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CLINICAL OUTCOMES IN HYPERTENSIVE OR DIABETES PATIENTS WHO CONCOMITANTLY USE COMPLEMENTARY MEDICINES IN LAGOS, NIGERIA

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ABSTRACT

Background: The use of complementary medicines in addition to medical prescription by patients with hypertension, diabetes and other chronic diseases presents a challenge for healthcare providers in Nigeria and globally. There is very little data on the clinical outcomes in these patients.

Objectives: To evaluate clinical outcomes in hypertensive or diabetic patients who use complimentary medicines in Lagos Nigeria.

Design: Observational cross-sectional study.

Setting: Lagos University Teaching Hospital Medical Outpatient Clinics.

Subjects: Five hundred patients attending Lagos University Teaching Hospital Medical out-patient clinics with a diagnosis of diabetes mellitus or hypertension or diabetic hypertensive were studied.

Main outcome measures: The effect of complementary medicines use on blood pressure and blood glucose control were evaluated.

Results: The mean arterial blood pressure of non-users of complementary medicine was 115.329 mmHg and that of users was 105.138mmHg. Also the mean fasting blood sugar of non-users was 129.515mg/dl and that of users was 131.453mg/dl. ($P>0.05$).

Conclusion: Although not statistically significant, complimentary medicines were found to be of advantage to hypertensive patients but not diabetic patients.

INTRODUCTION

Non-communicable chronic including hypertension and diabetes are becoming a major problem in low- and middle-income countries (1). Over 80% of deaths worldwide from cardiovascular diseases occur in low- and middle-income countries (2). Hypertension and diabetes are important risk factors for cardiovascular disease and persons with hypertension, are more likely to develop type 2 diabetes (3-5). Because these chronic diseases cannot be cured completely and cause life threatening acute and chronic complications individuals with chronic diseases often seek help from sources other than conventional medicine (6,7). There has been a great deal of interest recently in the role of complementary and alternative medicines for the treatment of various acute and chronic diseases (8).

Complementary and alternative medicines (CAM) refer to practices that are not integral parts of conventional or orthodox medicine, and are consequently not taught as part of the medical education curriculum (9). A significant proportion of patients attending our tertiary facilities and receiving conventional treatment also use CAM therapies (10). Prevalence rates as high as 83.3% have been reported (11). The known determinants of CAM use include sociodemographic and patient characteristics such as age, gender, education level, illness, and illness duration (12).

The safety and efficacy of complimentary medicines have not been established in the studies that have been done over the years. In Nigeria use of unprescribed drugs and herbal medicines were aetiologically responsible for acute kidney insult in 7%-9% of cases (13). Lack of efficacy, results in

complications as compliance to conventional therapy may not be optimal. Clinical outcome studies of complementary medicine use in diabetes and hypertension are scarce. However there appears to be a growing utilisation of complementary medicine therapies. Therefore studies on clinical outcomes of treatment are required to determine the impact of complementary therapies on disease outcome. In the present study, we investigated the clinical outcomes of treatment among patients with diabetes and hypertension attending Lagos University Teaching Hospital Medical outpatient clinic.

MATERIALS AND METHODS

Study Population: The study population consisted of 500 patients (250 diabetic and 250 hypertensive) who attended the medical outpatient clinic of the Lagos University Teaching Hospital over a period of three months.

Data Collection: Data from this cross-sectional observational study was collected using a structured questionnaire which had questions on patients

biodata including name weight, height, other information about the nature of disease, source of information on complimentary medicines and use of complementary medicines, duration and type of complementary medicine use, clinical outcomes and perceived benefits of complementary medicine use.. Blood pressure and blood sugar values at the time of visit were obtained from case notes. Those who could not complete the questionnaires were interviewed and assisted to complete the questionnaires. All subjects gave informed consent before the questionnaires were administered.

Statistical Analysis: Mean values (Mean \pm SD) were compared by analysis of covariance. P values < 0.05 were considered significant. Data was presented as figures and tables.

RESULTS

A total of 500 subjects were studied. Figure 1 shows frequency distribution of the disease while table 1 shows age and weight of study subjects.

