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Research paper

What do people with hypertension use to reduce blood pressure in addition to conventional medication – Is this related to adherence?

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ABSTRACT

Introduction: Patients with chronic diseases may sometimes prefer to use alternative approaches to improve their health. Such approaches may be used solely or in combination with their conventional western medication. This survey in a primary care setting aimed to evaluate dietary substances used by patients with hypertension and to explore whether there was a relationship with adherence to conventional drug treatment.

Methods: The study group was composed of 465 patients who were registered with the Family Medicine Center in the city center in the period between April 2016 and June 2016. Socio-demographic characteristics of the patients and substances they used in addition to the drugs were recorded.

Results: The dietary substances most commonly preferred were lemon, garlic, yoghourt, and combinations of these. Medication adherence among patients with hypertension was moderate to high with 72.25% of patients using their medications. Patients forgetting to take their antihypertensive medications were more likely to use these substances.

Conclusions: Patients reported high adherence to their use of conventional medication. The most important problem was "forgetting" in low adherent patients and they mainly used lemon, garlic, and yoghourt at times of sudden blood pressure elevations. Physicians should inform the patients who struggle with hypertension about the risk of nonadherence which can result in serious morbidity and possibly mortality.

1. Introduction

Hypertension is a common disease worldwide which may affect about one-third of the adult population as well as one tenth of children [1–5]. It can be effectively treated with lifestyle changes and a strong adherence to drug treatment [6]. The World Health Organization (WHO) defines treatment adherence as 'the level of adherence with recommendations concerning individual behavior, including medication, appointments, diet and lifestyle' [7]. The reason for the failure of blood pressure control is often non-adherence to drug treatment [8]. Patients using antihypertensive drugs often only continue to use them for a few months and most patients use the drugs irregularly. For about 50% of patients diagnosed with hypertension, within one year they stop using their medication and after 5 years 75% have completely stopped [9].

Alternative approaches tend to be used by people who have lost hope, especially those with chronic illnesses (e.g. diabetes mellitus, hypertension) and for diseases where there is a poor chance of recovery, such as cancer [10–14]. Such approaches are often regarded as Complementary and Alternative Medicine which is defined by WHO as 'The sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness' [15]. Harris et al. in a systematic review of 16 different countries reported that usage of alternative approaches ranges from 9.8% to 76% in the general population [16]. It has also been reported that 62% of Americans used at least one kind of complementary therapy [17].

The types of alternative approaches used may differ between different regions of the world. According to WHO's Global Atlas of Complementary and Alternative Methods use, there is a widespread use of Herbal/Traditional Medicine all over the world. Acupuncture and Chinese Medicine are more often tried in European countries, Canada and Western Pacific Region than other parts of the world, osteopathy in Western Europe and homeopathy in the whole of Europe [18]. Hijamat (wet cupping) where blood is drawn by vacuum from a small skin incision for therapeutic reasons is an application which was suggested by

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the prophet Muhammad so it is commonly used by Muslims [19].

The aim of this crossectional survey conducted in a in a primary care setting was to evaluate whether dietary substances were being used by patients currently being treated for hypertension and to explore their relationship with adherence to conventional drug treatment.

2. Methods

The Ethics Committee of the Bursa Yuksek Ihtisas Training and Research Hospital approved the study (Approval number: 2011-KAEK-25 2016/06-06). Patients were given information about the study in advance and signed a consent form. It took 10 min (average) for the participants to consider information related to the study.

This study was conducted on 465 hypertensive patients living in a settlement very close to a tertiary hospital who participated voluntarily in a survey at a Family Health Center in the city center between April 2016 and June 2016. During the study period there were 12.000 persons registered with the center and of these a total of 730 were hypertensive patients. Five hundred and seventy-eight patients with hypertension were given a prospective study admission form, followed by two questionnaires. Patients with hypertension were invited to take part in the study by phone contact and they completed the questionnaires at the Family Health Center. Patients histories including their co-morbid diseases were documented using the medical files at the Center. One hundred and thirteen patients were excluded from the survey because they did not fully answer the questions. Twenty-two patients did not want to participate in the study.

The exclusion criteria were: people younger than 18 years of age, currently pregnant or breastfeeding, having a neurological disease that could cause communication problems, mental retardation or hearing loss, inability to participate in the study, or unable to answer the questions.

