Research Article

Association between the Use of Alternative Medicine and Adherence to Treatment in Patients with Type 2 Diabetes

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Abstract

Background: Diabetes mellitus 2 (T2D) is the leading cause of morbidity and mortality in northern Mexico. Various treatments are used to control the disease; however, the cost of these and the difficulty of dietary management have as a consequence that the patient abandons them and looks for cheaper and easier-to-use alternatives.

Aim: The purpose of this study is to determine the relationship between the use of alternative medicine and adherence to medical treatment in patients with T2D.

Design and Setting: Analytic cross-sectional study.

Methods: An analytical cross-sectional study was designed between March and July 2019 including 464 patients with T2D from the family medicine unit #48 Ciudad Juarez, Mexico. We used the Morisky-Green scale for adherence to treatment and the use of Alternative Medicine (CAM) was evaluated with a holistic complementary and alternative medicine questionnaire. The Chi-Square test was used for comparison of proportions and risk factors were calculated using odds ratio with 95% confidence intervals.

Results: 53% of patients use CAM; biological therapy (herbs and supplements) is the most frequent (94%). The association between CAM use and adherence to medical treatment was 2.1 (95% CI 1.4-3.1, p= 0.001). The risk factors for the use of CAM were female sex, basic level education, uncontrolled disease and a time of evolution greater than 10 years.

Conclusion: CAM users are 2.1 times more at risk of having a regular or bad adherence to medical treatment.

Keywords: Alternative medicine; Adherence to treatment; Diabetes mellitus

Introduction

Diabetes is the leading cause of morbidity and mortality in northern Mexico [1]. Various treatments are used in its control, but their cost and the difficulty of dietary management cause the patient to seek other alternatives, which generates a poor adherence to medical treatment [2-3]. It is estimated that adherence to treatment in patients with T2D is around 60% [4]. The World Health Organization (WHO) identifies five causal factors for which patients do not adhere to treatment, among which are variables related to the patient, treatment, health system, disease, and the socioeconomic variables. Diabetes patients are 1.6 times more likely to use alternative medicine (CAM) than non-diabetic patients [6].

Adherence to treatment is defined as that behavior of the patient that coincides with the prescribed medical indication in relation to the form and times of administration of medications, diet and changes in lifestyle [7]. CAM is defined as a diverse care system, practices and products that are generally not considered part of conventional medicine [8]. CAM is subdivided into five categories: 1) biological therapies: herbs and dietary supplements; 2) alternative medical systems: acupuncture; 3) systems based on manipulation of the body: chiropractors; 4) mind body interventions: taichi or yoga and 5)

energy therapies: reiki [9]. Due to the above, the main objective of this research was to determine the relationship between the use of alternative medicine and adherence to medical treatment in patients with T2D and to determine the sociodemographic characteristics of CAM users, the degree of adherence to medical treatment and glycemic control.

Material and Methods

Study design and population

A descriptive, cross-sectional, analytical study was designed at FMU 48 Ciudad Juarez, Mexico; between March and July 2019. Patients with T2D of legal age, both sex and who agreed to participate in the study were included; those that did not have recent paraclinical studies or incomplete information were eliminated. All included patients signed an informed consent letter.

Variables

The evaluation of adherence to treatment was with the Morisky-Green scale (8= High, 6-7= Medium and <6= Low) and the use of CAM was evaluated with a holistic questionnaire of complementary and alternative medicine (>33= Yes, <33= No), the scales were answered by the participants.

Table 1: Sociodemographic characteristics of patients with T2D.

Characteristic	n (%)
Sex	
Female	300 (64.7)
Male	164 (35.3)
Age	
21-35	11 (2.4)
36-50	107 (23.1)
51-65	207 (44.6)
66-80	125 (26.9)
81-95	13 (2.8)
≥96	1 (0.2)
Marital Status	
Single	34 (7.3)
Married	343 (73.69)
Cohabitation	34 (7.3)
Divorced	8 (1.7)
Separated	8 (1.7)
Widowed	37 (8)
Education	
Illiterate	9 (1.9)
Primary	233 (50.2)
Secondary	139 (30)
Technique	31 (6.7)
High school	38 (8.2)
University	14 (3)
Occupation	
Operator	130 (28)
House	127 (27.4)
Retired	122 (26.3)
Merchant	19 (4.1)
Others	66 (14.2)

n: Frequency; %: Percentage

Statistical analysis

Measures of central tendency and percentages were used for the sociodemographic variables. Also, the Chi-Square test for comparison of proportions; risk factors were calculated using odds ratios and their 95% confidence intervals.

Ethics

This study was authorized by the Local Health Committee (CLIES 802) with registration number R-2019-802-021. The research was carried out in accordance with the Regulations of the General Health Law on Research for Health, the Declaration of Helsinki and the Bioethical Principles.

Results

488 patients were recruited, of which 24 were eliminated, 22 for not having recent paraclinical tests and 2 for complete information. A total of 464 patients were studied whose sociodemographic

Table 2: Association between the use of alternative medicine and adherence to medical treatment.

