Original Research

Diabetes in a primary care center among Spaniards and immigrants

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ABSTRACT*

Diabetes is a disease with different prevalence in different populations.

Objectives: The aim of the present study is to describe diabetic patients in a primary care center with regard to their geographic origin, and to determine the status of their disease.

Methods: A cross-sectional descriptive study, with data available from clinical records in South Tarrasa primary care center (Barcelona, Spain) in 2004.

Results: A total of 1215 diabetic patients with an average age of 65 years, 51% female, were included in the study. Regarding their origin, 97% were from Spain, 2% from Morocco, 0.8% from Latin America, and 0.2% from the rest of Europe. The average Hb1AC was 6.9%. In type 2 diabetic patients, treatment consisted of oral hypoglycemic agents (OHA) for 46.6%, only dietetic restrictions for 36.5%, OHA + insulin for 7.9%, and only insulin for 9%. In the age group 30-39 years, 0.7% of Moroccans suffer from diabetes versus 0.5% of Spaniards. The values in the 40-49 year group are 3.9% of Moroccans, 3% of Spaniards, and 2.1% of Latin Americans. The values in the 50-59 year group are 13.5% of Moroccans, 10.6% of Spaniards, and 7.7% of Latin Americans. The values in the 60-69 year group are 40% of Moroccans, 18.8% of Spaniards, and 44.5% of Latin Americans. The values in the 70-79 year group are 67% of Moroccans, 26% of Spaniards, and 50% of Latin Americans. The average Hb1AC was 6.3% in Latin Americans, 6.9% in Spaniards, and 8.1% in Moroccans. In type 1 diabetic patients, the average Hb1AC was 10.2% in Moroccans and 8% in Spaniards; while in type 2 diabetes, the average Hb1AC was 7.8% in Moroccans and 6.9% in Spaniards. Gestational diabetes was observed in 6.1% of the Spanish, 10.9% of the Moroccan and 4.2% of the Latin American women.

Conclusions: A higher prevalence of diabetes was detected in Moroccans than in patients from other countries. These patients present poor control of the disease.

Keywords: Diabetes. Emigration and Immigration. Spain.

RESUMEN

Objetivo: averiguar la práctica clínica real del tratamiento en las unidades de cuidados intensivos sobre las infecciones relacionadas con catéteres con teicoplanina o vancomicina desde la perspectiva de un hospital. Como los ensayos clínicos han demostrado que la eficacia de estos glucopéptidos es simular, también se realizó un análisis de minimización de costes.

Métodos: Se utilizó una técnica Delphi para obtener las opiniones de nueve médicos en relación a la utilización de recursos asociados con la teicoplanina y vancomicina. Los costes del tratamiento se consideraron como costes de adquisición de medicamento, costes de material y enfermería requeridos para la preparación y la administración y costes de los análisis de laboratorio.

Resultados: los médicos tienden a administrar mayores dosis de carga de teicoplanina de las recomendadas en el prospecto de información del medicamento. Aunque la evidencia de la efectividad de la vancomicina deriva principalmente de ensayos que utilizan pautas de múltiples administraciones diarias, cinco médicos lo administraban en pauta de una vez al día. Las medias de costes alcanzaron los 1.272€ con teicoplanina y 1.041€ con vancomicina. Los mayores costes de tratamiento con teicoplanina se derivan de los mayores costes de adquisición del medicamento (1,076€ versus 795€). El tratamiento con vancomicina se asoció a mayores costes de análisis de laboratorio como consecuencia de la mayor frecuencia de monitorización de concentraciones séricas (217€ versus 150€).

Conclusión: Este análisis de práctica clínica y costes indicó que las ventajas de la utilización de recursos por los menores análisis de laboratorio redujo parcialmente el mayor coste de adquisición de la teicoplanina. Además de la eficacia y los costes, otros factores tales como vía de administración, perfil del paciente y efectos adversos hacen necesario que se informe de la elección entre teicoplanina y vancomicina.

Palabras clave: Diabetes. Emigración e inmigración. España.

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INTRODUCTION

In recent years, Europe has received the most important wave of immigrants in the last few centuries. Spain, which was a country of emigrants a few years ago, has become a receiving country. The immigrants who come to find an opportunity to improve their life status chose mainly Catalonia (23%), Madrid (22%), and Andalusia (13%).[1,2] The present study was carried out in Tarrasa, close to Barcelona (20 km), a city with a population of almost 200,000 inhabitants that includes 8.26% of foreign inhabitants. Morocco was the main geographical origin (47.8%), followed by Latin America (36.45%; 43% of these were from Ecuador). The Moroccans were mainly males, in contrast to the Latin Americans, who were mainly females (table 1). Moroccan immigrants were young, with only 1.3% older than 65 years, and 78.3% between 16 years and 64 years old.

Table 1: The gender and geographic origin of foreign living in Tarrasa.

