Herbal Use and Perceptions Among Patients with Type 2 Diabetes Mellitus in Kuwait

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Abstract

Herbal medicine has become a popular treatment among patients with chronic diseases worldwide. Many patients with diabetes mellitus use herbal medicine without consulting their health professionals.

The aim of this study was to assess the prevalence, pattern of use, and perceptions in type 2 diabetes patients using herbal medicine. It was conducted between 1st January 2019 and end of June 2019 diabetes clinic in Farwaniya Hospital in Kuwait.

In this cross sectional, quantitative ,350 patients were asked to complete questionnaire administered by nurses.

The study found that 30.6% of sample used herbal medicine- women more men. Black cumin (habba soda) i.e Nigella Sativa was the most common herb used by diabetic patients The study revealed that 70% of herbal medicine users had poor glycemic control (HbA1c 7%). Diabetic complications were greater in herbal users than in those receiving conventional therapy. The study also showed that 95.3% of herbal medicine users did not inform their treating doctors. Our conclusion was that herbal medicine users needed to increase their awareness and education about the risks and complications of herbal medicine.

Keywords: Herbal Medicine; Complimentary Medicine-Type 2 Diabetes Mellitus; Perceptions; Kuwait

Introduction

The World Health Organization (WHO) defines complimentary medicine as a diverse health practice, that included the use of herbal medicines, mineral-based medicines and animal parts which are used singly or in combination to diagnose or prevent or treat illness and to maintain well- being [1].

Type 2 diabetes mellitus is highly prevalent in Gulf countries, prevalence of diabetes mellitus in Kuwait is 21.1% [2]. It is well known that diabetes mellitus is associated with significant morbidity and mortality, form various micro vascular complications such as retinopathy, nephropathy and neuropathy and as well as macro vascular complications such as ischemic heart disease, stroke and peripheral vascular disease [3].

Complementary and Alternative Medicine (CAM) is widely used thought the world especially by patients with chronic diseases such as type 2 diabetes mellitus . In the United States, the Centers of Disease Control and Prevention report that 40% of adults and 10% of children have used complimentary treatment [4]. Australian data, published in 2007 have suggests that 64% of the peoplehad used one or more modes of CAM in the previous 12 months [5]. The proportion of patients using CAM over one year was 23% in Denmark and 49% in France [6]. In Gulf countries such as Saudi Arabia. 30% of patients with diabetes mellitus had used herbal medicine to treat their condition [7]. It is widely believed that some herbal remedies provides symptomatic relief and helps in the prevention of complication from diabetes mellitus. Some are proven to help in regenerating pancreatic beta cells in overcoming insulin resistance and in improving glycemic control in diabetic patients [3].

The chronic nature of diabetes mellitus and its complications motivating patients to use alternative medicine to treat their condition [8]. Patients decide to use complementary medicine for a variety of reasons including dissatisfaction with conventional treatment, the side effects of prescribed drugs and high costs of the drugs and most of drugs have side effects and high costs of such drugs [9,10], in some cases these traditional methods of treatment coincide with patients values, or spiritual and religious and beliefs regarding the nature and the meaning of illness and death [11,12].

This study aimed to investigate the prevalence of type 2 diabetes patients using herbal or alternative medicine use Kuwait among type 2 diabetes mellitus patients. This investigation aimed to provide essential evidence to guide individuals and decision makers.

This is a cross-sectional quantitative study assessed the prevalence, and type of herbal medicine used to treat type 2 diabetes and was conducted between January 2019 and end of June 2019 in the diabetes clinic at Farwaniya Hospital Kuwait.

Patients and methods

Study population

Sample size and recruitment strategies.

The sample size was calculated according to the equation used in cross -sectional studies and surveys.

Sample size n $= \dfrac{z_1 - \alpha^2 / P^{(1\text{-}P)}}{d^2}$

Where n = number to be sampled

Z^2 $(1.96)^2$ for 95% confidence

P = "best guess" for prevalence

d = Absolute i.e (Maximum tolerable error for the prevalence estimate)

Sample size in this study assumes a 35% prevalence of herbal medicine use of herbal medicine in people with type 2 diabetes mellitus is 350 patients.

Patients were selected by systematic random sampling Data were collected face-to-face by the diabetes consultant at the clinic using a 24-item questionnaire adapted and modified from previously validated studies on herbal medicine use. The structured questionnaire was composed of socio-demographic variables and questions about management of diabetes mellitus to capture knowledge, attitudes and beliefs.

