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Compliance with Salt Restriction and Drug Treatment in Patients with Hypertension

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ABSTRACT

Objectives: Hypertension affects a large part of the population, which can result in high morbidity and mortality. Along with regular intake of medications, compliance with salt restriction has been determined to be vital in blood pressure control. This study aims to evaluate compliance with salt restriction and drug treatment among patients with hypertension.

Methods: This study was carried out in a university hospital between 01 and 31 December 2014. The study included patients with hypertension who applied to cardiology outpatient clinic aged 35 years and over. The participants were asked about their demographic characteristics, salt consumption, and whether they take their medications regularly.

Results: One hundred and one hypertesive patients were included in the study. The mean age of the participants was 62.9±11.2 years and 52 (51.5%) of them were male. The number of patients paying attention to salt restriction is 61 (60.4%). It was found that 40 (65.6%) of the rural residents and 21 (34.4%) of the urban residents pay attention to salt restriction (p=0.041). The participants who used the drugs regularly were 93 (92.1%). It was determined that there was no significant relationship between regular drug use and age, gender, living place, educational level, presence of additional disease and disease duration (p>0.05).

Conclusion: Although most hypertensive patients use medication regularly, it has been observed that almost half of them do not pay attention to salt restriction. It may be beneficial to inform hypertensive patients about salt restriction at each doctor's visit.

Keywords: Diet, sodium-restricted, hypertension, family practice, patient education

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INTRODUCTION

Hypertension is a progressive clinical syndrome characterized by increased arterial blood pressure, which can cause complications such as stroke, heart failure and aortic dissection.[1] Hypertension has been identified to be responsible for approximately 54% of strokes and 47% of ischemic heart diseases in all countries.[2,3] Worldwide, a study conducted in 2010 showed that 31.1% of adults have hypertension.[4] In Turkey, the frequency of hypertension was determined to be 29 % in 1998 as per the TURDEP I study findings, 31% in in 2010 as per the TURDEP II study findings, and 30.3 % in 2012 as per the findings of PatenT2 study.[5-7]

The American Heart Association highlights non-drug treatments called "lifestyle changes" for the prevention and treatment of hypertension.[2] These recommendations include eating low-fat foods rich in vegetables, fish and fruits, restricting salt and alcohol consumption, and maintaining body weight. In particular, the number of studies showing that salt consumption

plays an important role in the development of hypertension is increasing day by day.[1,2,8]

Today, effective blood pressure control can be achieved with antihypertensive drug treatments. This makes compliance with drug treatments an important factor in hypertension management. PatenT study has shown that in Turkey a quarter of hypertensive patients do not take their medication regularly.[9]

Hypertension constitutes a very important part of the daily practice in family medicine, which is the first medical contact point in the health system and deals with all health problems.[10] In this context, both the effective implementation of lifestyle changes and the regular use of drug treatment are important components of hypertension management in primary care. However, studies on this subject in the hypertensive population are limited in the national literature. In this study, it was aimed to evaluate compliance with salt restriction and drug treatment among patients with hypertension.

METHOD

This study was conducted as an observational study in a university hospital cardiology outpatient clinic. The population of this study consisted of individuals aged 35 years and over who applied to the cardiology outpatient clinic from December 1 to December 31 2014 and used antihypertensive drugs. No sample calculations have been made.

The demographic characteristics of the participants, whether they had additional diseases, and how many years they had hypertension, were recorded. The participants were asked whether they pay attention to the amount of salt they use when cooking or on the table, and those who stated that they are not particular with their salt intake were registered as participants who did not pay attention to salt consumption. While making this inquiry, no measurements were made, and the personal evaluation of individuals was taken as basis. The participants who did not pay attention to salt consumption were asked whether they had received any information on this issue from any healthcare professionals. Participants were also asked if they took their antihypertensive drugs regularly at the dose recommended by the physician. Participants who stated that they used their drugs at the recommended dose and on a daily basis were evaluated as "regular drug use".

Those who received treatment due to major depression or psychotic disorder, those who were physically and / or mentally impaired during the research and pregnant women were excluded from this study.

The data were analyzed using Statistical Package for the Social Sciences (SPSS) version 18.0. The normal distribution of numerical variables was evaluated using Kolmogorov Smirnov Z test. Descriptive data were evaluated as frequency, percentage, mean and standard deviation. Chi-square test was used to compare categorical variables and independent sample t test was used to compare continuous variables. Statistical significance level was taken as $p<0.05$.

RESULTS

A total of 101 participants were enrolled in the study, and 52 (51.5%) of the participants were male. Mean age of women was 60.8±11.2 years and the mean age of men was 64.8±11.0 years (p=0.077). The number of patients paying attention to salt restriction is 61 (60.4%) and 40 (39.6%) patients stated that they did not pay attention to their salt consumption. Twelve (30.0%) patients who did not pay attention to salt consumption stated that they were not informed about the restriction of salt by healthcare professionals. Ninety-three (92.1%) patients stated that they used their drugs regularly. Compliance of salt consumption and antihypertensive drug use according to the sociodemographic characteristics of the patients are summarized in Table 1.

