

Short Reports

Use of complementary and alternative medicine by patients with diabetes mellitus

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ABSTRACT

Background. A wide variety of alternative medicines have been traditionally used for the treatment of diabetes in India. We did a cross-sectional study to assess the use of complementary and alternative medicine by patients with diabetes attending our outpatient department.

Methods. Four hundred and ninety-three patients attending the outpatient endocrine clinic for allopathic treatment were included. They were interviewed to assess their knowledge, awareness and methods of practice of non-allopathic forms of therapy. Information on the patients' background characteristics, family history of disease, existing knowledge of their disease and therapy was obtained.

Results. The user rate of complementary and alternative medicine was 67.8% and this was not significantly associated with the educational or socioeconomic status of the patients. Desire for early and maximum benefit was the most common reason (86.8%) for using these remedies. The patients felt that acupressure followed by naturopathy were the most beneficial alternative therapies, while homeopathy was felt to have the least benefit in the control of diabetes.

Conclusion. There was widespread use of complementary and alternative systems of medicine by our patients. It is therefore necessary to obtain objective data to assess the improvement in blood sugar level with, and side-effects of, these methods of treatment.

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INTRODUCTION

India leads the world in the number of patients with diabetes, with an estimated 19.4 million individuals affected by the disease. This number is expected to increase to 57.2 million by 2025.¹ Before the introduction of the therapeutic use of insulin, diet was the main form of treatment for the disease and included the use of traditional medicines mainly derived from plants.²

Ancient Indian physicians such as Sushruta and Charaka knew about the importance of diet and exercise in the control of diabetes. However, not much is known about the origin or prevalence of alternative forms of therapy for this disease during ancient times.

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Complementary and alternative medicine (CAM) is generally neither taught nor practised in regular allopathic hospitals.

Even today, about 80% of the population in developing countries depends on traditional medicine, a fact that resulted in a WHO recommendation to include traditional medicine at the primary healthcare level in these countries. Many of these traditional medicines are from plant sources that do not form the constituents of our normal diet. Among these are herbs, spices, vegetables and fruits. A few vegetables that are commonly consumed in India and have been claimed to lower the blood sugar level include bitter melon (*Momordica charantia*), ivy gourd (*Coccinia indica*) and cabbage (*Brassica oleracea*). We aimed to assess the awareness and pattern of use of CAM among patients with diabetes taking allopathic treatment at our hospital. We also enquired about their reasons for using CAM.

METHODS

The study was conducted during 1999–2001 and patients with diabetes attending the outpatient endocrine clinic were selected by systematic random sampling so as to have a spread of cases over the entire study period.

The majority of patients volunteered to participate in the study. All ethical issues were discussed with the patients in detail. Those who did not give consent were excluded. The average attendance in our endocrine outpatient clinic was about 8000 patients per year.

On the basis of a pilot survey, it was decided to include about 70% CAM users and an optimum sample size of 464 cases was calculated for 90% confidence levels. All the selected patients were interviewed for their knowledge, awareness and practice (KAP) of alternative therapies other than allopathic treatment. Information on their background characteristics, family history of disease, awareness and pattern of use of CAM, source of knowledge, benefit perceived, etc. was collected on a pre-designed and pre-tested proforma.

RESULTS

We included 493 patients, of whom 32.7% were in the age group of 41–50 years (mean [SD] age 48.8 [12.6] years), belonged to the service class (35.5%) representing all socioeconomic groups (75.6% middle–low group; Table I). Of these, 352 (71.4%) were aware of CAM and 334 (67.8%) were using CAM (Table I).

The use of CAM was not significantly associated ($p > 0.1$) with age or socioeconomic status. The desire for early and maximum benefit was the most common reason for using CAM (290 [86.8%]). Acupressure (66.7%) followed by naturopathy (39.4%) appeared to be the preferred alternative therapies (Table II). Those preferring naturopathy used a wide variety of substances (Table III).

About half the patients (168 [50.3%]) were keen to advise others to use CAM. Friends (37.4%) and doctors (23.3%) were the two most common sources of knowledge regarding CAM. In 157 patients (47%), alternative therapy along with allopathy, diet control and exercise was adopted, while 81 patients (24.7%) used only alternative therapies.