	Male	Female	Total (%)
Morocco	4939	2537	7476 (47.8)
Rest of Africa	545	135	680 (4.35)
Ecuador	1139	1313	2452 (15.68)
Rest of Latin America	1419	1829	3248 (20.77)
Romania	100	86	186 (1.19)
Rest of Europe	621	537	1158 (7.40)
Asia	225	213	438 (2.8)
Total	8988	6650	15638

Many patients find it difficult to understand the concept of a chronic disease that cannot be cured and that requires them to adapt to a new situation, including follow-up and continuous medication, because they associate the disease with some symptoms that prevent them from acting normally. As a consequence, it is difficult to gain compliance with dietetic requirements. This difficulty can be made worse by cultural differences, and may interfere with the treatment of diseases such as diabetes. These differences range from food habits to the perception of the disease, and make it difficult to persuade patients to comply with dietetic and pharmacologic prescriptions, and thus influence their disease control. For example, Moroccans use to consider diabetes to be an occidental disease that would disappear as soon as they returned to Morocco.[3,4] This, combined with the fact that the prevalence of diabetes in Morocco is just 1.5–2%, makes it even more difficult to gain compliance.[5,6]

The aim of the present study is to determine if the prevalence of diabetes mellitus was similar among patients visiting our primary care center, regardless of their geographic origin, and to determine if the control of diabetes was different among groups of different geographic origin.

METHODS

The present study was carried out during 2004 in the primary care center at South Tarrasa, which is an appointed center owned by Mutua de Tarrasa. This health care center assists 21,472 inhabitants, with a high proportion of immigrants.

To carry out the study, we reviewed the clinical records of diabetic patients, recording age, gender, geographic origin, type of diabetes, the most recent Hb1AC value, and treatment. The level of diabetes control was categorized following the criteria given by the Servei Català de la Salut (Catalonian Health Service), being: normal a Hb1AC between 4% and 6%; good control, fewer than 7.5%; and poor control, over 7.5%. For immigrant patients, we recorded the year they arrived in Spain.

To analyze gestational diabetes, we surveyed all pregnant women cared for in our center during 2004.

Data were analyzed with computer program SPSS version 11.5.

RESULTS

The total population of diabetic patients in the primary care center was 1215 people, with an average age of 65 years (SD 14). Ages ranged from 7 years to 99 years.

The distribution by gender was quite normal, 598 males (49%) and 617 females (51%). The average ages were 68 years for women and 64 years for men.

Glycosylated hemoglobin Hb1AC concentrations ranged from 4% to 12.4%, with an average of 6.9%. We found normal figures in 32% (n = 389), good control in 34.1% (n = 414) and poor control in 28.7% (n = 349). Regarding the type of diabetes, we found that type 1 diabetic patients had poorer control, with Hb1AC = 8%, than type 2 diabetic patients with Hb1AC = 6.9%.

All type 1 diabetic patients were treated with insulin. For type 2 diabetic patients, 46.6% (n = 532) were treated with OHA, 36.5% (n = 416) with dietetic restriction only, 7.9% (n = 90) with OHA + insulin, and 9% (n = 103) with insulin.

Non-Spanish patients were between 32 years and 76 years old. The prevalence of diabetes for each age group is given in table 2.

Diabetes by geographic origin

The Moroccan patients were the youngest diabetic patients (average age 50 years old), followed by Latin Americans (56 years), Spaniards (66 years), and finally the rest of Europe (68 years).

Among Spaniards and other Europeans there is no difference between genders (51% females in Spaniards and 50% in other Europeans). On the other hand, 70% of Latin Americans and 46% of

Moroccans are women. This is why most of the Morrocan immigrants were males, while Latin American patients were mainly females.

Table 2. Prevalence of diabetes among different populations and age groups.

Age (years)	Moroccans (%)	Spaniards (%)	Latin Americans (%)
30-39	299 (0.7)	3500 (0.5)	0
40-49	155 (3.9)	2671 (3.0)	96 (2.1)
50-59	37 (13.5)	2205 (10.6)	26 (7.7)
60-69	10 (40.0)	1643 (18.8)	9 (44.5)
70-79	3 (67.0)	1250 (26)	29 (50.0)

The best metabolic control is in the Latin American population, with Hb1AC of 6.3%, followed by Spaniards with Hb1AC of 6.9%, other Europeans with Hb1AC of 7.6%, and finally Moroccans with Hb1AC of 8.1% (table 3).

Table 4 presents the distribution of diabetic patients with regard to the time of their diagnosis, and the percentage who came to Spain for family re-grouping

Diabetes in Moroccans

The average age in type 1 diabetic Moroccan patients was 33 years, while the average age of the rest of the type 1 diabetic patients was 37 years. Among the type 2 diabetics, on average, Moroccans were 55 years old while the rest were 67 years old.