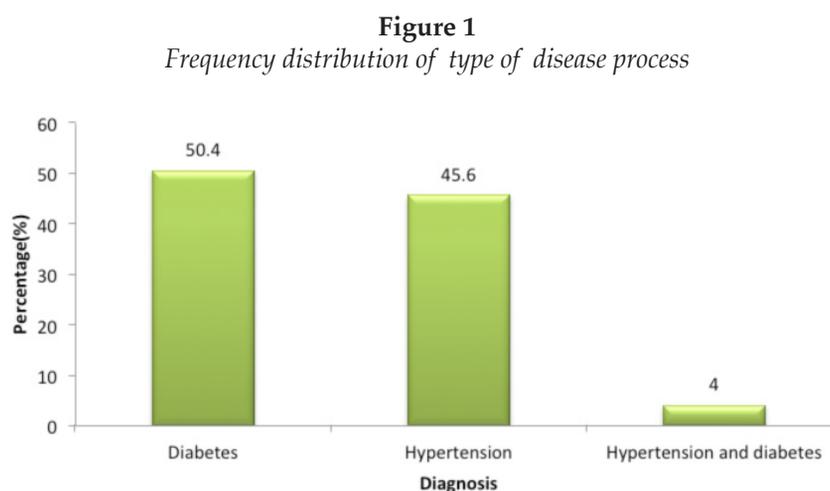


Table 1
Frequency distribution of age

AGE	frequency	percent %
10 years -29 years	22	4
30 years-49 years	280	56
50 years to 79 years	198	40
Total	500	100%
WEIGHT (KG)	frequency	percent %
45-59	45	9
60-79	415	83
80-110	40	8
Total	500	100%

Figure 2 shows knowledge and use of complementary medicines. Sixty four percent of the subjects have heard of and also used complimentary medicines and thirty six percent have not heard of or used complementary medicines. Majority of the subjects 53% got their information from other patients. Figures 3 and 4 shows sources of information about

complementary medicines and duration of use of complementary medicines respectively. Fifty percent of the subjects have used complementary medicine for one to five years while less than one percent have used it for 31-35 years. The commonly used complementary medicine by respondents is ginger (Table 2)

