ANALYSIS OF MORBIDITY FROM DIABETES MELLITUS IN BIHOR COUNTY

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Abstract

Studying the spread and medical implications of diabetes mellitus cases, as well as their evolution over time, is the most appropriate way of adopting effective measures in order to prevent and combat these diseases (Hutter N, et al, 2010). The analysis of morbidity through diabetes is indispensable to the study of risk factors, to diabetes prevention, the accurate supervision of patients and the distribution of technical and logistical means to fight this disease (Pickup John C., Williams Gareth, 2003). The incidence of diabetes mellitus in Bihor county has been observed for the period 2000-2009. The evolution of disease by diabetes during 2000-2009 in Bihor county is above the national average, the morbidity being higher in urban areas and for the 15-64 years age group. In terms of clinical forms of the disease, non-insulin-dependent diabetes mellitus holds the first place. The National Health-State Assessment Program, initiated in 2007, has led to increased addressability of the population, especially the elderly and the rural population, to medical services, new cases diagnosed with diabetes having doubled during this period.

Key words: diabetes mellitus, morbidity, risk factors, diseases

INTRODUCTION

The number of diabetes cases has increased dramatically in recent decades, being mainly associated with the "modern" lifestyle (fast-food diet, prolonged stress, work overload, disorganized program of rest, lack of exercise and the use the car for most activities); type 2 diabetes (affecting chiefly adults over 40) also tends to occur earlier in life, even during adolescence and childhood (Simmons, R. K., et al, 2011). Nearly 70,000 children under 15 are diagnosed with diabetes annually (American Diabetes Association, 2004).

Worldwide there are over 250 million diabetics, and projections for 2025 are disquieting: more than 330 million people will suffer from diabetes if prevention measures are not taken (Jacobson, A. M, et al, 2011). The most important measures to reduce cases of diabetes are promoting a healthy lifestyle – based on exercise and a balanced diet (The Diabetes Prevention Programme Reserch Group, 2005).

Equally alarming are the statistics concerning the number of diabetes patients in Romania. In this country, the number of patients who are in included in medical records is of about 600,000, but according to data from the World Health Organization the real number of diabetes patients exceeds

1 million. This figure represents almost 5% of the total population of our country (American Diabetes Association, 2008).

The number of people suffering from diabetes has also increased alarmingly at the level of Bihor county in recent years, as indicated by the results of the program initiated by the Ministry of Health, ensuring a free set of investigations. 30-40% new cases of diabetes were identified, as compared to the incidence of heart diseases, which have registered an increase with only 5-7% (Hâncu, N.D., 2001, Serban, V., 2006).

AIM

This paper aims to study the number of illnesses by diabetes and identify those categories of persons who, correlated with the diabetic disease, might represent priorities in the application of preventive measures and health education, and establish correlations between the morbidity level and some socio- economic and cultural parameters.

MATERIAL AND METHODS

In the retrospective and descriptive observational study conducted in Bihor county, in the period 2000-2009, population-related information was collected, i.e. the annual number of illnesses by diabetes mellitus.

The primary source of data was represented by the Registry of diabetes cases completed in the Nutrition and diabetes health centre.

The methods used were those of measuring, describing and analyzing the cases of disease by diabetes.

RESULTS AND DISCUSSION

The results of the National Health-State Assessment Program (conducted in 2007-2008) indicated that the percentage of people affected by diabetes at the national level is much higher than in previous years, marking an increase from 3.5% to 8%.

Bihor ranks among the counties with the highest recorded number of people with diabetes. In 2008, the classification of counties has shown that Cluj occupies first place with 24 984 diabetes patients treated, followed by Bucharest with 22 243 cases, Bihor with 22 002 cases, and Prahova with 20 456 registered cases.

The evolution in the number of registered patients marks an increase in the period 2000-2009, the number of patients remaining in the record doubling in a period of 10 years (Fig. 1). The explanation for the alarming increase in the number of patients with diabetes mellitus is primarily related to the changing of the population's lifestyle (unbalanced -both quantitatively and qualitatively - diets, lack of exercise, occupational stress), increased

addressability of the population to health services, and improvement of diagnosis methods.

