

Herbal medicine in the treatment of diabetes mellitus

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ABSTRACT

Objectives: The use of herbs is common among diabetics. The aim of this study is to determine the prevalence of the use of herbs among diabetics and which herbs are used. Additionally, to investigate the effect of some demographic characteristics on the use of such herbs.

Methods: A cross sectional study was conducted on diabetic patients attending the outpatient clinics in 4 major hospitals in Riyadh, Kingdom of Saudi Arabia. These were: King Khalid University Hospital, King Abdul-Aziz University Hospital, Prince Salman Hospital and Riyadh Medical Complex over a 3-month period which started in September 1999. Patients were interviewed by trained medical students through a predesigned questionnaire that contains items that are related to diabetes and the use of herbs by diabetics.

Results: Two hundred and ninety six diabetic patients out of 300 were interviewed giving a response rate of 98.6%. Fifty-one subjects (17.4%) reported using some form of herbs. The commonest herbs used were myrrh, black seed, helteet, fenugreek and aloes. Approximately 73% of herbs users did not inform their doctor regarding their use of herbs. No statistically significant relationship existed between demographic characteristics and the use of herbs.

Conclusion: The use of herbs is not rare among diabetic patients. Doctors caring for diabetic patients should encourage them to talk regarding the use of herbs as it may effect the outcome and the management of their disease.

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The use of alternative medicine (AM) has increased recently and attracted the attention of many researchers all over the world.¹⁻⁴ This interest has been accentuated by a concern that such treatment may be harmful to the patients despite their apparent innocuousness.¹ The scope of alternative medicine is enormous and includes all therapeutic procedures or practices which lie outside the mainstream of medical practice.⁵ They may be differentiated into pharmacological category (namely herbal treatments or homeopathy), physical remedies (acupuncture or chiropractics), dietary approaches (macrobiotics or vegetarianisms) or cognitive treatment (hypnosis). Therefore alternative medicine appears to be heterogonous.⁶ In United States of

America, it has been reported that one in 3 people are using at least one type of alternative therapy in the past year and a 3rd of them seeked the help of a provider of alternative therapy. Most of the treated conditions were chronic.⁷ In Australia the situation is similar as the overall use of at least one non-medically prescribed alternative medicine reached 48.5%.⁸ In other developed countries the proportion of patients that were using AM over one year was 23% in Denmark and 49% in France.⁹ The situation in the Kingdom of Saudi Arabia (KSA) may not differ from other countries. It has been reported by one study in Arar City, KSA that 24% of patients who were attending a health center used an AM during the last 6-months.¹⁰ The type of AM practiced

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in KSA may be different from that practiced elsewhere. It was previously found that 28% of people who practice AM used cautery, those who used Qura'n reading were (25%) and 45% were using medical herbs. A survey of different regions of KSA revealed that a large number of herbal drugs are used for the treatment of diabetes. Twelve of these anti-diabetics plants were identified. Three of them possess significant oral hypoglycemic activity in mice (teucerium oliverianum, Hammada salicornica and Allium Cepa); 3 plants showed moderate activity (Artemisia abyssinica, Azadirachta indica and loranthus curviflorus). Five plants were found to possess no significant activity (Phazya stricta, Mormordica charantia, Aloe vera, Allium sativum and Coriandrum sativum) and one plant (Moringa oleifera) rather increased the blood glucose.¹¹ Medicinal plants use in South Western KSA were studied and the most common plants found belong to the leguminosae, labiatae, compositae and euphorbiaceae families.¹² The form in which the herbs were used was described by El-Sheikh in his survey of the most important medicinal plants in Qasim, KSA. The most frequent forms were the solutions of the dried leaves and flowers, the dried leaves alone, the volatile oils and the crushed fresh shoot.¹³ In Mossa study the parts of the plants which were used include the leaves, the Aerial parts, the fruits, the bulb, the flowers or the whole plants.¹¹ Patients tend to use AM more in chronic disease conditions^{7,14} and diabetes mellitus is one of those conditions in which most patients tend to seek help. It has been reported that more than 400 herbal remedies are available for use by diabetics worldwide.¹⁵⁻¹⁷ American diabetics of Mexican origin showed a higher interest in AM with as many as 67% of them were reported using folk medicine.¹ Researches, in recent years, have suggested that some herbal therapies may have a role in the treatment of diabetes mellitus.¹⁸⁻²² However, many questions remain unanswered regarding the proper use of herbal therapies for those diabetics particularly with regards to dosage and the presence of contaminants.²³ The anti-diabetic activity of Aloes was studied in 5 patients with non-insulin dependent diabetes (NIDDM) and there was a significant reduction in fasting serum glucose indicating that aloes has a hypoglycemia effect.²⁴ It has also been reported that a plant mixture extract comprising of Nigella Sativa, Myrrh, Gum olibnum, Gum Asafoetida and Aloe to have a blood glucose lowering effect.²⁵

Another study on rabbits demonstrated the hypoglycemic effect of Nigella sativa with no attention of the based insulin levels.²⁶ The use of AM in diabetes may be harmful in 2 ways: 1. Is related to its possible side effects and the other is the high probability of non-compliance with medical treatment that may accompany the use of AM. Since the use of herbs is common among diabetics and

some herbs appear to have a role in the treatment of diabetes mellitus, this study was carried out on a group of diabetic patients to determine the prevalence of the use of herbs. Additionally, the study aims at investigating which herbs are used as well as the effect of some demographic characteristics on the use of such herbs.

