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Self-management of type 1 diabetes in MENA region (Middle East and North Africa): Results of the IDMPS study

J.C. Mbanya[1], J.M. Chantelot[2], P. Aschner[3], J.J. Gagliardino[4], H. Ilkova[5], F. Lavalle[6], A. Ramachandran[7], G. Kaddaha[8], M. Shestakova[9], P. Huot-Marchand[10], J.C. Chan[11].

[1]Faculty of Medicine and Biomedical Sciences, Yaounde, Cameroon. [2]Sanofi, Intercontinental Medical Affairs, Paris, France. [3]Unitad Médica de Diagnostico, Bogotá, Colombia. [4]CENEXA UNLP-CONICET La Plata, Facultad de Ciencias Medica, Buenos Aires, Argentina. [5]Istanbul University Caerrahpasa Medical Faculty, Department of Internal Medicine, Istanbul, Turkey. [6]University Hospital UANL, Servicio de Endocrinología, Monterrey, Mexico. [7]India Diabetes Research Foundation, Chennai, India. [8]Rashid Hospital, Dubai, United Arab Emirates. [9]Endocrinology Research Centre, Moscow, Russia. [10]Mapi, Real World Evidence, Lyon, France. [11]The Chinese University of Hong Kong - Prince of Wales Hospital, Department of Medicine and Therapeutics, Shatin, Hong Kong- China.

BACKGROUND

Type 1 diabetes is associated with the risk of complications at both short-term (hyperglycemia, hypoglycemia) and long-term (microvascular and macrovascular complications). Self-management is an essential part of diabetes care to improve glycemic control and thereby to reduce the onset and progression of diabetes complications. Characterizing glycemic self-management and these determinants is important in order to promote its use and to improve the quality of care of patients with diabetes.

OBJECTIVES

- Describe characteristics of self-management of patients with type 1 diabetes in the MENA region (Alegria, Morocco, Tunisia and Egypt). Self-management was defined as self-monitoring of blood glucose and self-adjustment of insulin doses by the patient him/herself.
- Identify associated patients profiles.

METHODS

- IDMPS (International Diabetes Management Practices Survey) is an international, observational, cross-over study conducted annually to investigate the therapeutic management of patients with type 1 and 2 diabetes.
- Data from 2042 patients enrolled in Algeria, Morocco, Tunisia and Egypt, in the waves 2, 3, 5 and 6 of the study (2006-2014) were pooled and analyzed.
- Self-management was defined as self-monitoring of blood glucose and self-adjustment of insulin doses.
- Univariate analyzes were conducted to look for predictive factors of self-management. The following variables were tested: age, BMI, gender, waist circumference, residential area, education level, health insurance, time since diabetes diagnosis, complications of diabetes, diabetes education, current insulin treatment (type, age, dose, injection device), oral hypoglycemic agents, HbA1c, fasting blood glucose, use of a glucometer, physician specialty. Significant variables at entry 20% threshold were proposed as explanatory variables in a logistic regression model with adjustment on the country. A selection method of backward type was applied at out 5% threshold.

RESULTS

Patients characteristics

- The mean age of patients was 34.3 ± 13.4 years, 50.2% were women. The mean length of diabetes diagnosis was 11.9 ± 8.8 years.
- Self-management of blood glucose was practiced by 57.1% of patients (**Table 1**).
- The mean HbA1c was 8.3 ± 1.9%, 23.3% of patients had HbA1c <7% (self-management: 28.4%, lack of self-management: 15.2%).
- 40.7% of patients presented diabetes complications (microvascular complications: 38.5%; macrovascular complications: 7.6%).
- **Table 2** illustrates patients characteristics according to self-management status.

Predictive factors for self-management

- The variables proposed in the logistic regression model were: age classes (≤40,]40;65],]65;85], >85 ans), BMI classes (<25, [25;30[, ≥30 kg/m²), residential area, education level, health insurance, time since diagnosis of diabetes, complications of diabetes, diabetes education, number of visits to the endocrinologist or diabetologist, type of current insulin therapy, dose of insulin, HbA1c, fasting blood glucose, physician specialty.
- Results of logistic regression including 1642 patients are presented in **Figure 1**.

