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THE ANALYSIS OF PREVALENCE AND INCIDENCE OF DIABETES MELLITUS IN ROMANIA

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Abstract

Background and Aims *Diabetes mellitus (DM) represents a worldwide health problem and a major epidemic during the past decades. The exact number of people with diabetes in Romania is unknown. The aim of this paper was to determine the number of subjects registered with diabetes in Romania.* ***Material and Method:*** *The Romanian Society of Diabetes, Nutrition and Metabolic Diseases (RSDNMD) asked the representatives in charge with DM in each county about the total number of subjects registered with DM, the number of subjects with newly diagnosed DM in 2011 and their treatment (insulin or oral drugs).* ***Results:*** *There are 803,489 persons registered with DM, with a national prevalence of 4.21%. The lowest prevalence was observed in Ilfov (0.9%) and the highest prevalence (7.83%) in Bucharest. A total of 125,574 diabetics (15.62%) are treated only with insulin while 81,910 (10.19%) with combined insulin and oral medication. In 2011 have been registered 68.294 new cases of diabetes, with an incidence of 358.63/100,000 persons. The lowest incidence was 91.15 in Giurgiu county and the highest incidence was 718.94 in Arad county.* ***Conclusions:*** *There are large and unexplained differences between counties for both diabetes prevalence and incidence. Consequently, RSDNMD decided to start a national epidemiological study (PREDATORR) that will be carried out in 2013.*

key words: *diabetes mellitus, prevalence, incidence, Romania, PREDATORR*

Background and Aims

Diabetes mellitus (DM) is a group of metabolic disorders characterized by chronic hyperglycemia resulting from defects in secretion of insulin, the ineffective metabolic action of insulin (insulin resistance) or both. It represents a worldwide health problem and a major epidemic during the past decades. It is also one of the non-communicable diseases, a group of diseases considered the leading cause of mortality in the world by the World Health Organization, comprising over 60% of all deaths [1].

The impact of diabetes and its complications is enormous. It represents the leading cause of new blindness in people aged 20-74 years and the leading cause of kidney disease requiring dialysis. As a result of the effects of diabetes on nerve and peripheral

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vascular tissue, diabetes is the most common cause of amputation. Diabetes causes a 2 to 4 hold increase in heart disease and stroke. The rate of congenital malformation in offspring of diabetic mothers may be over 10 percent, and fetal mortality occurs in 3 to 5 percent of pregnancies [2].

The recent IDF Diabetes Atlas Update estimates 371 million people with diabetes worldwide. This estimate exceeds all the previous estimates regarding the number of subjects with diabetes. Almost half of the persons with diabetes remain undiagnosed. In this atlas, Romania is considered among the top 10 countries in Europe with 1.5 million estimated persons with diabetes. According to the same Atlas, the number of subjects with diabetes will overrun 1.7 million by the year 2030 [3]. However, the exact number of people with diabetes in Romania is still unknown.

Despite several attempts, a National Registry of persons with diabetes could not be yet established in Romania. Therefore it is difficult to know the real number of subjects with diabetes. The aim of this paper was to determine the number of subjects registered with diabetes in Romania.

Material and Method

The Romanian Society of Diabetes, Nutrition, Metabolic Diseases (RSDNMD) tried to find the number of subjects registered with diabetes in 2011 by asking the representatives in charge with DM in each county. Romania has 41 counties and the capital Bucharest. The representatives in charge with DM were asked about the total number of subjects registered with DM, the number of subjects with newly diagnosed DM discovered in 2011, and the number of subjects taking insulin with/without other glucose lowering agents.

Results

According to the preliminary results of the last census, the population of Romania in 2011 was considered 19,042,936. The data collected from all the 41 counties of the country and Bucharest concluded that there are 803,489 persons registered with DM. This indicates that the national prevalence is 4.21%. Apparently, DM is more frequent in women. Thus, 52.43% of the registered subjects are females and 47.57% are males (Figure 1).

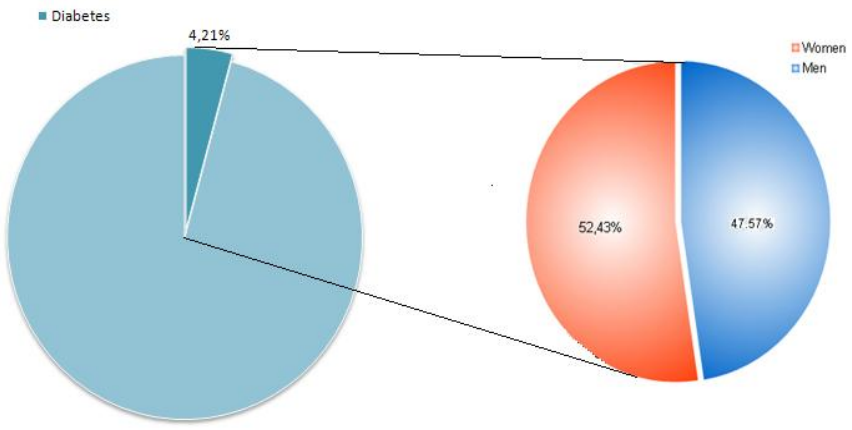

Figure 1. The prevalence of DM in Romania.