The Hb1AC average in type 1 diabetic Moroccan patients was 10.2%, while the rest of the type 1 diabetics had an Hb1AC average of 8%. In Moroccan type 2 diabetic patients, was 7.8%, while the Hb1AC average for the rest of the type 2 diabetic patients was 6.9%.

Of the type 2 diabetic Moroccan patients, 50% were being treated with OHA. Among the rest of the type 2 diabetic patients, half were treated only with dietetic restrictions and the other half were treated with insulin. Among the rest of the type 2 diabetic patients, 46.6% were treated with OHA, 36.5% with dietetic restrictions, 9% with insulin, and 7.9% with OHA + insulin.

A total of 372 pregnant women with an average age of 30 years were cared for in the primary care center during 2004 and of these, 24 (6.5%) presented with gestational diabetes: 11% of Moroccan pregnant women, 6% of Spanish and 4.2% of Latin American pregnant women presented with gestational diabetes.

Table 3: Country of origin, gender and disease control among diabetic patients			Gender		
	Total (%)	Age years(SD)	Male (%)	Female (%)	HbA1c (%)
Spain	1117 (97)	66 (14)	598 (49)	617 (51)	6.9
Morocco	26 (2)	50 (14)	14 (54)	12 (46)	8.1
Latin America	10 (0.8)	56 (14)	3 (30)	7 (70)	6.3
Europe	2 (0.2)	68 (24)	1 (50)	1 (50)	7.6

Table 4: Time of diabetes diagnosis and reason for emigration							Origin		Family re-grouping
Age (years)	Country of origin	Time of diagnosis							
		First test in Spain	Years after arrival			Unknown	Morocco	Latin America	
			<5	5-10	>10				
30-39	-	1	1	-	-	-	2	-	-
40-49	-	2	2	1	3	-	6	2	2
50-59	1	1	1	1	-	1	4	1	2
60-69	4	1	-	1	1	1	4	4	6
70-79	3	1	-	-	-	-	3	1	4

DISCUSSION

We have demonstrated that the initial hypothesis in this study, a greater prevalence of diabetes in Morrocan patients than in Spanish patients, was correct, as seen in figure 1. Previous studies[7] found that prevalence of diabetes in the country of origin is much lower than that in the receiving country.

Probably, one of the reasons for this difference is a change in food habits. In Spain they consume more sweet drinks, more pastry, pre-cooked meals, etc. Among Morrocans, the first immigrant is usually a man, without his family. It is possible that many of them cannot prepare their own meals, and will have an unbalanced intake, including "fast food". This could help to explain their poorer metabolic control.

Another reason for the greater prevalence in the receiving country may be that because on re-aggregating families, a sick family member may take precedence over healthy members. This could explain the enormous prevalence of diabetes in immigrants over 60 years old, who are the parents of those who came to Spain to work. This is confirmed because most of these patients came with a previous diagnosis of diabetes, as seen in table 4.
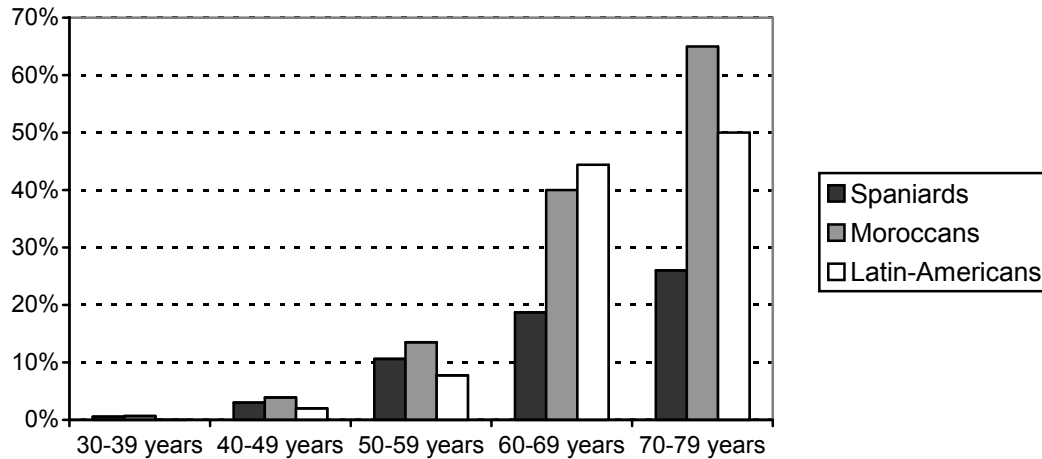

Figure 1: Prevalence of diabetes by age and geographic origin

As there is a higher prevalence of diabetes in Moroccans, and their metabolic control is poorer, we consider them to be a group in need of specific education.

CONCLUSIONS

The prevalence of Moroccan diabetic patients in our primary care center is higher than that in Spaniards in all age groups and for all types of diabetes (type 1, type 2 and gestational). The prevalence among Latin-American patients is lower, except in those older than 60 years.

Most of our patients present good diabetes control, but that of our Moroccan patients is poor.

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