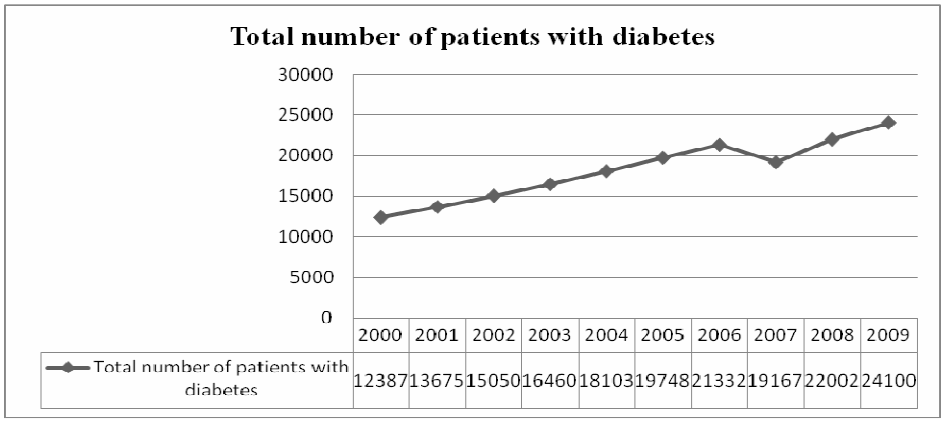

Fig. 1 – The evolution of the number of patients with diabetes mellitus, in Bihor county, in the period 2000-2009

The prevalence of morbidity through diabetes (overall rate) defines the totality of patients with diabetes at a certain time or during a certain period, regardless of the date of detection. Prevalence is calculated by the ratio of all patients with diabetes mellitus and the entire number of the population, expressed per 100 inhabitants.

In Bihor county, the prevalence of diabetes has doubled from 1.99% in 2000 to 4.06% in 2009 (Fig. 2).

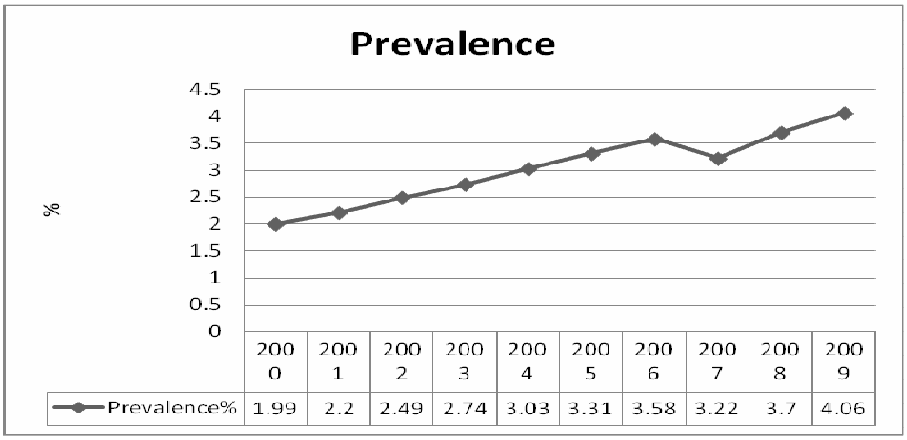

Fig. 2 - Diabetes prevalence in Bihor county, in the period 2000-2009

In relation to the clinical forms of the disease, diabetes was recorded both in children (juvenile diabetes) and in adults. At age 0-18 years, the

fewest people with diabetes mellitus were registered in 2002 (36 cases), and most in 2008 (56 cases). In adults, diabetes is classified into two types: insulin-dependent (from 4095 cases in 2000 to 6509 cases in 2009) and non-insulin-dependent (from 8251 cases in 2000 to 17,536 cases in 2009). Patients treated with insulin represent approximately 40% of all diabetic patients (Fig. 3).

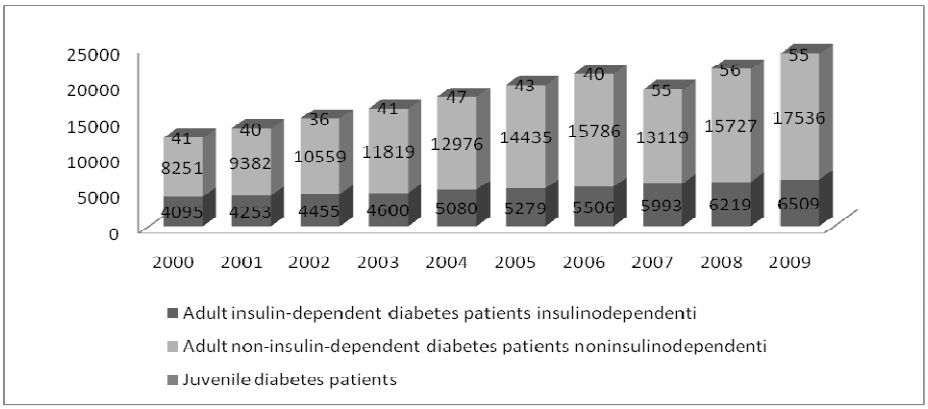

Fig. 3 - The evolution of the disease in relation to the clinical forms of diabetes mellitus in Bihor county in the period 2000-2009