Methods. Sample. It included 300 diabetic patients attending out-patient clinics in 4 big hospitals in Riyadh, KSA (King Khalid University Hospital (KKUH), King Abdul-Aziz University Hospital (KAUH), Prince Salman Hospital and Riyadh Medical Complex) over a 3-month period which started in September, 1999. All diabetics were included irrespective of the type of diabetes, nationality, age or sex. Patients were asked to be interviewed and 296 patients agreed with a response rate of 98.6%.

Interview. Patients were interviewed by trained 5th year medical students. They were asked with regards to their diabetes (type, duration, presence of complications, treatments, follow-up, control of diabetes and whether they had used herbal medicine during the last year). If the answer is yes to the last question, then they will be asked further questions regarding the herbal medicine such as its type, frequency of use, who prescribed it, its side effects (if any), patient satisfaction with it, if the patient had used it along with a prescribed medicine and if he/she had informed his/her doctor regarding the use of this herbal treatment.

Demographic data such as age, sex, nationality, place of residence and level of education were also recorded. Data was analyzed using the Epi-info Program. Chi-squared test was used to assess the significant differences between the groups (different age groups, males and females, Saudi and non-Saudi, urban and rural, different educational levels and blood sugar levels). A P-value of 0.05 or less was considered statistically significant.

Results. The study sample consisted of 296 diabetic patients. The males constituted 56.7% of the sample. The overall mean age was 51.99 ± 15.6 years. The majority of subjects were Saudis (84.6%). About one-third of the sample (32.8%) was on insulin. When the patients were asked regarding the control of their blood sugar over the last year (according to their judgment) 40% stated that it was variable while 30% thought that it was good and 30% rated it as bad. The use of herbal medicine in the last year was not rare as 51 subjects (17.4%) reported using some form of herbs. There were many types of herbs used but the frequent are shown in **Table 1**. Other herbs, which were used, include anise, thyme, parsley, fennel, and pomegranate bark. **Table 2** shows the questions which we asked those who took herbs

Table 1 - The most commonly used herbs as antidiabetics and the frequency of their use by patients (n=51).

Type of herb	Frequency of use n (%)
Myrrh	23 (45)
Black seed	10 (19.6)
Helteet	7 (13.7)
Fenugreek	7 (13.7)
Aloes	6 (11.8)
Artemesia	5 (9.8)
Cumen	3 (5.9)
Colocynth	3 (5.9)
Lupine	3 (5.9)
Coriander	2 (3.9)
Rhazya stricta	2 (3.9)
Others	32 (62.7)
n - number	

Table 2 - Characteristics of the use of herbs (n=51).

Characteristics	Frequency n (%)
Who prescribed it for you?	
Traditional healer	16 (31.4)
Friend	20 (39.2)
Other	12 (23.5)
Missing data	3
How often did you use it?	
Daily	26 (51)
Weekly	7 (13.7)
Other	14 (27.4)
Missing data	4
Did you experience any side effects?	
Yes	7 (13.7)
No	35 (68.6)
Not sure	6 (11.8)
Missing data	3
Did you use it along with a prescribed medicine?	
Yes	31 (60.8)
No	16 (31.4)
Sometimes	1 (2)
Missing data	3
Did you inform your doctor about it?	
Yes	13 (25.5)
No	35 (68.6)
Missing data	3
Do you intend to use it again?	
Yes	27 (53)
No	20 (39.2)
Missing data	4
Were you satisfied with its use?	
Yes	21 (41.2)
No	25 (49)
Not sure	5 (9.8)
n - number	

to know details regarding the use of herbs (who prescribed it, how often did they use it, presence or absence of side effects, whether it was used together with a prescribed medicine, intention to use it again and patient satisfaction with it). Patients who used herbs following an advice from a friend constituted 41.7% of the sample while those who got it from a traditional healer were 33.3%. About half of the patients used the herbs daily but for a variable period of time ranging from 10 days to 9 months. Some of them stated that they would use it only if it was available or when they think that they need it or when they became anxious. Interestingly, 73% of the herbs users did not inform their doctor regarding their use of herbs and their reasons were that doctors did not ask with regards to herbs (27%) or they did not think it was important for doctors to know (13.5%) or they feared that the doctor would ask them to stop taking it (8.1%). More than half of the patients (57.4%) said that they intend to use herbs again as they think they did not possess any serious effects (30%) or they feel better using them (14.8%) or some feel that herbs did control their blood sugar (11%). When the use of herbs was studied in relation to patient's demographic characteristics and disease status as shown in **Table 3**, no statistically significant relationships existed between age, sex, nationality, place of residence, patient education, control of blood sugar, duration of diabetes mellitus and the use of herbs.