Table 1: Self-management

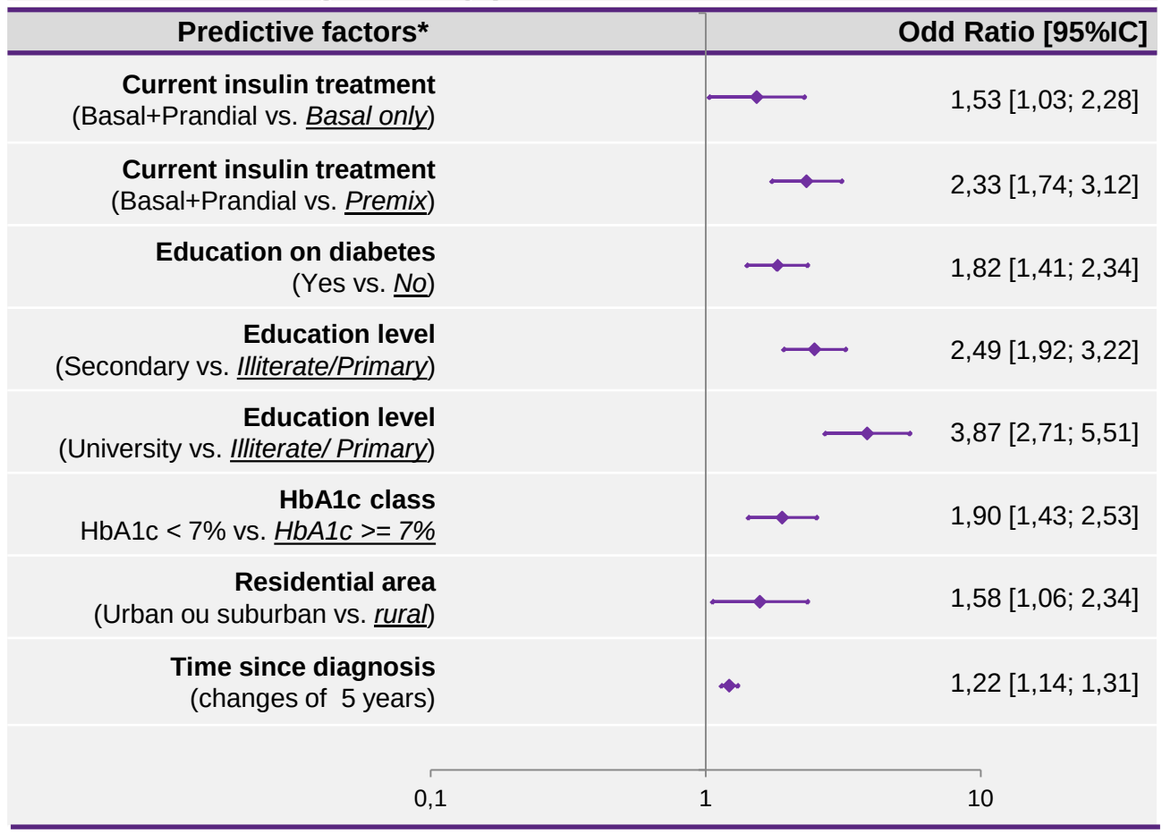
	N=2042
Self-management of blood glucose and insulin dose (%)	**57,1%**
Self-monitoring of blood glucose (%)	81,9%
Self-adjustment of insulin dose s(%)	63,1%

Table 2: Patients characteristics

	With self-management N=1167	Without self-management N=875	Total N=2042	P value*
Age (years), mean± sd	**33,9±12,6**	**34,8±14,4**	**34,3±13,4**	0,677
Female (%)	**50,7%**	**49,5%**	**50,2%**	0,578
Education level (%)				
Illiterate/ Primary	*34,3%*	*57,7%*	*44,3%*	≤ 0,001
Secondary	*43,0%*	*32,3%*	*38,4%*	
Universtity/Higher	*22,7%*	*10,0%*	*17,3%*	
Residential area urban ou suburban (%)	**94,0%**	**86,1%**	**90,6%**	≤ 0,001
Time since diagnosis (years), mean± sd	**13,0±9,0**	**14,4±8,3**	**11,9±8,8**	≤ 0,001
Diabetes complications	**39,3%**	**42,7%**	**40,7%**	0,148
Microvascular complications	*37,0%*	*40,7%*	*38,5%*	*0,108*
Macrovascular complications	*7,6%*	*7,6%*	*7,6%*	*0,945*
Therapeutic education (%)	**76,9%**	**58,4%**	**69,1%**	≤ 0,001
Current treatment with insulins (%)				
Basal+Prandial	*60,9%*	*36,5%*	*50,4%*	≤ 0,001
Premix only	*17,6%*	*34,4%*	*24,8%*	
Basal only	*8,0%*	*15,4%*	*11,2%*	
Other	*13,5%*	*13,7%*	*13,6%*	
HbA1c (%), mean± sd	**8,0±1,7**	**8,8±2,0**	**8,3±1,9**	≤ 0,001
HbA1c <7% (%)	**28,4%**	**15,2%**	**23,3%**	≤ 0,001

sd.: standard deviation

Figure 1: Multivariate analysis for identification of predictive factors of self-management by patient with T1 diabetes - N=1642



* *Reference modality is underlined and italic*

CONCLUSION

The results of this study shows that the frequency of glycemic self-management is still insufficient in the MENA region (57%).

These results further confirm the role of self-management in improving glycemic control of patients with type 1 diabetes, especially of patients on basal insulin + prandial. It is interesting to note that self-management is significantly associated with the provision of therapeutic education.

Moreover, self-management appeared more frequently among patients with high level of education, living in urban or suburban areas and whose diabetes diagnosis was older.

The identified patient profiles could be the subject of specific education measures to improve self-management and allow the patients to benefit from the most appropriate treatment and management.

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Conflict of interest:
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