As regards diabetes prevalence, the calculation should be done by age group as well, because this disease usually occurs in adults (age group 15-64 years).

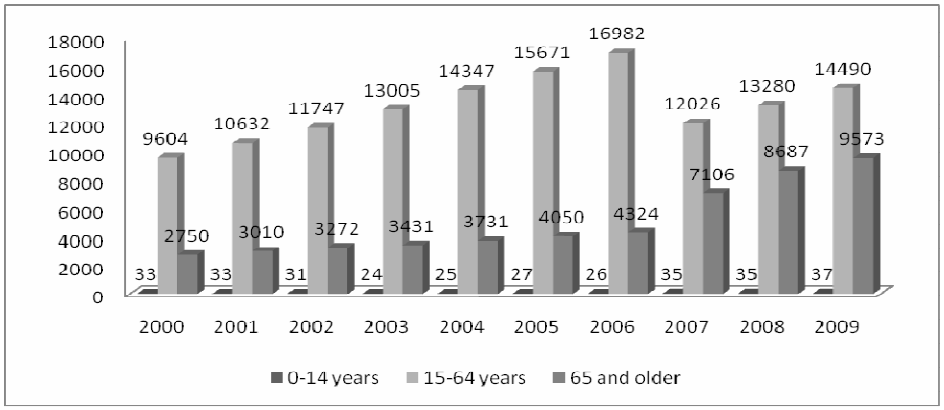

Fig. 4 - The evolution of the disease of diabetes by age groups, in Bihor county, in the period 2000-2009

Until 2006, the share of older people with diabetes (65 years and older) was approximately 26% of all persons with diabetes mellitus. With

the start of the National Health-Status Assessment Program in Bihor county, the number of diabetes patients has increased, mainly due to diagnosis with the disease in the elderly population, the share of all elderly patients in the period 2007-2009, representing 62% (Fig.4). This doubling of elderly patients with diabetes is explained by the fact that symptoms in this age group are less aggressive, and the possibility to freely evaluate their health status has led to the diagnosis of several diseases.

The background of patients with diabetes mellitus is predominantly urban, approximately 67% (Fig. 5) of the diabetes patients living in cities, where environmental risk factors for this type of illness are more numerous.

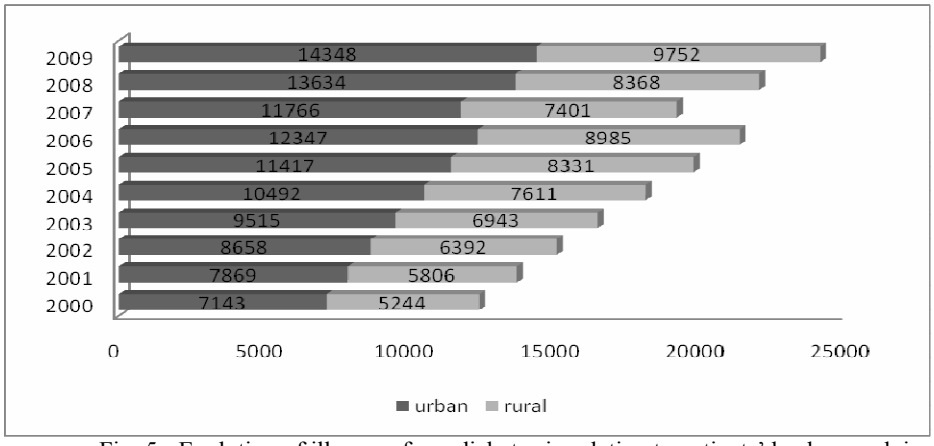

Fig. 5 - Evolution of illnesses from diabetes in relation to patients' background, in Bihor county, in the period 2000-2009