The lowest prevalence was observed in Ilfov county (0.9%) and the highest prevalence (7.83%) in Bucharest (Figure 2).

Unfortunately, there were no data available regarding the prevalence of different types of diabetes. We have data regarding the use of insulin among subjects with diabetes, but we don't know whether they have type 1 or type 2 diabetes. Therefore, the given data regarding the prevalence indicate only the general prevalence of DM.

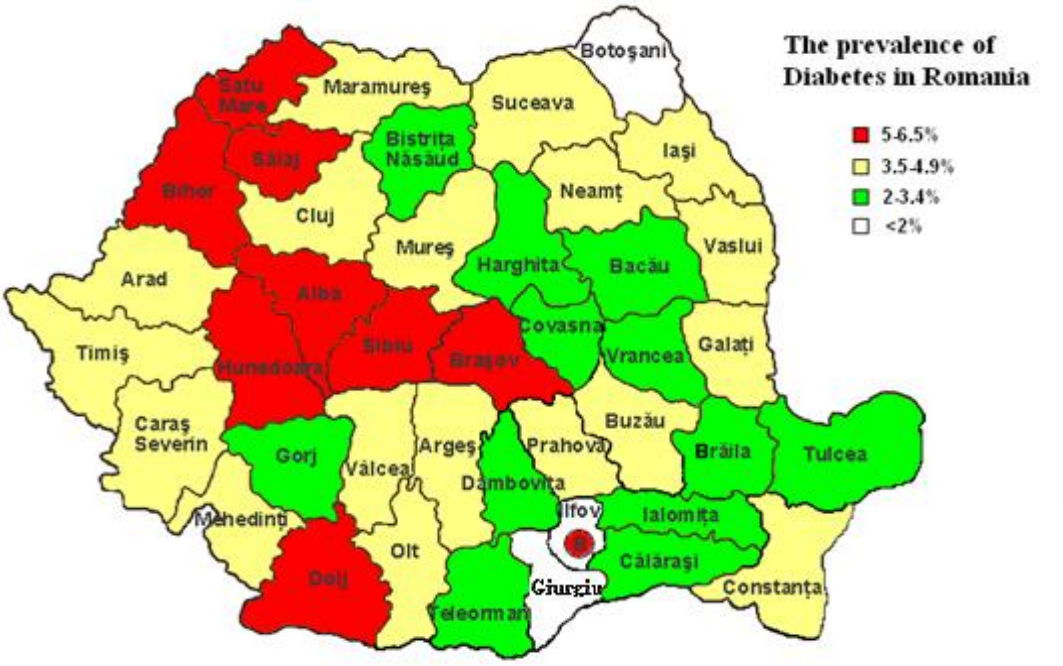

Figure 2. The prevalence of Diabetes in the counties of Romania.

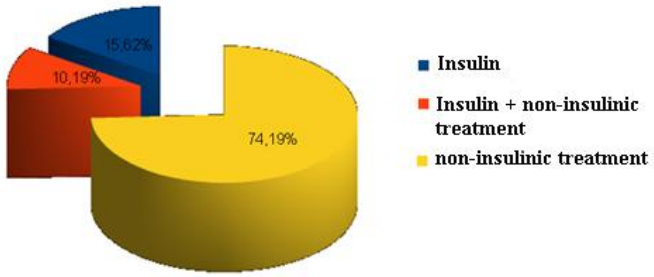

Figure 3. The prevalence of insulin treatment among subjects with DM.

A number of 207,484 (25.82% of all patients with diabetes) are treated with insulin, as single therapy or associated with non-insulin treatment. A total of 125,574 persons registered with diabetes (15.62%) are treated only with insulin while other 81,910 persons (10.19%) are using insulin combined with non-insulin therapy. This indicates that over one quarter of the persons with DM are treated with insulin with or without oral medication (Figure 3).

The use of insulin maintains almost the same gender ratio as in the case of prevalence of DM (52.89% in females and 47.11% in

males). For the use of insulin with other drugs the ratio is higher in the favor of females (57% in females and 43% in males) as shown in Figure 4.