DISCUSSION

It was observed that 39.6% of hypertensive patients who participated in our study did not pay attention to their salt consumption. Cultural differences and eating habits play an important role in salt consumption. In a study conducted in China examining the salt intake of hypertensive patients, 69.9% of patients did not limit their salt consumption.[11] In a study conducted in the general population in Australia, it was observed that 37% of the participants were not mindful of their salt intake.[12] Meanwhile, in another study examining hypertensive patients in Pakistan, 44.9% did not pay attention to their salt consumption.[13] Multiple meta-analyses and systematic reviews have shown a strong positive relationship between sodium (salt) intake and blood pressure.[14-16] Ignoring salt restrictions and other lifestyle changes makes drug therapy difficult, which can only result in an increase in the number and/or dose of antihypertensive drugs used. Public disclosure of this relationship and public health interventions related to salt restriction across the country will contribute to people's awareness and attention to salt consumption. As a matter of fact, in our study, 30% of the patients who did not pay attention to salt consumption stated that they did not know that they should be mindful of their salt intake and that they were not informed about this issue by health personnel. The UK Food Standards Agency was able to reduce the percentage

Table 1. Compliance of salt consumption and antihypertensive drug use according to the sociodemographic characteristics of the patients

	Total	Drug Use		p	Salt Consumption		p
		Regular	Irregular		Attentive	Inattentive	
Age (years)	62.9±11.2	63.4±11.4	56.9±7.9	0.113*	61.7±11.3	64.8±11.1	0.184*
Gender							
Male	52 (51.5)	49 (52.7)	3 (37.5)	0.409†	34 (55.7)	18 (45.0)	0.291†
Female	49 (48.5)	44 (47.3)	5 (62.5)		27 (44.3)	22 (55.0)	
Residential area							
Rural	58 (57.4)	53 (57.0)	5 (62.5)	0.762†	40 (65.6)	18 (45.0)	0.041†
Urban	43 (42.6)	40 (43.0)	3 (37.5)		21 (34.4)	22 (55.0)	
Educational status							
Primary	81 (80.2)	75 (80.7)	6 (75.0)	0.877†	48 (78.7)	33 (82.5)	0.218†
High school	8 (7.9)	7 (7.5)	1 (12.5)		7 (11.5)	1 (2.5)	
University	12 (11.9)	11 (11.8)	1 (12.5)		6 (9.8)	6 (15.0)	
Additional diseases							
Yes	28 (27.7)	28 (30.1)	0 (0.0)	0.068†	18 (29.5)	10 (25.0)	0.621†
No	73 (72.3)	65 (69.9)	8 (100.0)		43 (70.5)	30 (75.0)	
Disease duration (years)	10.3±8.6	10.8±8.8	4.1±2.7	0.014*	10.4±7.4	10.1±10.3	0.229*

Data are presented as mean±standard deviation and n(%).
*Independent sample t test, †Chi square test.

of adults who add salt to the dinner table, from 32.5% in 2003 to 23.2% in 2007, using a nationwide salt reduction campaign.[17] In 2011-2015, excessive salt consumption reduction program has been initiated in Turkey.[18] According to SALTURK studies published in 2010 and 2017; salt consumption in Turkey decreased from 18 g/day to 14.8 g/day.[19,20] In our study, no relation was found between attention to salt consumption and age, gender, educational status, presence of additional disease and duration of disease.

In this study, it was found that people living in the rural areas pay more attention to their salt consumption than those living in the city. In SALTURK II study, salt consumption was observed to be higher in rural areas compared to urban areas.[19] The reason for this result may be due to the fact that our study was performed on hypertensive patients, and the SALTURK II study was conducted in the general population.

In addition to lifestyle changes in an effort to control of hypertension, most patients require pharmacotherapy. In a study conducted in Nigeria in 2005, 60% of the participants who took antihypertensive drugs were found to have good drug compliance.[21] Similarly, in another study conducted with hypertensive patients over the age of 15 in Pakistan in 2007, drug compliance was found to be 48.3%.[13] In three different studies conducted in Turkey on this issue, hypertensive individuals' regular drug use rates were determined to be 71.1%, 74.5% and 82.9%.[22-24] In PATENT study conducted in whole Turkey, the proportion of patients who are compliant in taking their prescription drug regularly was determined to be 74.2%.[9] In our study, the rate of regular use of drugs is 92.1% and this is a high rate compared to other studies. This may be due to the fact this the study was conducted in a limited area in the university hospital. It may be thought that the average disease duration of the group we selected may be higher than other studies and this may be thought to keep the regular use of drugs higher than other studies. In our study, no relation was found between regular drug use and age, gender, residential area, educational status, and presence of additional diseases.

In a study conducted in Nigeria, drug compliance was observed to be higher in patients who received university education than those who received primary education.[21] In our study, contrary to the study conducted in Nigeria, drug compliance in primary and university graduates was close to each other and no significant difference was found. This shows that our people use their medicines carefully even if their education level is deemed low. On the other hand, it may also be effective if there are more physician visits to emphasize the use of medication on a regular basis.

One of the limitations in this study is that we gathered our data by asking them, the participants if they are paying attention to their salt consumption or not. Using a better method such as sodium excretion measurement in urine, a better result can be obtained in terms of estimating the participants' salt intake. However, collecting urine samples is a difficult and costly procedure. In addition, our results should not be generalized, as a limited number of people who applied to the cardiology outpatient clinic in just one month were included in this analysis. Also, at this point, it should be considered that eating habits in the Black Sea region may differ from other regions. In this respect, more multi-center studies should be carried out with more number of participants in the future. Considering that eating habits may be related to salt consumption, the fact that obesity in the participants was not evaluated is another limitation of our study.

CONCLUSION

In our study, it was observed that most of hypertensive patients did not show sufficient attitude toward paying to salt consumption, although they use their medications regularly. To increase the compliance with hypertensive drugs and salt restriction, it may be beneficial to provide consultancy to patients on every physician visit. Family physicians, who are the first point of contact of patients and have an important role in the primary follow-up of chronic diseases within the framework of the principle of continuous care, have an important role in this regard.

Disclosures

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

Ethics Committee Approval: The approval for the research was obtained from Karadeniz Technical University, Faculty of Medicine Scientific Research Ethics Committee (Approval date: Dec 14, 2020, and Approval number: 2020/319). Written consent was obtained from each participant.

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