There were two questionnaires, one which collected patients socio-demographic and clinical characteristics and a questionnaire which asked about their use of non-medical supplements and any alternative treatments they used for their hypertension. A list of substances commonly used by patients with hypertension (20–22) including lemon, parsley, onion, garlic, stinging nettle, moss, tomato, broccoli, sage, thyme, walnut, green tea, yoghourt, olive oil, cherry stalk, chamomile, flax seed, cabbage, quince's leaves, cumin, juniper seeds, blueberries, cinnamon, melisa, fennel seed and any other product was given to the patients. And, they were asked to answer the following question 'Have you ever used any of the following substances to improve or treat your hypertension during the last 12 months?'. In addition, the Morisky 8-Item Medication Adherence Scale was used [23], translated into Turkish and validated by Asilar et al. [24], which determined the medication adherence of patients with hypertension. For Morisky-8 scale, 1–7 items are Yes/No responses and the last item is a 5-point Likert scale. Morisky-8 scale score: 0–5 points means low medication adherence, 6–7 points means medication adherence, and 8 points means high medication adherence [23,24].

3. Statistical analysis

An IBM SPSS 20.0 package program was used to evaluate the data. One hundred and thirteen patients whose data were missing were excluded from the study, so data analysis was based on results from 465 participants. Descriptive statistics such as frequency, percentage, arithmetic mean and standard deviation were used to analyze the data. Dependent-t test was used to assess the data related to systolic blood pressure and diastolic blood pressure values measured in the examination room and measured at home by the patients. A one way analysis of variance was used to compare the means of Morisky total scores in terms of gender and economic income. However, Kruskal Wallis Test was used to compare the Morisky total point averages according to educational status. Pearson correlation analysis was used to examine the association between the age of participants and Morisky scores. Chi-square test was used to compare proportional data between categorical variables. One way ANOVA, Pearson's correlation analysis, and dependent group *t*-test were compared with the normality assumption. For all statistical evaluations, $p < 0.05$ was considered as significant.

Table 1
Socio-demographic characteristics of the participants.

	Frequency (n)	Percent (%)
Gender		
Male	169	36.3
Female	296	63.7
Educational Status		
Illiterate	87	18.7
Literate	17	3.7
Primary school	251	54.0
Secondary school	42	9.0
High school	39	8.4
University	29	6.2
Economic status		
Low	31	6.7
Moderate	282	60.6
High	152	32.7
Marital status		
Married	398	85.6
Single	4	0.9
Divorced	63	13.5
Employment		
Not employed	11	2.4
Housewife	265	57
Worker	7	1.5
Farmer	2	0.4
Professional job	9	1.9
Retired	161	34
Others	10	2.2

4. Results

The mean age of the participants was 61.02 ± 10.55 years (range: 26–91). Socio-demographic characteristics of the participants are shown in Table 1 and comorbid diseases of the participants are shown in Table 2. Diabetes mellitus was found to be a co existing condition in 31% of patients and cardiovascular disease in 22.6% of patients. 92.7% of the hypertensive patients participating in the study reported that they used their antihypertensive drugs. The most commonly used antihypertensive medications were diuretic drugs and angiotensin receptor blocker (ARB) drugs.

A total of 75% of the subjects (n = 350) were not using cigarettes, 78.9% (n = 367) were exercising at least four times in a week, 69.9% (n = 325) were not on a diet and 78.9% (n = 367) had an annual periodic health check. Forty-six percent of patients measured their own blood pressure when they felt uncomfortable. In this sample, 39.4% (n = 183) of the patients were regularly seeing an internal medicine specialist, 31.2% (n = 145) a family physician and 23.7% (n = 110) a cardiologist for hypertension control. The percentage of those who reported using alternative dietary substances was 55.7% (n = 259).

Participants stated that 93.1% (n = 241) used lemon, 30.9% (n = 80) used garlic and 12% (n = 31) used yoghourt. Of these, 53.7% (n = 139) used only lemon, 19.7% (n = 51) used both lemon and garlic, and 7.3% (n = 19) used both lemon and yoghourt (Fig. 1).

The general characteristics of the participants who use alternative dietary substances for the treatment of hypertension are shown in Table 3. Patients often received information on these (79.5%; n = 206) from their relatives and friends and other patients, and 10.4% (n = 27) of the patients stated that they received the information from health care workers. Among alternative dietary substance users, 43.6%