Table IV shows the use of different methods and the perceived benefit reported by the patients. The maximum benefit was perceived in the group using CAM along with diet and exercise, while the minimum benefit was felt in the group using CAM alone.

TABLE I. Characteristics of the patients (n=493)

Characteristic	Users (%)	Non-users (%)	Total (%)
<i>Age in years</i>			
£20	7 (77.7)	2 (22.3)	9 (1.8)
21-30	17 (58.6)	12 (41.4)	29 (5.9)
31-40	37 (74.0)	13 (26.0)	50 (10.1)
41-50	105 (65.2)	56 (34.8)	161 (32.7)
51-60	88 (68.2)	41 (31.8)	129 (26.2)
>60	80 (69.5)	35 (30.5)	115 (23.3)
<i>Occupation</i>			
Agriculture			53 (10.8)
Labourer			7 (1.4)
Skilled worker			7 (1.4)
Business			126 (25.6)
Service			175 (35.5)
Others			125 (25.3)
<i>Educational status</i>			
Illiterate			98 (19.9)
Primary/middle			136 (27.6)
High school/intermediate			146 (29.6)
Graduate and above			100 (20.3)
Other qualification			13 (2.6)
<i>Socioeconomic status</i>			
Low	122 (62.2)	74 (37.8)	196 (39.8)
Middle	127 (72.5)	48 (37.5)	175 (35.5)
High	85 (69.7)	37 (30.3)	122 (24.7)
<i>Type of food</i>			
Vegetarian			314 (63.7)
Non-vegetarian			179 (36.3)
<i>Marital status</i>			
Married			467 (94.7)
Unmarried			26 (5.3)

DISCUSSION

In our study, 67.8% of the patients used CAM and 57.8% felt they had benefited from it. The patients had used practically every conceivable herb and fruit, starting from bitter gourd to bamboo shoots. This perceived benefit needs to be investigated.

The patients covered all ages and socioeconomic groups. The use of CAM was universal among all ages and socioeconomic groups, and was not related to educational status. The maximal perceived improvement in disease control was with the use of acupressure. It would be tempting to attribute this to the fact that most patients report benefit, at least temporarily, from a procedure. The majority of patients used naturopathy and did not complain of side-effects. On the other hand, homeopathy was felt to have the minimum benefit in diabetes control. This is an important finding and needs to be investigated further. Vaidya *et al.* have reported similar findings in their study.³

About one-third of users of CAM (31.4%) felt that their blood sugar levels had decreased. These results too need to be objec-

TABLE II. Benefit and desire for imparting advice on different alternative therapies*

Therapy	Users (n=334)	Total satisfied n (%)	Keen to give advice n (%)
Naturopathy	325	146 (44.9)	128 (39.4)
Ayurveda	54	24 (44.4)	19 (35.2)
Homeopathy	43	14 (32.5)	10 (13.2)
Acupressure	9	5 (55.5)	6 (66.7)
Others	10	4 (40.0)	5 (50.0)

* Some patients were using more than one therapy

TABLE III. Substances used in naturopathy

Natural substances	n (%)	Natural substances	n (%)
Fruits			
<i>Jamun</i> (<i>Eugenia jambolamum</i>)	167 (51.4)	Roots/herbs	
<i>Jamun seed</i>	113 (34.8)	<i>Sadabahar leaf</i> (<i>Catharantus soseus</i>)	11 (3.4)
<i>Bel leaf</i> (<i>Aegle marmelas</i>)	32 (9.8)	<i>Shilajeet</i>	9 (2.8)
<i>Bel leaf</i>	69 (21.2)	<i>Trifla</i> (a preparation containing extracts of <i>Emblica officinalis</i> , <i>Terminalia chebula</i> and <i>Terminalia bellerica</i>)	14 (4.3)
<i>Amla</i> (<i>Emblica officinalis</i>)	49 (15.1)	<i>Bougainvillea</i>	7 (2.1)
Others	7 (2.1)	Other	13 (4.0)
Vegetables/seeds			
Bitter gourd (<i>Momordica tricolor</i>)	285 (87.7)	Plant extract	
<i>Fenugreek</i> (<i>Trigonella foenumgraecum</i>)	232 (71.4)	<i>Neem leaf</i>	115 (35.4)
<i>Kalonji</i> (<i>Nigela sativa</i>)	13 (4.0)	<i>Nimoli</i> (fruit of <i>neem tree</i>)	16 (4.9)
<i>Black gram</i> (<i>Phaseolus radiatus</i>)	232 (71.4)	<i>Bamboo stem</i> (<i>Bambusa species</i>)	34 (10.5)
<i>Chowlai/ramdana</i> (<i>Amoradica tricolor</i>)	70 (21.5)	<i>Arjun bark</i> (<i>Terminalia arjuns</i>)	19 (5.8)
<i>Bajara</i> (<i>Pennisetum typhoidus</i>)	39 (12.0)	<i>Babool bark</i> (<i>Acacia nilatica</i>)	5 (1.5)
<i>Barley</i> (<i>Hordeum vulgare</i>)	53 (16.3)	<i>Cotton seed</i> (<i>Gossypium species</i>)	6 (1.8)
		<i>Gold bhasm</i>	5 (1.5)
		Others	
		<i>Ayurvedic powder</i>	27 (8.3)
		Other	2 (0.6)