Inclusion and exclusion criteria

Participants were male and female patients aged 18 or over who had been diagnosed with type 2 diabetes at least a year ago, and had HbA1c of more than 6.5%, fasting blood glucose of ≥123 mg/dl and post-prandial blood sugar of ≥ 200 mg /dl recorded on 2 occasions. Participants were selected providing they were conventional medications which was described by the diabetes doctor (drugs or insulin or mixed) for diabetes, had good cognitive functions and successfully completed the interview process. Exclusion criteria included patients not diagnosed with diabetes mellitus before their clinic visit, those who had not received oral anti-diabetic drugs or insulin, and patients experiencing difficulties in understanding the questions.

Ethical approval number 00769 MOH was obtained from the Ethics Committee of the Ministry of Health in Kuwait. Informed verbal and written consent was also obtained from all participants.

The study included 350 patients with type 2 diabetes mellitus who were older than age 18 years and were on conventional medications for diabetes who have good cognitive functions and successively complete the interview process. Exclusion criteria included who were not diagnosed with diabetes mellitus before the visit of the clinic and those who have not received oral antidiabetic drugs or insulin as a line of treatment or those experiencing difficulties in understanding the questions of questionnaire.

Ethical approval Number 00769 MOH was obtained from Ethics committee of Ministry of Health in Kuwait, and informed verbal and written consent was also obtained from all participants.

Statistical analysis

The collected data were coded, entered and analyzed using SPSS software version 23. Data were presented as frequencies and percentages, means and standard deviations. The Chi-square test was used to show the significance of association between different variables and the use of herbal medicine. A P-value of less than 0.05 was considered significant.

Results

Socio-demographic data A total of 350 patients with type 2 diabetes were included in this study. 30.7% reported using herbal medicine in their therapy regimen (107 NIDDM). Half of these patients were aged 40-59 and about 31.6% f them were aged over 59 years. Women used herbal remedies more than men (56.1% compared to 43.9%) with significant statistical difference between patients using and not using herbal remedies (P-value 0.001) .51.4% of herbal medicine users had 12 years or more of education. 74.8% were Kuwaiti nationals. There was no significant statistical difference regarding educational level .between users and non-users of remedies (P-value ≥ 0.05).

Patients with an average monthly income of between 500 and 1,000 Kuwaiti dinars were split into 46.7% herbal medicine users and 33.7% non-users. There was no significant statistical difference between users and non-users of herbal medicine (P-value 3.195).

Types of herbal remedies used In regard to the most popular herbs, 17 diabetic patients were using a mixture of herbal remedies prepared by a herbalist (15.9%), followed by 15 patients using Black Cumin (Habba soda or Nigella Sativa). 12 patients used Cinnamon (Darcien or Cinnamomum Zeylanicum Blume. 11 used garlic, 10 used Fenugreek (Trigonella Foenumgraecum) and 10 were using Bitter Apple (Citrullus Colocynthis). Seven patients used onion and five used Aloe Vera.

Diabetes-related data A family history of diabetes mellitus was recorded for 58% of diabetic patients who used herbal medicine compared to 53.4% of diabetic patients who were not using herbal medicine. There was no significant statistical difference between the two groups (P-value 0.441). Most herbal users and non-users had had diabetes mellitus for more than five years (60.7% and 58.4% respectively). Follow-up of glycemic status was not regular for 70% of diabetic patients using herbal medicine compared to 34.2% for non-users. There was no significant statistical difference between the two groups (P-value 2.561). Glycemic status was not controlled for 71% of herb users compared to 40% of non-users, so that diabetic complications were more common for herb users (71.1%) compared to 17% for non-users. However, there was no significant statistical difference between the two groups (P-value 3.629).

Patterns, attitudes and perceptions Most of the herbal medicine users 69.2 % of them got most of their information about herbal medicines from friends. 14% got information from family members and 12% from TV, radio or the internet. 4.7% reported choosing their herbal medicines based on their own knowledge (Table 5). 46.4% the herbal medicine users reported using herbal medicine to support their treatment of diabetes by conventional treatment,9% reported a loss of confidence with prescribed drugs used to manage their condition. 9.3% reported using herbs to avoid diabetic complications.