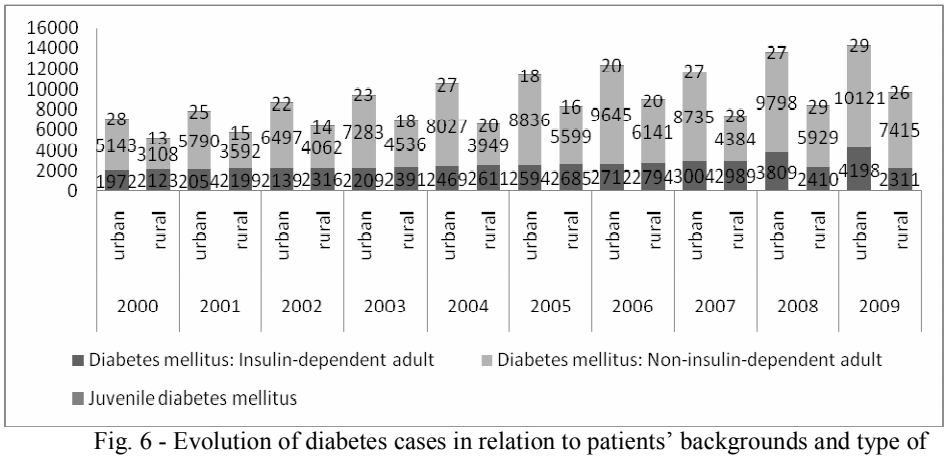

Fig. 6 - Evolution of diabetes cases in relation to patients' backgrounds and type of diabetes, in Bihor county, in the period 2000-2009

The analysis of diabetes cases as related to patients' backgrounds and types of the disease (Fig. 6) reveals that in rural areas, clinical forms of insulin-dependent diabetes mellitus in adults (63%) are higher than in urban areas (34%). The forms of juvenile diabetes showed no significant differences over the study period and in relation of either urban or rural backgrounds.

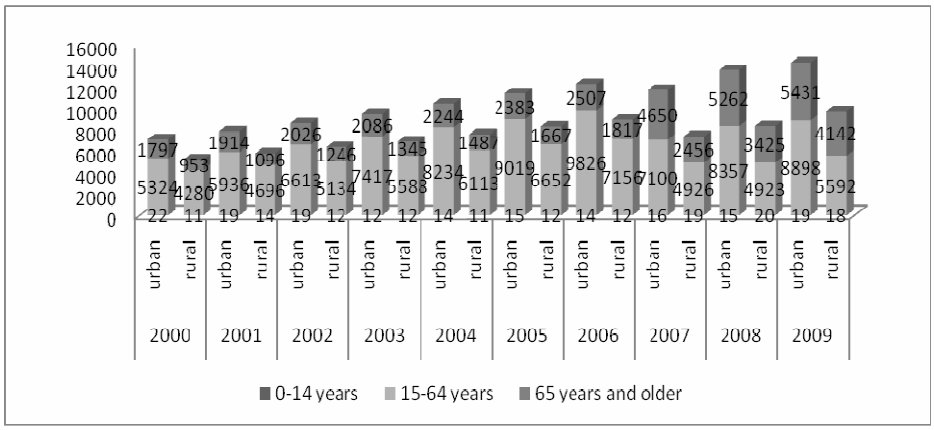

Fig. 7 - Evolution of the disease of diabetes in relation to patients' backgrounds and age-groups, in Bihor county in the period 2000-2009

During 2000-2007, the elderly diabetic population in urban areas represented 30% of patients with diabetes mellitus, as compared with that in rural areas, where values were lower by 23%. After 2007, a significant increase of incidence in elderly patients in both areas of origin may be observed (Fig.7), with a slight increase of 63% in rural areas, and of 71% in urban areas.