Figure 2
Knowledge and use of complimentary medicines

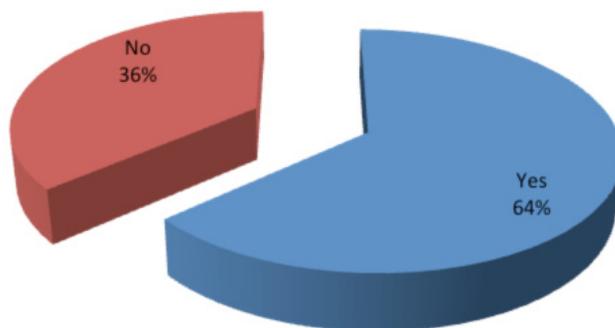


Figure 3
Sources of information about complementary medicines

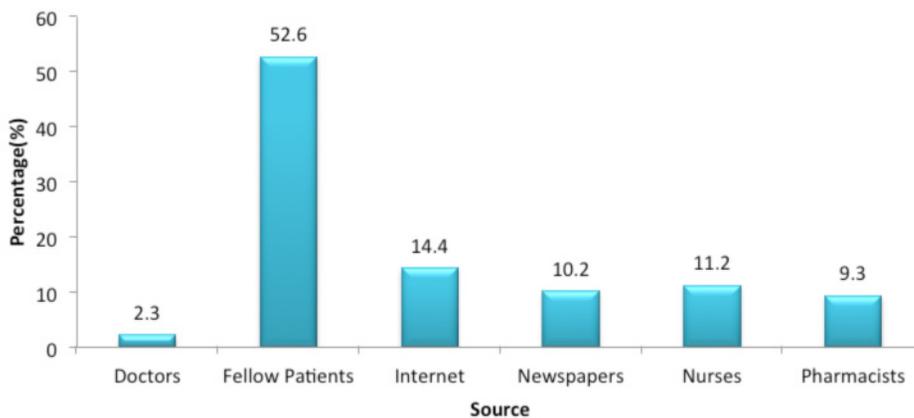


Figure 4
Duration of use of complementary drugs

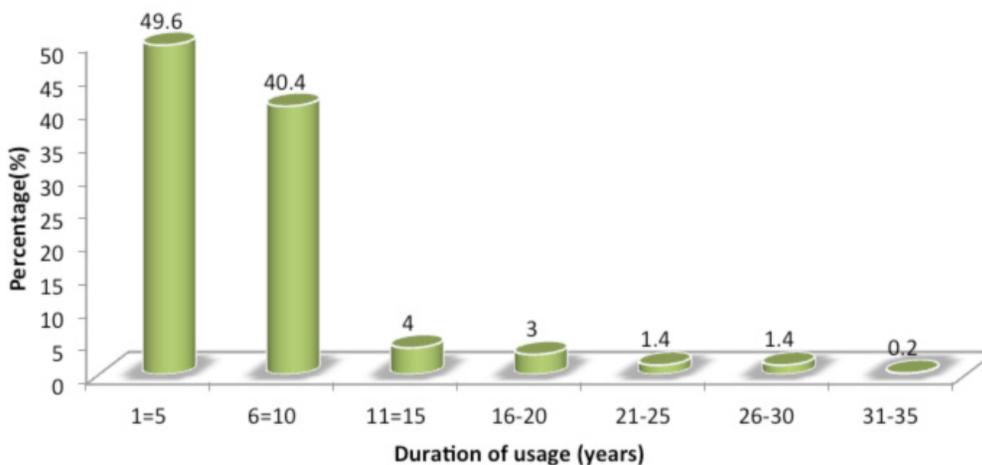


Table 2
Frequency distribution of type of complimentary medicines

Complementary medicines used	Frequency	% Cumulative
Cinnamon	1	0.3
Cardiotonic pill	14	4.6
Forever living products	30	9.8
Garlic	17	5.5
Ginger	52	16.9
GNLD products	22	7.2
Honey	21	6.8
Morindacitrofolia (Noni juice)	48	15.6
Mormodicacharantia	21	6.8
Neem tree	32	10.4
Onion	43	14
Phyllanthusamarus	6	2
Total	307	100%

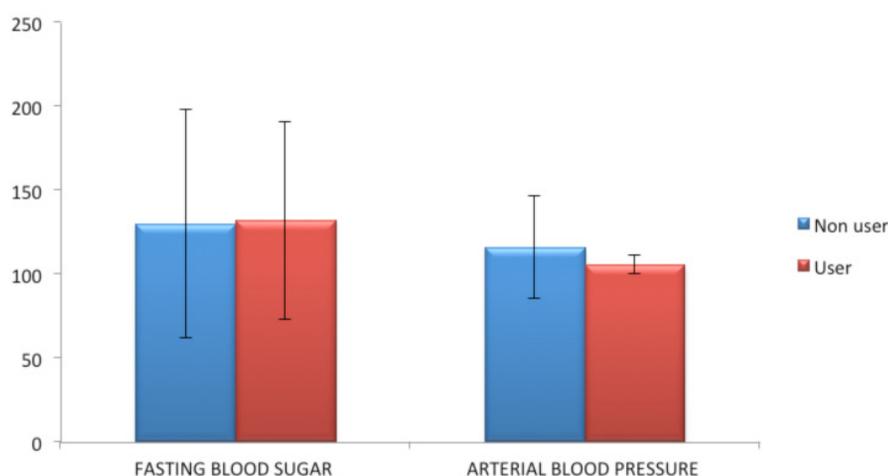
Table 3 shows the percentage of patients who perceived some benefit from use of complementary medicines.

Table 3
Perceived benefits from complementary medicines

Benefit	Frequency	Percentage
Yes	261	85
No	13	4.2
Not sure	33	10.8
Total	307	100%

The mean arterial blood pressure of users was 105.138mmHg while the mean arterial blood pressure of non-users was 115.329 mmHg, giving us a difference of 10.191mmHg. hence the arterial blood in users of complimentary medicines is lowered. There was no difference in the mean fasting blood sugar of non-users and users of complementary medicines.

Figure 5
Mean arterial blood pressure and mean of fasting blood sugar in users and non users



DISCUSSION

The results of this study adds to existing data that shows that the use of complementary medicines is on the increase globally and confirms like in other studies a high usage of complimentary medicines by patients (14,15). This study found that about 64% of the patients know about and use complimentary medicines. This is similar other reports which reported that as many as 63.9% of their hypertensive subjects in a clinic in India took herbal medicines, while in Morocco 80% of patients with hypertension and diabetes used medicinal plants to treat their ailments (16,17).

Although not statistically significant this study found better blood pressure control amongst complimentary medicines users and no difference in blood sugar control between users and non users of complimentary medicine. Similar and conflicting data has been reported previously in which thousands of plants are attributed with glucose-lowering effects (18) and some has not been shown to improve glucose control and may even be harmful in individuals with diabetes (19).

