Pharmacotherapeutic Evaluation of Herbal Medications Utilized by Diabetic Patients in West-Bank / Palestine

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الملخص

الأهداف: المغزى من هذه الدراسة هو بحث استخدامات النباتات الطبية بين مرضى السكري في الضفة الغربية، فلسطين.

طريقة البحث:تم توزيع استبيان على المراكز الصحية الحكومية في الضفة الغربية – فلسطين. المرضى الذين يرتادون عيادة أمراض السكري قد طلب منهم تعبئة النموذج المطلوب.

النتائج: ضمت هذه الدراسة ثلاثمائة و تسعًا و أربعين مريضًا بالسكري .وجد أن 56% منهم يستخدمون الأعشاب .معظمهم أكدوا العلاج الطبي إلى جانب التداوي بالأعشاب،وهم يؤمنون بفعالية مثل هذه النباتات في العلاج .

الخلاصة: إن التداوي بالأعشاب الطبية شائع بين مرضى السكري في الضفة الغربية\فلسطين. حتى الآن لا يوجد دليل علمي كافي لاستنتاج فعالية هذه النباتات ،مما يتطلب المزيد من الدراسات في هذا المجال لتقييم فعاليتها و فائدتها. كما يجب على الأطباء الذين يتعاملون مع هؤلاء المرضى أن يسألوهم حول استخداماتهم لمثل تلك النباتات و ذلك لتجنب الآثار الناجمة عن تفاعلات الأدوية و الأعشاب و التي من الممكن أن تصيب المرضى الذين يتلقون كلا النوعين من العلاجات.و أيضا إلقاء الضوء على الأعشاب الطبية التي لها تأثير فعال في خفض مستوى السكر في الدم و ليس لها آثار جانبية و يمكن إرشادهم أيضا لطرق استعمالها الأمثل مما يعكس الجدوى العلاجية والاقتصادية للعلاجات النباتية لمرضى السكري.

ABSTRACT

Objective: The purpose of this study was to investigate and analyze the utilizations of herbal medications among diabetic patients in the West Bank.

Method: A structured questionnaire was distributed to governmental primary health centers in west-bank. Patients attending the diabetic clinic in those primary health care centers were asked to fill in the questionnaire and give it back to the attending physician in the clinic. Every third patient

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attending the clinic was asked by the attending physician to fill in the questionnaire.

Results: Four hundred questionnaires were distributed all over west bank primary health care centers. Three hundred and forty nine questionnaire were filled correctly and returned to the investigator. 195 subjects (56%) were found to be using herbs, with the majority of them using conventional medical treatment along herbal therapy and they thought these herbs are efficacious. The commonest herbs used were Fenugreek, Nigella seeds, Aloe Vera, Sage, Garlic and Onion.

Conclusion: Herbal medication is common among Palestinian diabetic patients. Physicians who work with diabetic people should ask patients about their use of these therapies to avoid any adverse herb-drug interactions that may occur for patients receiving both conventional and herbal therapies.

INTRODUCTION:

Diabetes is a serious health problem affecting 9% of people in Palestine [(1)]. It is also one of the leading causes of death in the world. Diabetes mellitus has serious chronic complications that might cause retinopathy, nephropathy, neuropathy and micro and macro-vascular damage. Because of its wide spread prevalence and the severity of its complications, extensive research is being carried out to find more effective remedies. Among the remedies being investigated as a new therapeutic frontier in diabetes mellitus are herbal medications[(2)]. In fact, many modern pharmaceuticals used in current therapy of diabetes mellitus are obtained from natural resources. For example, metformin was derived from Galega officinalis, a plant rich in guanidine, the hypoglycemic component that was a common traditional remedy for diabetes [(3-4)]. For centuries, herbal medicine has been used world wide for the treatment of diabetes. Although only a small number of herbs have received scientific and medical evaluation to assess their efficacy, people are still using herbs and find them efficacious [(4).] In the West Bank, about twenty six plant species are found in use for the treatment of diabetes [(5)]. The objective of our study is to investigate and evaluate the utilization pattern and prevalence of native herbs among diabetic patients in the West Bank / Palestine.