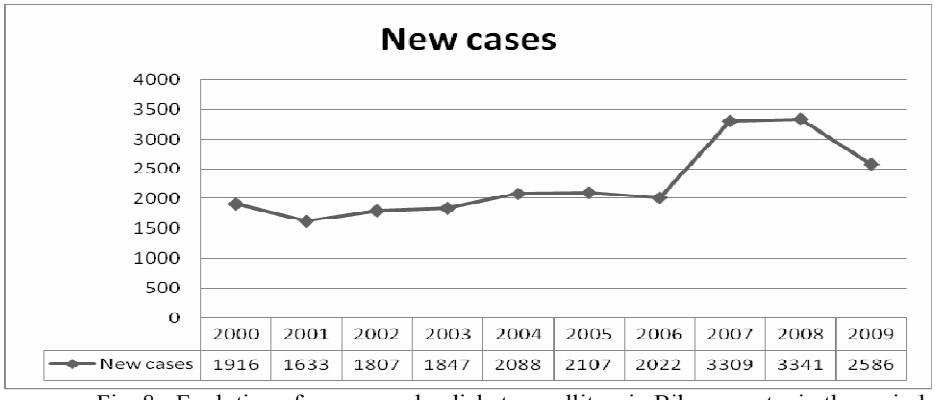

Fig. 8 - Evolution of new cases by diabetes mellitus, in Bihor county, in the period 2000-2009

In the study of diabetes, a special importance is given to the number of new cases of diabetes that occur in one year, as the understanding of these values helps in tracking the effectiveness of policies and strategies for action directed at the prevention and treatment of diabetes mellitus - the predilection of prevention actions and those aimed at the information of the general population on risk factors in diabetes mellitus.

In Bihor county, in the period 2000-2009, the incidence of diabetes increased, as values between 3.08 ‰ (in 2000) and 5.62 ‰ (in 2008) were recorded (Fig. 8-9).

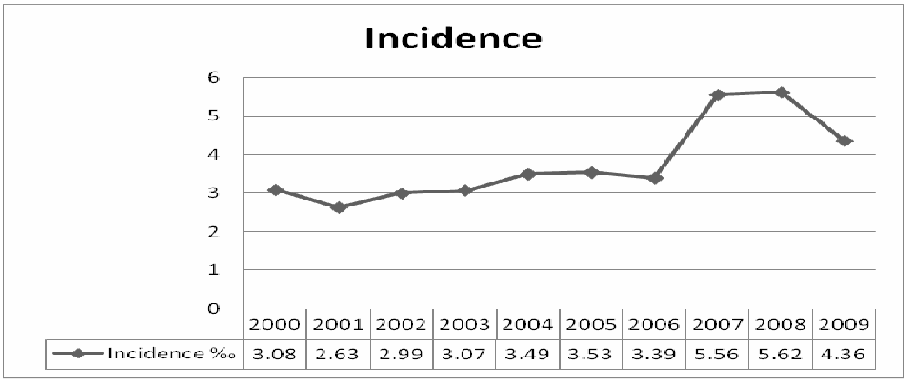

Fig. 9 - Evolution of the incidence of diabetes in Bihor county, in the period 2000-2009

In adults, the prevalent clinical form of diabetes is the non-insulin-dependent one, the average number of new cases detected during the period under investigation being 1882 new cases. Nearly a double number of new diabetes cases were recorded between 2007 and 2008, when the National Health-Status Assessment Program was in progress (approximately 3,000 new patients annually). The insulin-dependent form presented relatively constant values during the studied period (205 new cases in 2001, 342 new cases in 2009). A significant increase was registered at new cases of juvenile diabetes in 2007 (17 new cases), as compared to previous years, when the average number of new cases registered was 5 on average. In terms of age-groups, the new diabetes cases are prevalent in adulthood (15-64 years), approximately 62% of newly registered patients.

CONCLUSIONS

Diabetes mellitus is one of the most serious public health problems, the number of diabetes cases rising alarmingly in recent decades, with the adoption of the "modern" lifestyle (fast-food diet, prolonged stress, work overload, disorganization of the recreational program, lack of exercise and the use the car for most activities).

In Bihor county, the prevalence of diabetes has doubled from 1.99% in 2000 to 4.06% in 2009, and incidence has increased, values between 3.08 ‰ (in 2000) and 5.62 ‰ (in 2008) having been recorded.

The availability and more facile accessibility in urban areas is reflected in the number of new diabetes cases, approximately 67% of patients living in cities; the beginning of the National Health-Status Assessment Program at the level of Bihor county led to increased addressability for population, especially elderly and rural population, to health services. The increased number of patients with diabetes is chiefly explained by the diagnosis of this disease in the elderly population, the share of the total elderly patients in the period 2007-2009 representing about 62%.

Complementing the analysis with the study of other epidemiological indicators, in relation to the diagnosis and therapeutic means available in Bihor county, we shall be able to obtain a local model that enables us to adapt the network of anti-diabetes assistance to the needs of the population. The model, depending on its success, could then be adapted and expanded to other counties or even nationwide

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