



Original article

The prevalence, awareness and potential of complementary alternative medicine in type 2 diabetics living in Madurai, India

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Abstract

Introduction: The use of complementary alternative medicine (CAM) is increasing, especially among patients with diabetes mellitus. The aim of this study was to investigate the prevalence, awareness and potential effects of CAM use amongst patients with type 2 diabetes (T2D).

Methods: A total of 357 healthy and T2D patients were enrolled in a cross-sectional study. Blood pressure was measured and Hb_{A1c}, glucose levels in blood and urine were analyzed.

Results: The prevalence of CAM usage was 45.4% among the diabetes patients. Of the study population, 91.3% were aware of CAM and reported using both biological and mind body based practices compared to those using CAM as whole medical system. Family members were the major reason patients chose CAM (55.6%) and 54.9% of the CAM users reported their satisfaction with results. Better glycemic control was observed in CAM users ($p < 0.01$) when compared to non-CAM users.

Conclusion: The present study suggests that CAM may play a role in improving glycemic control for T2D and recommends further in depth studies among T2D patients which may help to improve their health outcomes.

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Keywords: Type 2 diabetes; Complementary alternative medicine; Prevalence; Biochemical parameters

Introduction

Diabetes is a rising global health problem and affects people of all ages. According to WHO, the global prevalence of diabetes among adults was estimated to be 9% [1]. Over the past 35 years, the status of diabetes has changed from being considered as a mild disorder of the elderly to one of the major causes of morbidity and mortality affecting the youth and middle aged people [2]. The overall prevalence of diabetes is predicted to double from 171 million to 366 million globally by 2030 with a maximum increase in India [3,4]. Currently India is facing an uncertain future in relation to the potential burden that diabetes may impose upon the country. Different forms of therapies such as oral medication and insulin are available to manage type 2

diabetes (T2D) [5]. Despite their beneficial effects, these drugs often exhibits side effects, viz., weight gain, weakness, stomach bloating, diarrhea and lactic acidosis in a patient with abnormal kidney or liver [6,7], thus encouraging the development of more efficient and safe alternative diabetic medicines. Patients are now trying different alternatives for treatment in order to use a more holistic approach to treat their diabetes. Furthermore, a recent literature review found that the usage of CAM use among people living with diabetes ranges from 17% to 73% [8]. Various reports have illustrated the increased prevalence of CAM use in different population around the world including USA (72%) [9], India (67.7%) [10], Taiwan (61%) [11] and Turkey (41%) [12]. Based on the evidence from extensive research, 70.1% of T2D patients in Tamil Nadu, India [13] have been found to use CAM, however in Sivaganga and Madurai District, Tamil Nadu people are still not convinced about its usage. Our previous study identified that the prevalence of alternative medicine among diabetic patients in the Sivaganga district was 48% [14]. Following on from this

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Table 1
Demographic characteristics of study population by CAM use.

Socio-demographic profile	Using CAM (<i>n</i> = 162) %	No CAM Use (<i>n</i> = 90) %	Total (<i>n</i> = 252) %	Significance level
General				
Female	61.1	36.7	52.4	NS
Male	49.4	44.5	47.6	
Age distribution				
30–39	12.4	42.2	23.0	***
40–49	14.2	50.0	26.9	
50–59	24.7	6.7	18.3	
60–69	23.5	13.4	19.8	
70 and above	17.3	2.0	11.9	
Educational status				
Illiterate	55.6	18.9	42.5	**
Matriculate	60.5	13.3	43.6	
Graduate	12.3	16.7	13.9	
Diabetes specific data				
Body mass index				
Below 25 (Normal)	42.6	22.2	35.3	**
25–30 (overweight)	61.7	42.2	54.8	
30–40 (obese)	6.2	11.1	7.9	
40 and above	1.9	2.2	1.9	
Family history				
Yes	60.5	76.7	66.3	NS
No	23.5	3.3	16.3	
Do not know	12.3	26.7	17.5	
Duration of diabetes				
<1 year	17.9	23.3	19.8	***
2–5 years	16.0	21.1	17.8	
6–10 years	40.1	30.0	36.5	
11 years or more	25.9	25.6	25.8	
Clinical visit frequency				
≤Monthly	44.4	50.0	46.4	***
>Monthly	61.1	40.0	53.6	
Complication				
Yes	67.9	51.1	61.9	NS
No	41.9	31.1	38.1	
Regular blood sugar monitoring				
Yes	60.5	43.3	54.4	NS
No	49.4	38.9	45.6	

** $p < 0.01$.

*** $p < 0.001$.

study, we aimed to investigate the potential relationship between CAM use and glycemetic control.

Methodology

A cross-sectional study was conducted over a period of 8 months (February, 2013 to September, 2013). A total of 357 subjects were randomly selected from attendees at a Diabetes Health camp conducted by VS micro lab, Madurai. The size of the sample selected for the study was based on the protocol described by Cochran [15]. The study was approved by the institutional ethical committee of Alagappa University (IEC Ref No: IEC/AU/2013/2). The selected subjects were grouped into 3 categories; (a) T2D CAM user ($n = 162$, these subjects were those who had adopted one of the three categories of CAM therapy for their diabetes as whole medical systems, biological and mind body practices); (b) T2D non-CAM user ($n = 90$, these

subjects did not report CAM use) and (c) healthy individuals ($n = 105$). The WHO criteria for confirming a diagnosis of T2D were applied to select T2D patients; (a) a random venous plasma glucose concentration ≥ 11.1 mmol/l or (b) a fasting plasma glucose concentration ≥ 7.0 mmol/l (whole blood ≥ 6.1 mmol/l) or (c) 2 h plasma glucose concentration ≥ 11.1 mmol/l 2 h after 75 g anhydrous glucose in an oral glucose tolerance test (OGTT) [16]. The healthy controls were selected based on the result of biochemical tests.

Questions used for patient's selection were based on the reports of previous studies [14]. Blood samples were collected from all the subjects and fasting and postprandial blood glucose, glycated hemoglobin (Hb_{A1c}), and blood pressure [17–19] were determined. Urine was also collected and glucose levels determined. All data were analyzed using SPSS Version 11 (IL, USA). Quantitative data were reported as means \pm SDs. Chi square and *t* test were used to determine the statistical significance of

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