METHODOLOGY:

A structured questionnaire was distributed to eight governmental primary health centers in west-bank that have a diabetes clinic. The questionnaire contains information regarding patient's disease status and current therapeutic regimen. Also, several questions regarding herbal intake, their pattern of use as well as attitude of diabetic patients toward these herbal medications are included. A copy of the questionnaire is attached. Patients attending the diabetic clinic in those primary health care centers were asked to fill in the questionnaire and give it back to the attending physician in the clinic. The patients participated in the study were selected randomly such that every third patient attending the clinic was asked by the attending physician to participate in the study after explaining to him, the goals of the study. The response rate of the patients who were asked to participate was 87%. The study started on January 2004 and ended on April 2005.

RESULTS

Sample Characteristics:

Three hundred and forty nine diabetic patients from all areas of the west bank / Palestine were included in this study. The average age of the participants was 58 years with a minimum age of 30 and maximum age of 79 years. Gender distribution of the diabetic participant patients showed that males represent about 57% and females represent 43% (table 1), with more than half of those patients (46.6%) have had diabetes for longer than 5 years (table 2). In our study, most of the diabetic patients who filled the questionnaire were city residents (61.6%) followed by village and camp residents (27.2%, 11.2%; table 3). Analysis of geographical distribution of the diabetic patients who participated in the study showed that most of those patients were from Jenin area (20.6%) and the minority were from Qalqilia area (4.3%; table 4). Analysis of our results showed that 65% of participants are of low-income level with an average monthly income of less than 299 Jordanian Diners (table 5). Analysis of the educational level of the participants indicated that the patients belong to all educational levels. (table 6).

Herbal Utilization Among Diabetic Patients:

In our study we find that 95% of the patients use medications such as sulfonylureas, biguanides, insulin and others for the treatment of diabetes mellitus. However, 56% of those patients were using herbs as an adjuvant second line therapy for controlling their blood glucose (table 7). The majority of the patients who are using these herbal medications believe that these herbal medications are useful in controlling blood glucose level (table 8). The herbs utilized most often by the patients were Fenugreek (87%), Nigella seed (46%), Aloe vera (14%), Sage leaves, Berries leaves (25%), Olive leaves (6%) and Garlic +Onion (5%) as seen in table 9.

Analysis of the results showed that the highest percentage of herbal users is found among city residents (36%), which is little higher than that of village or camp residents (table 10). There was a strong association between poverty and herbal utilization. About 57% of low income patients are using herbal medications for controlling their blood glucose level. On the other side, only 12% of highly income patients are using herbal medications, especially those living in Ram Allah and Jerusalem (table 11). The use of herb was more common among low educational level participants than those with high educational level. (table 6).

Table 1: Sex and age distribution among the studied sample.

Age	Sex		Total
	Male	female	
10-19	1	0	1
20-29	8	2	10
30-39	28	26	54
40-49	60	42	102
50-59	37	41	78
60-69	41	21	62
70-79	19	11	30
80-89	2	0	2
unknown	2	8	10
total	198	151	349

Table 2: Duration of the diabetes mellitus disease among the studied sample.

Duration of Disease	Frequency	Percent (%)
Less than one year	39	11.2
One-less than 5 years	88	25.2
5-less than 10 years	162	46.4
More than 10 years	60	17.2
Total	349	100.0

Table 3: Place of living of the participants.

Place of living	frequency	Percent (%)
Village	95	27.2
City	215	61.6
Camp	39	11.2
Total	349	100.0

Table 4: Geographic distribution of the patients

City	frequency	Percent (%)
Jenin	72	20.6
Ramallah + Jerusalem	59	16.9
Toulkarm	33	9.5
Hebron	40	11.5
Nablus	57	16.3
Qalqilia	15	4.3
Jerico	42	12.0
Beit lahem	31	8.9
Total	349	100.0

Table 5: Monthly income of the participants.