65.4% of herbal medicine users said they had not experienced side-effects from using it. 30 patients (28%) said they had experienced side effects. 60% were using herbal remedies alongside with drugs or insulin and 32.7% were using herbal remedies as a single treatment mode for their diabetes. Eight patients were using herbal remedies infrequently.

Most herbal medicine users (74.8%) were satisfied with the use of herbal medicine and 20% were not satisfied. Seven patients 6.5% were unsure about side effects of herbs. 95.3% of herbal medicine users had not informed their hospital doctors.

Table 1: Socio-demographic characteristics of herbal users and non-herbal users

	Using herbal remedies	Not using herbal remedies	X²	P -value
Age (years)	N= 107	N =243	5.187	0.075
<40	20 (18.7)	43 (17.7)		
40-59	54 (50.5)	95 (39.1)		
>59	33 (30.8)	105 (43.2)		
Sex				
Male	47 (43.9)	150 (61.7)	9.576	0.001
Female	60 (56.1)	93 (38.3)		
Education				
Illiterate	22 (20.6)	51 (21.0)	0.283	0.868
<12 years of education	30 (28.0)	70 (28.8)		
≥12 years of education	55 (51.4)	122 (50.2)		
Nationality				
Kuwaiti	80 (74.8)	201 (82.7)		
Non-Kuwaiti	27 (25.2)	42 (17.3)		
Monthly Income				
<500 KD	25 (23.4)	60 (24.7)	34.518	3.195
500-1000 KD	50 (46.7)	82 (33.7)		
≥1000 KD	32 (29.9)	101 (41.6)		
Occupation				
Employed	70 (65.4)	150 (61.7)	0.938	0.626
Unemployed	10 (9.3)	20 (8.2)		
Retired	27 (25.2)	73 (30.1)		
Marital status				
Married	90 (84.1)	220 (90.5)	2.866	0.090
Unmarried	17 (15.9)	23 (9.5)		

Table 2: Herbal medicine used to treat diabetes mellitus

English name	Local name	Latin name	Using remedy No =107	%
Fenugreek	Helbah	Trigonella Foenum-graecum	10	9.3
Black cumin	Habba Soda	Nigella Sativa	15	14.1
Cinnamon	Darcein	Cinamonum Zeylanicum Blume	12	11.2
Bitter apple	HanThal	Citrullus Colocynthis	10	9.3
White Lupine	Termes	Lupinus Albus	6	5.6
Garlic	Thum	Allium Sativuon	11	10.3
Onion	Basal	Allium Cepa	7	6.5
Aloe Vera	Sabr	Aloe Vera L.	5	4.7
Wormwood	Sheeh	Artemisia Judaica	5	4.7
Herbal mix Prepared by Herbalist			17	15.9
More than one type	-	-	9	8.4

Table 3: History of diabetes, duration and continuity of care in patients

Variable	Using herbs No = 107	Not using No = 243	X^2	P- Value
Family history of diabetes	No %	No %		
Yes	62 (58)	130 (53.4)	0.593	0.441
No	45 (42)	113 (46.5)		
Duration of diabetes				
< 5 years	42 (39.3)	101 (41.6)	0.166	0.684
5+ years	65 (60.7)	142 (58.4)		
Continuity of care				
Follow-up always in the same clinic	40 (37.4)	97 (40.0)	0.199	0.656
Follow up in different centers	67 (62.6)	146 (60.0)		
Regularity of follow- up				
Regular	32 (30.0)	160 (65.8)	53.519	2.561
Not regular	75 (70.0)	83 (34.2)		
Number of annual follow up visits				
< 6 per year	61 (57.0)	70(28.8)	25.228	4.938
6+ per year	46 (43.0)	173(71.2)		

Table 4: Diabetes mellitus control and compliance

Variable	Using herbs No = 107 No %	Not using No = 243 No %	X²	P- Value
Glycaemic control				
Controlled HbA1c <7%	31 29	145 60	28.01	1.207
Not-controlled HbA1 c ≥7%	76 71	98 40	40	
Type of treatment				
On diet only	3 2.8	8 3.3	0.255	0.968
Oral tablets	80 74.8	183 75.3		
Insulin	5 4.7	13 5.3		
Mixed	19 17.7	39 16.1		
Regularity of treatment				
On Diet only	3 2.8	5 2.1	16.938	0.0002
Regular medical treatment	10 9.3	73 30.0		
Irregular medical treatment	94 87.9	165 67.9		
Complications of DM				
Absent	31 28.9	202 83.1	93.723	3.629
Present	76 71.1	41 16.9		