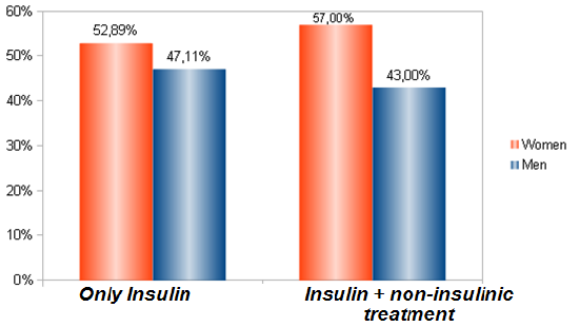

Figure 4. The use of insulin in Romanian people by gender.

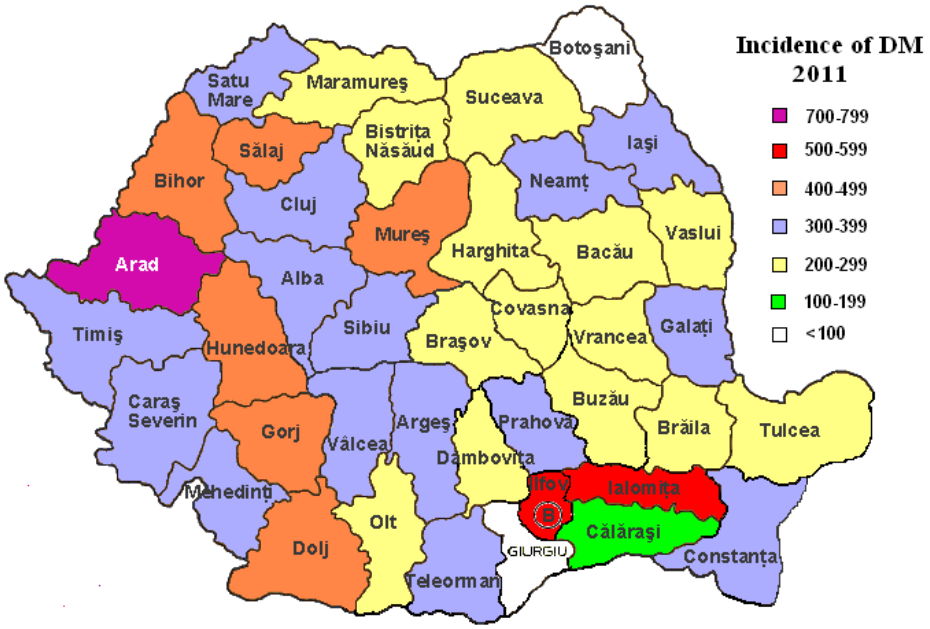

Figure 5. The incidence of diabetes in the counties of Romania.

We also collected data about the incidence of DM. Thus, in 2011 have been registered 68,294 new cases of diabetes, indicating an incidence of 358.63 per 100,000 persons. The lowest incidence was 91.15 in Giurgiu county and the highest incidence was 718.94 in Arad county (Figure 5).

From the total number of 3,726,895 persons under 18 years, there are 2,318 young diabetic subjects registered at the end of 2011, with a prevalence of 62.19 per 100,000 in this age group. No data were available regarding the type of diabetes in these subjects. Unfortunately, Romania has the same trend recognized in the developing countries and the incidence of type 2 DM in youth is increasing. The prevalence of DM in Romania, in the group over 18 years, was 5.24%.

There were 1,709 children less than 14 years of age registered with DM. This indicates that the prevalence in this age group is 53.40 per 100,000. There were 200 children

aged below 14 years old newly diagnosed with DM in 2011.

Discussions

The recorded prevalence of DM in Romania (4.21%) is a bit lower than the estimated global prevalence of DM. Thus, IDF considered that in 2011 there were 366 million persons with diabetes, indicating that the global prevalence was 5.22% [4].

We recorded high differences in the prevalence of DM between different counties. A possible explanation for the high difference between the highest (Bucharest) and lowest (Ilfov county) may be the fact that many persons from Ilfov are registered and treated in Bucharest. This could explain not only the lowest national prevalence from this county, but also the highest prevalence for the capital city Bucharest. However, no logic explanation could be found for the high difference in DM incidence recorded between Giurgiu and Arad counties. This is why the RSDNMD decided to start a nationwide epidemiological study regarding the real prevalence of diabetes and associated metabolic diseases in Romania: PREDATORR (National Study on the **Pre**valence of **D**i**A**be**T**es**,** Prediabetes, Dyslipidemia, Overweight**/O**besity, Hype**R-**uricemia and Chronic Kidney Disease in **R**omania).

Conclusions

The large differences from one county to another in both prevalence and incidence, even in very close areas made us hypothesize that not all patients with diabetes are diagnosed or registered in their county of residence. In this context, the RSDNMD decided to start the national epidemiological study PREDATORR. This epidemiological study has begun in January 2013 and the results of this study are expected to shed some light on the epidemiology of many metabolic and chronic diseases in Romania.

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