Monthly income(JD)	frequency	Percent (%)
100-199	148	42.42
200-299	77	22.06
300-399	91	26.07
400-499	25	7.16
More than 500	8	2.29
Total	349	100.0

Table 6: Educational level of the participants

Education level	frequency	Percent (%)
Illiterate	67	19.2
Primary	66	18.9
Secondary	129	37.0
College	87	24.9
Total	349	100.0

Table 7: Herbal therapy utilization for DM among the participants

Herbal therapy for DM	Frequency	Percent (%)
Yes	194	55.6
No	155	44.4
Total	349	100.0

Table 8: Attitudes of herbal therapy users toward the effects of the herbs on their disease status.

Attitude toward herbal therapy	Frequency	Percent (%)
Don't use herbals	155	44.4
Yes used herbals and feel good	188	53.9
Use herbals and don't feel that they help	6	1.7
Total	349	100.0

Table 9: Types of herbs used by the patients.

Herb	Frequency	Percent
Fenugreek	169	87
Sage + Berries	13	25
Aloe vera juice	27	14
Nigella seeds	89	46
Olive leaves	11	6
Garlic onion bulbs	9	5

Table10: Place of living of diabetic patients using herbal medications.

Place of living	Herbal therapy for DM		Total
	Yes	No	
Village	51	44	95
City	124	91	215
Camp	20	19	39
Total	195	154	349

Table11: Monthly income (JD) of diabetic patients using herbal medications.

Monthly income	Herbal therapy for DM		Total
	Yes	NO	
100-199	78	70	148
200-299	47	30	77
300-399	53	38	91
400-499	16	9	25
More than 500JD	1	7	8
Total	195	154	349

DISCUSSION:

In this study we shed some lights on the utilization of native medicinal herbs such as Fenugreek seeds, Aloe Vera, Ginseng roots, Garlic and Onion among diabetic patients. Our findings regarding the distribution of DM were in accordance with those reported by the Palestinian Ministry of Health in its annual report [(1)]. The majority of the patients in our study reported that they found herbal therapy effective in controlling their blood glucose level. Most patients reported that they use herbal therapy along with medical treatment and don't replace medical regimens with herbal treatment; and they thought that such approaches are less likely to have side effects and offer a better control of glucose level. Our study also shows that there is a strong association between poverty and the use of herbal medicine which can be explained by the fact that current medical treatment for management of diabetes is expensive or unavailable through medical insurance or governmental pharmacies. On the other hand, patients with high income show the least interest in herbal utilization. Due to unexplainable reasons we found the highest prevalence of herbal utilization among diabetics who are living in cities especially Jenin area where we found the highest number of diabetic patients who use herbs to improve their glycemic control. Our data also reveals that there is a significant correlation between level of education and herbal drug utilization with the highest utilization seen among patients with low level education.

The clinical efficacy of the herbs commonly utilized by the diabetic patients has been scientifically published for some of them. Fenugreek (*Trigonella foenum graecum*) is found by clinical studies to be effective in reducing fasting and postprandial blood levels of glucose, cholesterol and triglycerides [(6-8)]. At least 50% of seeds are fiber called mucilage and may constitute another potential mechanism of fenugreek's beneficial effects in diabetic patients [(12)]. Garlic (*Allium sativum*) and Onion (*Allium cepa*) are another herbs used by patients for the treatment of diabetes. Preliminary studies involving garlic have shown improved diabetic control. Upon administration of S-allyl cysteine sulfoxide, a sulfur containing amino acid of garlic, to diabetic rats, it is found that their condition is improved [(9)]. The only study identified using humans was double blind randomized trial of twenty patients with type II diabetes mellitus performed in Thailand, found that garlic was no better than placebo [(13)]. Onion is also used for diabetes, since it is found to contain the compound quercetin, which has been shown to help in eye problem such as diabetic retinopathy [(12)]. Onion also contains allyl propyl disulfide, that is responsible for the hypoglycemic properties of this plant. Reported mechanisms of Allium species include increased secretion or decrease degradation of insulin[10]. *Aloe vera* is found to be used by 14% of herbal users. Preliminary studies suggest that oral administration of Aloe juice may help reduce fasting blood glucose and triglycerides in people with type II diabetes. Theoretical mechanism includes stimulating synthesis and / or release of insulin from beta – cells of Langerhans[11]. Regarding Nigella seeds that is found to be used by 46% of Palestinian herbal users, little evidence from literature is found supporting its efficacy for diabetes mellitus. Although further studies are needed to fully assess the safety and effectiveness of these herbs in the treatment of diabetes, it seems possible that herbs may prove to be useful when used as adjunct to conventional therapy of diabetes. However; the excess use of some of herbs may be damaging such as Termis (*Lupinus albus*) which contains toxic alkaloids, although it is found to be effective in restoring blood glucose level among diabetic rats [14].