Table 5: Perceptions and attitudes of use of herbal medicine

	No	**%**
Source of information		
Self option	5	4.7
Friends	74	69.2
Family	15	14.0
Media	13	12.1
Indications for use		
Supportive	50	46.7
Loss of confidence with drug	31	29.0
To avoid complications	10	9.3
More than one cause	16	15.0
Side effects of herbal medicine		
Yes	30	28.0
No	70	65.4
Not sure	7	6.5
Use alongside with conventional treatment		
Yes	64	59.8
No	35	32.7
Sometimes	8	7.5
Frequency of use		

Daily	42	39.3
Weekly	50	46.7
Other	15	14.0
Satisfaction		
Yes	80	74.8
No	20	18.7
Note sure	7	6.5
Informing the clinic doctor		
Yes	5	4.7
No	102	95.3

Discussion

The use of herbal therapy is a common practice in chronic diseases both in developed and developing countries [15,16]. This use may be attributed to the long-term suffering of patients or to the failure of medical treatment to bring rapid and long-lasting relief and control of these diseases, also people believe that herbal medicine is more natural than modern drugs [17] Herbal medicine is frequently used by patients with diabetes mellitus to help them manage these chronic diseases [18] We found that 30.6% of diabetic patients in our study used herbal medicine. This finding is consistent with the 2003 study of Al Saeedi, *et al.* [7] in Saudi Arabia, where the prevalence of the use of herbal medicine among patients with diabetes was 30.1%.

The 2015 study by Alami, *et al.* [19] in Morocco revealed that the prevalence of use of herbal medicine in diabetic patients was high (54.8%). In Gulf countries such as Saudi Arabia, a 2002 study by Al-Rowais, *et al.* [17] reported that 17.4% of 300 diabetic patients were using herbal medicine. In 2008, a Kuwait study by Awad, *et al.* (20) reported that only 13% of the diabetic patients (104 diabetic patients) were using herbal medicine. Our study revealed that half of the diabetic patients using herbal medicine were aged between 40 and 59 years, and 30% were 59 or over. This finding coincides with the studies of Al-Rowais [17] and Al-Saeedi, *et al.* [7].

We found that employment status and level of education did not have statistical significance associated with the use of herbs. This result is not consistent with the findings of other studies [17, 19, 22]. As one example, the 2006 study of Kumar, *et al.* (23) found that in an Indian survey, a higher level of education and socio-economic status were significant positive correlates with use of herbal medicine in India. A significant relationship was observed in many studies between a higher prevalence of use of herbal medicine and higher ages, female gender, higher education, longer duration of diabetes and high rates of diabetes complications [8]. All these factors are consistent in our results with the exception of educational level.

In this regard, our results are consistent with the 2013 Malaysian study by Ching et al. [15], where the educational level of the diabetic patients had no significant association with herbal medicine use in diabetic patients In our study, 71% of diabetic patients using herbs had poor glycemic control and the frequency of complications was higher than for patients on conventional treatment. This may be attributed to the fact that diabetic patients not using herbs have a higher degree of regularity in follow-ups for their glycemic status in primary health care centers and outpatient clinics in Kuwait (Tables 3, 4).

Most herbal medicine users (95%) did not inform their consultants about their use of herbs for managing their diabetes mellitus. This finding coincides with the results of Khalaf. *et al.* [13] and Argaez-Lopez, *et al.* [24]. This may be attributed to limited time during a clinic visit, to inadequate doctor-patient communication during consultations or to a fear of a negative attitude from doctors. Clinicians may also fail to ask patients about the use of herbal medicine.

Conclusion

This study assessed patients' use perspectives and practices regarding the use of herbal medicine in the management of diabetes. About one-third of diabetic patients have reported such use. Most of the herbal medicines were plant products that were affordable and widely available locally. Although herbal medicines have potential benefits, they also have potential adverse effects. There is currently limited knowledge of the physiological effects of most of herbal medicines that were widely used, so it is not possible to assess whether these medicines were beneficial, harmful, or both. In view of this, the findings reveal a need for further research to identify the bioactive compounds present in these medicinal plants and to determine their efficacy at a physiological level.

Patient education is a cornerstone item in improving the knowledge of diabetic patients about the benefits and side effects of these herbs, and also, we need the pharmaceutical agencies to do more studies about the activity and side effects of theses herbs in their future research.

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