet covering the daily caloric necessities contains 50-55% of carbohydrates, 30% of lipids and 15-20% of proteins [3]. Among these, it is recommended the patients’ abstinence to consume foods with high concentration of carbohydrates having increased absorption rates, and to introduce in their diet fruits and vegetables, including those with proved antidiabetic action, for example blackberry (Vaccinium myrtillus) [4], Cydonia oblonga [5], Morus alba [6], (Hippophae rhamnoides) [7]. These enlisted plants are rich in flavonoids, antioxidant substances and possess cellular regeneration effect, which helps the regeneration of pancreatic islet cells and have a preventive role of other numerous diseases [8, 9].

AIM

The aim of the study was to evaluate lifestyle habits and diet of diabetic patients, comparing the results obtained between 2002-2005 and 2010-2016, respectively, taking into consideration the factors which favor the occurrence of different pathologies. We also analyzed and compared the dynamics of some metabolic parameters in the diabetic patients enrolled in the study.

MATERIAL AND METHOD

Data was obtained using a detailed questionnaire made by our research team, the majority of participants being from Tîrgu Mures, and in a reduced number from Sfântu Gheorghe, Cluj Napoca, Oradea and Târgu Jiu. Among patients there are type 1 and type 2 diabetics, and data were obtained during 2002 – 2016, from 157 questionnaires (77 old ones and 80 recent ones). Questions were targeted upon the unhealthy dietary and life habits – smoking, stressed and unorganized life, excessive lipid consumption – and healthy aspects – fruit and vegetable consumption, dietary supplements, physical activity. Methods of laboratory analysis that were used included measurement of glycaemia by glucose oxidase method, glycated hemoglobin concentration using photometric method, total and HDL-cholesterol by enzymatic method (phenol-amino-antipirine) and triglycerides by glycerol-kinase enzymatic method.

RESULTS

The average age in the first type 2 diabetic group was 62.42 years +/- 9.44 (SD), the youngest person being 44 years old, the oldest had 80 years of age. In the second group the average age of the type 2 diabetic patients was 62.23 years +/- 13.24 (SD), the youngest being 36-year-old, the oldest had 85 years of age.
Based on the old data, 68% of the diabetic adults were exposed to important stress, this percentage increased then to 97%.

The distribution of the body mass index of the adult diabetic patients based on the old and the recent data is represented on figure 1. 97% of the diabetic children have normal or lower than normal body mass index.

The average body mass index of the type 2 diabetic patients was 31.1 +/- 7.11 (SD), lowest 21 and highest 45 according to the old data, while the second evaluation revealed an average of 31.75 +/- 6.76 (SD), lowest 21.5 and highest 49.02. No significant difference could be observed between the two results, p=0.7452.

Based on the data included in table 1 and 2 we observed an improvement in the carbohydrate metabolic balance in the type 1 diabetic patients based on glycated hemoglobin measurement, while in case of the group of type 2 diabetic individuals a slight increase in these values could be observed, the differences are not significant.

The glycemic profile of the type 2 diabetic patients got worse, which can be related to the increased percentage of sedentarism, worse social conditions, with stressful life and low rate of dietary supplement consumption. In the new group of patients the glycated hemoglobin measurement was performed in 84% of the cases, while during the first evaluation this parameter was determined only in 43% of the patients in the period of filling in the questionnaire or previously.

**DISCUSSION**

It is appreciated that the number of patients who consume nutrients from fast-food is decreasing, the rate of non-smokers is increasing, showing the efficacy of education. Nowadays, almost every patient is checked periodically for glycated hemoglobin. The periodic measurement of this analysis was earlier neglected in several adult patients.

5% of insuline-dependent diabetic patients studied recently belonged also to the earlier studied group. The other patients’ age included to the study was adapted to their age, this explains some differences found (e.g. teenagers...
are less stable metabolically, and in the recently studied group higher triglyceride and cholesterol values were detected.

Several studies showed that factors related to diet have an important contribution to the development of cardiovascular diseases. The risk is higher if the diet is healthier and more imbalanced, especially if it occurs in combination with other harmful factors such as lack of sport activities, frequent stress, smoking, consumption of drugs and alcohol.

**CONCLUSIONS**

Based on the analysis of diet and lifestyle habits, we concluded that recently studied patients are more stressed and have more difficult financial status compared to patients previously evaluated. This is the reason why they encounter serious problems regarding the fulfillment of recommendations needed to control the evolution of diabetes. A diminished use of nutritional supplements could be observed, explained partially by the aggravation of financial support of patients, and also coincidence of the first evaluation with two clinical studies using phytotherapeutic products performed by our research team. Unfortunately, most of the physicians representing conventional medicine do not pay attention to the complementary products which could support the benefits of basic diabetes treatment.

Recent data show that sedentarism in type 2 diabetic patients is more frequent compared to patients of the other group, probably due to advanced age of these patients; many types of physical exercise are specific to childhood, so adults are not performing them anymore. All patients have a less controlled glycemia, related to negative changes in their habits and lifestyle. Body mass index is not significantly different comparing the two groups of the earlier and recent studies.

Respecting a balanced diet, consuming healthy and natural nutrients (vegetables, fruits, tea) and dietary supplements, having at least 30 minutes physical exercise daily, respecting the dosage of insuline or antidiabetic drugs prescribed, patients can achieve and keep glycemia close to normal values and can prevent complications of diabetes mellitus. Consumption of different types of plants containing flavonoids could improve regeneration of pancreatic cells.

**References**

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