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استبيان لمرضى السكري

هذا الاستبيان لأغراض بحثية أكاديمية

وستعامل جميع البيانات الشخصية بسرية تامة.

س1) الجنس 1. ذكر 2. أنثى

س2) العمر بالسنوات ---------

س3) مستوى التعليم 1. أمي 2. اقل من ثانوي 3. ثانوي 4. عالي

س4) مكان السكن 1. قرية 2. مدينة 3. مخيم

س5) مستوى الدخل الشهري بالدينار الأردني 1. 100-199 2. 200-299

3. 300-399 4. 400-499 5. 500 فأكثر

س6) هل تعاني من أمراض أخرى بالإضافة لمرضى السكري 1. نعم 2. لا ، إذا نعم هل هي:

1. ارتفاع ضغط الدم 2. أمراض القلب 3. أمراض أخرى

س7) المدة التي تعاني منها مرضى السكري:

1. أقل من سنة 2. من 2-5 سنوات 3. من 5-10 سنوات 4. أكثر من 10 سنوات

س8) الأدوية التي تستخدمها لمرضى السكري:

1. نوع واحد من الحبوب 2. نوعان من الحبوب 3. حبوب + ابر 4. ابر فقط 5. لا أدوية

6. غير ذلك (اذكرها ....)

1. ما هو الشكل الذي يتم تناول أي مما سبق ذكره (بودرة ،منقوع ،مستخلص ،أشكال أخرى اذكر..................

س9) هل لديك تأمين صحي من أي نوع

1. نعم 2. لا

س10) كيف تحصل على أدوية السكري

1. من صيدلية خاصة 2. من مستشفى (مستشفى الوكالة)

3. من الصحة 4. غير ذلك اذكرها ....

س11) هل تتناول مستحضرات نباتية لعلاج السكري

1. نعم 2. لا

س12) إذا كان نعم: ما هي:

1. بذور الحلبة 2. أوراق حرجية مع أوراق التوت 3. الصبر 4. بذور الحبة السوداء

5. أوراق الزيتون 6. أخرى: اذكرها ....

س13) هل تستخدم المستحضرات النباتية بالإضافة إلى الأدوية:

1. نعم 2. لا

س14) إذا كانت الإجابة نعم كيف تحصل عن هذه المستحضرات النباتية من:

1. العطارة 2. من متخصص الطب الشعبي 3. احضرها بنفسي من الطبيعة 4. من الصيدلية

س15) هل تراقب مستوى السكر في الدم مع استعمال المستحضرات النباتية؟

1. نعم 2. لا

س16) إذا كانت الإجابة بنعم هل تبين أن المستحضر (المستحضرات) النباتية ساعدت على انخفاض مستوى السكر؟

1. نعم 2. لا

س17) هل لديك معلومات عن النباتات المستخدمة لمرضى السكري؟

1. نعم 2. لا

س 18) إذا كانت الإجابة بنعم أذكر المصادر.

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