Discussion. The use of herbs is not a new issue as herbs were known for a long time and had been used by many people to treat a variety of diseases. Doctors will need to keep track of this practice and they need to know more with regards to herbs as they may improve or worsen the outcome of treatment of their patients. Diabetes is one condition in which herbs are frequently given as they are expected to have a major role in the treatment of the disease. The present study has shown that 17.4% of the diabetic patients had used herbs in the last year. The real percentage may be more than that if the duration of the study of herbal use was extended for more than a year. Most of these patients had listed a variety of herbs for the treatment of their diseases but few patients were regularly using them. About one-third would abstain from using medical treatment when they were using the herbs. The popularity of the herbs for the treatment of patients with chronic diseases may be attributed to the long-standing suffering of the patients or failure of the medical treatment to bring a quick and long-lasting relief. The most frequent types of herbs used among our patients were myrrh, black seed, helteet and fenugreek. In another study which was conducted on American patient's of Mexican origin¹ the most frequent herbs

Table 3 - The use of herbal medicine in Riyadh, KSA, by demographic characteristics and disease status (n=296).

Variables	Frequency	Herbal medicine use %	X ² - value	P value
Age				
<30	25	(20)	3.13	0.68
30-44	54	(11.1)		
45-59	106	(17.9)		
60-75	88	(20.5)		
>75	18	(16.7)		
Missing data	5			
Sex				
Male	166	(18.1)	0.04	0.85
Female	127	(16.5)		
Missing data	3			
Nationality				
Saudi	248	(17.7)	0.02	0.89
Non-Saudi	45	(15.6)		
Missing data	3			
Place of Residence				
Urban	262	(17.9)	0.20	0.65
Rural	31	(12.9)		
Missing data	3			
Patient's Education				
Illiterate	107	(16.8)	3.83	0.43
Read & write	43	(20.9)		
Primary	43	(18.6)		
Secondary	44	(22.7)		
Higher education	54	(9.3)		
Missing data	5			
Control of blood sugar				
Good	90	(14.4)	1.2	0.55
Bad	87	(20.7)		
Variable	116	(17.2)		
Missing data	3			
Duration of DM (Years)				
<5	70	(17.1)	1.52	0.9
5-9	69	(18.8)		
10-14	56	(19.6)		
15-19	47	(17)		
20-24	36	(16.7)		
>25	15	(6.7)		
Missing data	3			
DM - diabetes mellitus				

used were Nopal and Aloe Vera. In Morocco, fenugreek was the first in the top 10 most recommended antidiabetic plants while in Quebec, Canada, blueberry was the herb most frequently used. This variation could be related to the availability of these herbs in certain communities than others and also tradition and habits may play a role in their choice. Patients who took the herbs according to a friend's advice in this study were 42% and this may draw attention to the importance of health education to the community. If they were well informed this might be reflected in the kind of advice, they had given. Education regarding the use of herbs is a good area to be tackled in the field of health education. Proper health education can also persuade a higher percentage of diabetic patients to inform their doctors

regarding their use of herbs. Indeed, the present study shows that 73% of herbs users did not inform their doctor regarding it. Although 49% of herbs users are not satisfied with it but still many of them intend to use them again. The reuse of herbs may be influenced by anxiety, as some of them stated or could be due to a friend's advice.

In this study, the use of herbs, did not seem to have a significant relationship with whether the blood sugar was properly controlled. It should be stated, however, that there were no standard measures for a good or a bad control of blood sugar level and this was left entirely to the patient's judgment. Physician should acknowledge their poor knowledge on herbs that are used by patients. This does not mean ignoring the problem as a whole since a large number

of patients are using them. On the other hand, many researches had addressed the antidiabetic effects of some herbs and plants. However, the safety and efficacy of these herbal treatments are still to be determined.^{21,22} Patients may be worried regarding the negative attitude of doctors towards herbs so they do not inform their doctors regarding them. Therefore, a more positive attitude from doctors may encourage patients to talk more regarding their use of herbs. One of the limitations of the present study, however, is the small sample size and that the patients were drawn from hospital clinics and not from the community. This is particularly important as patients in the community may be using clinical services irregularly and the way they use herbs may be different.

In conclusion, diabetes is a condition in which herbs are used. Doctors caring for diabetic patients should be aware of this fact and should try to encourage their patients to talk regarding the use of herbs as it may affect the outcome and the management of their disease.

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