The possible reasons for these differences include heterogeneity of CAM practices (20). The types of complimentary medicines used in this and other studies may differ and may not be available in this locality. Some complimentary medicines have been studied and evidence of efficacy documented. Examples include *Gymnema sylvestre* (*gymenama*) (21), *Momordica charantia* (*bitter melo*) (22,23), *Opuntia streptacantha* (*prickly Pear cactus, nopal*) (24), *Panax ginseng*, *P. quiquefolius* (*ginseng*) (25), *Trigonella foenum graecum* (*fenugreek*) (26). In this study Cinnamon, Cardiotonic pill, Forever living products, Garlic, Ginger, GNLD products, Honey, *Morindacitrofolia* (*Noni juice*), *Mormodicacharantia*, *Neem tree*, *Onion*, *Phyllanthusamarus* were more common. *Momordica charantia* (*bitter melon*) a tropical vegetable, grown in Africa, Asia, and South America, is known as bitter melon, or "vegetable insulin". It is one of the complementary medicines used by the patients in this study. It may reduce blood glucose in patients with diabetes (22). Although most clinical trials of bitter melon among patients with diabetes have lacked adequate design to determine clinical effectiveness, potential mechanisms of action for bitter melon are decreased hepatic glucose production, increased hepatic glycogen synthesis and insulin-mimetic activity (23). The use of different nutritional, lifestyle modifications and compliance with orthodox medicines by the patients in this and other studies could be responsible for differences in outcome between studies. In this study a large majority of patients (85%) claimed to have benefits from the use of complimentary medicines. Because of the Long-term

management of hypertension and diabetes, diseases whose management may be lifelong, patients may choose to use complimentary medicines to achieve additional outcomes and studies have shown that people use CAM to explore the potential benefits and feel that they would achieve a permanent cure of hypertension from complimentary medicine (27,28). The use of CAM is grounded on culture, knowledge, beliefs, experience and the advice of family and friends. Illness duration is a known determinants of CAM use along with sociodemographic, age, gender and education level (12). In this study very few patients got information on complimentary medicines from their doctors. It is important that doctors and health care provides treating patients with hypertension and diabetes should identify patients who use complementary therapy. It is important they counsel these patients to adhere to and comply with conventional treatments. This will also help monitor, and identify adverse drug reactions and drug – complimentary medicine interactions.

The World Health Organisation (WHO) encourages member states to integrate traditional and CAM therapy into national health care systems and ensure their rational use (29). This recommendation may be difficult to achieve because of absence of regulation and a comprehensive policy on use of complementary medicines in Nigeria. Establishment of independent regulatory, quality and standardization system would ensure integration into existing health systems.

There were some limitations in this study. The study did not document and evaluate concomitant use, adherence and compliance to orthodox and conventional antidiabetic/antihypertensive drugs. This and use or non-use of other nutritional and lifestyle modification measures could affect the observed findings. Long term control of diabetes with evaluation of changes in HbA1c values were not done because of the short duration of the studies. In diabetes mellitus, higher amounts of glycated haemoglobin, indicating poorer control of blood glucose levels, have been associated with cardiovascular disease, nephropathy, and retinopathy. Monitoring HbA1c in type 2 diabetic patients may improve outcomes³⁰ Future larger studies are recommended to assess efficacy, safety, clinical benefits and effect of these complimentary medicines on overall quality of life, morbidity and mortality in individuals with hypertension and diabetes.

REFERENCES

1. Alwan A & MacLean R. A review of non-communicable disease in low- and middle-income countries. *International Health*. 2009; 1:3-9.
2. WHO World Health Statistics 2008. WHO, Geneva. Available at: <http://www.who.int>

3. Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL *et al.* Seventh report of the Joint National Committee on prevention, detection, evaluation, and treatment of high blood pressure. *Hypertension* 2003; **42**:1206-1252.
4. Kannel WB. Risk stratification in hypertension: new insights from the Framingham Study. *Am J Hypertension* 2000; **13**:3S-10S.
5. Gress TW, Nieto FJ, Shahar E, Wofford MR, Brancati FL. Hypertension and antihypertensive therapy as risk factors for type II diabetes mellitus. *N Engl J Med* 2000; **342**: 905-912.
6. Eliot JA, Kealey CP, Olver IN. Using complementary and alternative medicine: the perceptions of palliative patients with cancer. *J Palliat Med* 2008; **11**:58-67.
7. LeeGBW, Charm TC, Chew ZH, Ng TP. Complementary and alternative medicine use in patients with chronic diseases in primary care is associated with perceived quality of care and cultural beliefs. *Fam Pract* 2004; **21**:654-660.
8. Seeff LB, Lindsay KL, Bacon BR, Kresina TF and Hoofnagle JH. Complementary and alternative medicines in chronic liver disease. *Hepatology*, 2001; **34**:595-603.
9. Eisenberg DM, Davis RB, Ettner SL, Appel S, Wilkey S, Van Rompay M, Kessler RC: Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. *JAMA* 1998, **280**: 1569-1575.
10. Amira OC, Okubadejo NU Frequency of complementary and alternative medicine utilization in hypertensive patients attending an urban tertiary care centre in Nigeria. *BMC Complementary and Alternative Medicine* 2007, **7**:30.
11. Ernst E, Cassileth BR. The prevalence of complementary/alternative medicine in cancer: a systematic review. *Cancer* 1998; **83**:777-782.
12. Mollaoğlu M. and Acıyurt A. Use of complementary and alternative medicine among patients with chronic diseases *Acta Clin Croat*, Vol. 52, No. 2, 2013; 181-188
13. Chijioke A, Makusidi A.M. Severe Acute Kidney injury in adult Nigerians from university of Ilorin teaching hospital Ilorin, kwara state. *BOMJ*, 2011; **8**:1.
14. Eisenberg DM, Kessler RC, Foster C, Norlock FE, Calkins DR, Delbanco TL: Unconventional Medicine in the United States – Prevalence, Costs, and Patterns of Use. *N Engl J Med* 1993, **328**:246-252.
15. Fisher P, Ward A: Medicine in Europe: Complementary medicine in Europe. *BMJ* 1994; **309**:107-111.
16. Shafiq N, Gupta M, Kumari S, Pandhi P: Prevalence and pattern of use of complementary and alternative medicine (CAM) in hypertensive patients of a tertiary care center in India. *Int J Clin Pharmacol Ther* 2003, **41**: 294-298.
17. Eddouks M, Maghrani M, Lemhadri A, Ouahidi ML, Jouad H: Ethnopharmacological survey of medicinal plants used for the treatment of diabetes mellitus, hypertension and cardiac diseases in the south-east region of Morocco (Tafilalet). *J Ethnopharmacol* 2002, **82**:97-103.
18. Sikha S, Vijay KL, Kamlesh KP (2012). Polyherbal formulations based on Indian medicinal plants as antidiabetic phytotherapeutics. *Phytopharmacol.* **2**:1-15.
19. Ewins DL, Bakker K, Young MJ, Boulton AJ: Alternative medicine: potential dangers for the diabetic foot. *Diabet Med.* 1993; **10**:980-982.
20. National Institutes of Health Office of Alternative Medicine, Practice and Policy Guidelines Panel: Clinical practice guidelines in complementary and alternative medicine: an analysis of opportunities and obstacles. *Arch Fam Med* 1997; **6**:149-154.
21. Shanmugasundaram ER, Gopinath KL, Radha Shanmugasundaram K, Rajendran VM: Possible regeneration of the islets of Langerhans in streptozotocin-diabetic rats given *Gymnema sylvestre* leaf extracts. *J Ethnopharmacol*, 1990; **30**: 265-279.
22. Leung L, Birtwhistle R, Kotecha J, Hannah S, Cuthbertson S: Anti-diabetic and hypoglycaemic effects of *Momordica charantia* (bitter melon): a mini review. *Br J Nutr*, 2009; **102**: 1703-1708.
23. Ng TB, Wong CM, Li WW, Yeung HW: Insulin-like molecules in *Momordica charantia* seeds. *J Ethnopharmacol*, 1986; **15**:107-117
24. Frati-Munari AC, Gordillo BE, Altamirano P, Ariza CR: Hypoglycemic effect of *Opuntia streptacantha* Lemaire in NIDDM. *Diabetes Care*, 1988; **11**:63-66.
25. Sievenpiper JL, Arnason JT, Leiter LA, Vuksan V: Variable effects of American ginseng: a batch of American ginseng (*Panax quinquefolius* L.) with a depressed ginsenoside profile does not affect postprandial glycemia. *Eur J Clin Nutr*, 2003; **57**:243-248.
26. Yeh GY, Eisenberg DM, Kaptchuk TJ, Phillips RS: Systematic review of herbs and dietary supplements for glycemic control in diabetes. *Diabetes Care*, 2003; **26**: 1277-1294.
27. Oke DA, Bandele EO: Misconceptions of hypertension. *J Natl Med Assoc* 2004; **96**: 1221-1224.
28. Markell MS Potential benefits of complimentary medicine modalities in patients with chronic kidney disease. *Adv Chronic kidney D* 2005; **12**: 292-9.
29. World Health Organization (WHO) Traditional Medicine Strategy 2002.
30. Larsen ML, Horder M, Mogensen EF. "Effect of long-term monitoring of glycosylated haemoglobin levels in insulin-dependent diabetes mellitus". *N. Engl. J. Med.* **323**: 1021-5.