	Adherence to medical treatment				
Characteristic	**Good**	**Regular**	**OR**	**CI 95%**	**p***
	n (%)	**n (%)**			
With CAM	107	113	0.46	0.314-0.672	0.001
	-59.1	-39.9			
Without CAM	74	170	2.175	1.488-3.181	0.001
	-40.9	-60.1			

n: Frequency; %: Percentage; OR: Odds Ratio; p*: Chi-Square

Table 3: Analysis of risk factors associated with the use of alternative medicine in patients with T2D.

	CAM				
Characteristic	**Yes**	**No**	**OR**	**CI 95%**	**p**
	n (%)	**n (%)**			
Age					
<65	180 (73.8)	145 (65.9)	1.455	0.976-2.168	0.065
>65	64 (26.2)	75 (34.1)	0.687	0.461-1.024	
Education					
Basic	209 (85.7)	172 (78.2)	1.666	1.031-2.693	0.036
No basic	35 (14.3)	48 (21.8)	0.6	0.371-0.970	
Glycemic control					
Controlled	99 (40.6)	117 (53.2)	0.601	0.416-0.868	0.007
Uncontrolled	145 (59.4)	103 (46.8)	1.664	1.151-2.404	
Hypercholesterolemia					
Yes	120 (49.2)	102 (46.4)	1.12	0.777-1.613	0.544
No	124 (50.8)	118 (53.6)	0.893	0.620-1.287	
Hypertriglyceridemia					
Yes	150 (61.5)	118 (53.6)	1.379	0.953-1.996	0.088
No	94 (38.5)	102 (46.4)	0.725	0.501-1.049	
Body Mass Index					
<24.9	17 (7)	23 (10.5)	0.641	0.333-1.235	0.181
>25	227 (93)	197 (89.5)	1.559	0.810-3.002	
Sex					
Male	71 (29.1)	93 (42.3)	0.56	0.382-0.823	0.003
Female	173 (70.9)	127 (57.7)	1.784	1.215-2.621	
Time of diagnosis					
<10 years	118 (48.4)	156 (70.9)	0.384	0.262-0.564	0.001
>10 years	126 (51.6)	64 (29.1)	2.603	1.772-3.822	

CAM: Alternative Medicine; n= Frequency; %: percentage; OR: Odds Ratio; p: Chi-square

characteristics were: mean age 58.5 years (range 26-96), female sex 64.7%, industry operator occupation 28%, marital status married 73.9% and primary education 50.2% (Table 1). In relation to T2D, the most frequent evolution time was less than 5 years with 33.2%. The most frequently associated comorbidity was systemic arterial hypertension (51.7%) and uncontrolled blood glucose in 53.4% of the cases. Regarding adherence to medical treatment, it was found that only 39% of the participants had good adherence to treatment, 61% fair or poor. Of the total number of patients, 52.6% admitted the

use of CAM, biological therapy was used more frequently (94%). The odds ratio was calculated to evaluate the association between the use of CAM and adherence to medical treatment, obtaining a value of 2.1 (95% CI 1.4-3.1, p= 0.001) (Table 2). The risk factors for the use of CAM were also analyzed, among which the basic level schooling with OR= 1.6 (95% CI 1.0-2.6, p= 0.036), uncontrolled blood glucose OR= 1.6 (95% CI 1.1-2.4, p= 0.007), female gender OR= 1.7 (95% CI 1.2-2.6, p= 0.003) and evolution of the disease over 10 years OR= 2.6 (95% CI 1.7-3.8, p= 0.001) (Table 3).

Discussion and Conclusion

T2D and its complications represent a major public health problem. Treatment is the basis for the control of this condition; however, there are major defects in disease control and treatment strategies [10]. The results of this study show a negative association between the use of CAM and adherence to medical treatment. This finding is similar to that obtained by Alfian et al. where they demonstrated that the use of CAM decreases adherence to medical treatment in patients with T2D [11]. The uncontrolled disease reported in the 2016 National Health and Nutrition Survey was 68.2%, which differs from what was found in this research with 53.4%; however, these reflect the failures in the management and control of the disease, as well as the need to improve and renew existing strategies to ensure that patients with this condition receive full benefit with the approach provided [12-13].

According to Grandy et al. adherence to medical treatment of patients with T2D is 60% or less [2], a result that differs from what was obtained in this study where the degree of adherence reached only the 40%; however, this difference could be explained because the characteristics of the populations studied are different. Atinga et al. in a population of a developing country, it was observed that therapeutic adherence was 38.5% where the main factors that hinder adherence to treatment were polypharmacy, socially accepted norms, perception of little effectiveness of the medications, as well as lack of medical instruction [14]. These results are more closely related to the reality of the health system in which this research was carried out. No studies were found that assessed risk factors for the use of CAM. In this research, an association was determined between the degree of schooling, uncontrolled disease, female sex and time of evolution of the disease with the risk of using these therapies, so it is important that the family doctor identifies these factors in order to intervene in a timely manner. The use of alternative medicine negatively affects adherence to medical treatment in patients with T2D. Therefore, it is important to identify risk factors for its use and achieve adequate metabolic control for prevent early complications in these patients.

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