tively verified with blood sugar results before and after starting CAM. A bias towards the efficacy of CAM in lowering blood sugar cannot be ruled out.

Interestingly, most patients preferred to take advice regarding possible CAM treatment from their friends and family, especially those who had diabetes. This could be due to the fact that most allopathic medical practitioners either discouraged CAM or were unaware of its benefits. The inability to communicate in the patients' language or lack of counselling time may have had a role to play. In an earlier study, we reported the abysmal level of knowledge regarding diabetes not only in patients but also caregivers in this region.⁴

Of those adopting naturopathy, 87.7% used bitter gourd followed by fenugreek (*Trigonella foenumgraecum*) and *jamun* (*Eugenia jambolamum*). In the management of diabetes, earlier workers have demonstrated an improvement in glucose tolerance with bitter gourd (*Momordica tricolor*) and *vijaysar* (*Pterocarpus marsupium*).⁵

Many antidiabetic products of herbal origin are now available in the market. Karunanayake *et al.* studied the effect of bitter gourd on glucose and insulin concentration in 9 non-insulin dependent diabetic and 6 non-diabetic rats, and found a significant reduction in blood glucose concentration in the bitter gourd-fed rats. They

TABLE IV. Patient perception of benefit from alternative therapy

Therapy	n	Perception of decrease in blood sugar n (%)
Only alternative therapy	81	20 (24.7)
Alternative therapy and allopathy	75	16 (21.3)
Alternative therapy with diet control and exercise	21	12 (57.1)
Alternative therapy, allopathy, diet control and exercise	157	57 (36.3)
Total	334	105 (31.4)

did not observe a hypoglycaemic effect of *Momordica charantia* extract in rats with streptozotocin-induced diabetes.⁶

In his study, Chacko surveyed patients with type 2 diabetes in an urban population in Kerala and found that the participants relied on allopathic medicines for treating diabetes, but frequently used Ayurvedic medicine and folk herbal remedies as supplements. They named 24 local plants and plant products that were employed to lower blood glucose levels.⁷

CAM is associated with certain inherent problems such as lack of a regulatory body for CAM drugs and associated practices. The high user rates found by us suggest that it is imperative for health administrators to frame a policy for CAM. There has also been an increasing interest in the use of CAM in developed countries.^{8,9}

Conclusion

Neither blanket contempt for nor blind faith in CAM is an ideal approach. The urgency to determine the efficacy of CAM cannot be overemphasized, given the alacrity with which scientists all over the world are keen to patent traditional Indian remedies such as *neem* (*Azadirachta indica*) or turmeric (*Curcuma longa*) for a wide variety of diseases. Traditional remedies should be carefully evaluated and only then used as an adjunct to, if not the mainstay of, drug therapy for diabetes.

A literature search did not reveal any systematic review of the prevalence and efficacy of various complementary medicines. As our results reflect the practices of patients with diabetes who

approached the hospital for allopathic treatment, a wider spectrum of patients may help in assessing the usage pattern of CAM. This would have to be done by a multi-institutional, collaborative study. The potential benefits of such a study could be a more detailed understanding of the use of these therapies and identification of promising candidate drugs for further investigation.

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