Levels of Knowledge of Patients Aged 40 and Older Diagnosed with Hypertension Admitted to Internal Medicine Outpatient Polyclinic of a State Hospital about Their Treatment and Adherence to Their Medications

[1]Seda Cevheroglu   [2]Serpil Çagliyan,

[1]**Instructor, (Corresponding Author) Work Address:** Department of Nursing, Faculty of Health Sciences, Eastern Mediterranean University, Famagusta/TRNC, **Work Phone:** 0392 630 39 09/1313, **Fax:** 0392 630 39 40 **E-mail:** seda.cevheroglu@emu.edu.tr

[2]**Instructor, Work Address:** Department of Nursing, Faculty of Health Sciences, Eastern Mediterranean University, Famagusta/TRNC, **Work Phone:** 0392 630 39 09/3010 **Fax:** 0392 630 39 40 **E-mail:** serpil.cagliyan@emu.edu.tr

Abstract

Aim: This study was conducted to determine the levels of knowledge of patients aged 40 and older diagnosed with hypertension admitted to internal medicine outpatient polyclinic of a state hospital about their treatments and adherence to their medications.

Method: This descriptive cross-sectional study was conducted with 100 patients aged 40 and older diagnosed with hypertension. A structured questionnaire and the Morisky Medication Adherence Scale were used for the collection of data. Data was analysed in a computer environment with SPSS 18.0 software package by using descriptive statistics, Chi-square test and correlation analysis.

Result: According to the Morisky Medication Adherence Scale, it was observed that the levels of medication adherence of hypertensive patients were 54% (high), 30% (moderate) and 16% (low), respectively. It was found out that there was a statistically significant positive correlation between disease duration, regular drug use, family history of hypertension and medication adherence ($p<0.05$). It was found out that there was a statistically significant negative correlation between complications, concomitant use of alternative medicines with medications and medication adherence ($p<0.05$).

Conclusion: The level of patients' medication adherence was found to be moderate to low at the rate of 46%. It has been planned that patients should be given training on drug use and hypertension by health-care personnel and that patients should be monitored at regular intervals.

Keywords: Hypertension, drug use, level of knowledge

Introduction

Hypertension is a systemic disease that manifests with arterial blood pressure and is an important health problem because it can lead to fatal consequences if not treated and occurs frequently in society. It was envisaged that 26.4% of adult population all over the world suffered from hypertension as of 2000 and this ratio would rise to 29.2% in 2025 (2.20). Hypertension

is held responsible for 6% of adult deaths worldwide and is the third leading cause of death. Hypertension is a cardiovascular risk factor that can be prevented to a large extent and there are about 50 million people in the United States (US) and approximately 1 billion people worldwide suffer from hypertension. The prevalence of hypertension will further increase as the world's population is aged if effective measures are not taken (16).

The social significance of diseases is related to their incidence in society, the level of disablements and deaths they cause. (19). Hypertension is a chronic disease that that continues for a lifetime and treated with medical and lifestyle changes (13). Today, no sufficient results can be achieved in controlling hypertension, although effective anti-hypertensive drugs have been introduced and the effect of lifestyle on hypertension is well known (7, 23). Despite the known benefits of controlling blood pressure in patients with hypertension, the control of hypertension control is still not at the desired level in all health organizations, including primary health care organizations (5).

Adherence to treatment plays an important role in the treatment of hypertension. Adherence to treatment is that behaviours of patients in using their drugs, fulfilling their dietary practices or other lifestyle changes are incompatible with clinical suggestions. Taking medication in wrong amounts, in wrong times,

forgetting to take medication or discontinuing to take medication at a very early stage is defined as non-adherence to medication (5,17). Adherence to treatment is a major requirement in achieving blood pressure control. It has been reported in a study conducted that blood pressure control in patients with adherence to treatment is better than those patients without adherence (3, 5). It has been found out that being aware of disease and believing its seriousness by patients has positive effects on adherence to treatment (21). It is emphasized in the 2007 European Hypertension Guide that low adherence and response to treatment in patients is highly variable and therefore, it is recommended to start medication on time and under close follow-up without delay. Factors that adversely affect adherence to treatment have been reported in many studies by patients (3,16,24). The most frequently reported reasons have been found out to be non-informing patients, lack of signs and symptoms, being young, being able to regulate blood pressure with non-drug approaches, fear of being addicted to drug use, knowing about drug side effects and avoiding them (3.24).

Education of patients and their families plays an important role in increasing adherence to medication. (17). There can be oral and written materials and many different educational initiatives alone or in combination to increase adherence to treatment. Furthermore,

phone or computer-assisted patient training programs should be prepared, drug dosages should be simplified, individuals should be included in the care by enabling them to follow up their blood pressures, treatment practices of patients should be arranged by their daily habits and re-writing appointments and prescriptions should be reminded. According to the World Health Organization report, well-trained nurses and medical staff experienced in implementing lifestyle are expected to provide a major contribution to improving adherence to treatment (16).

In conclusion, hypertension is a major health problem in our country and it is important to raise the awareness of public in order to provide protection, increase awareness, ensure early diagnosis and control for this health problem. Health care professional have significant responsibilities in this regard. For this reason, this study is of a descriptive-type study that has been planned in order to determine the levels of knowledge of patients aged 40 and older diagnosed with hypertension admitted to the internal medicine outpatient polyclinic of Famagusta State Hospital about their treatments and adherence to their medications and to organize their training programs in line with the study results.

Material and Methods
Objective and Type of the Study

This study was planned as a descriptive and cross-sectional study in order to determine the levels of knowledge of patients aged 40 and older diagnosed with hypertension admitted to internal medicine outpatient polyclinic of a state hospital about their treatments and adherence to their medications.

Population and Sample of the Study

The study population consisted of patients who admitted to internal medicine outpatient polyclinic of a state hospital with a diagnosis of hypertension between September, 19 and October 19, 2014 and the method of selecting a purposeful sampling was adopted. The study sample consisted of 100 patients aged 40 and older who were diagnosed with hypertension and who agreed to participate in the study.

Data Collection Tools

Data was collected by the researcher using a questionnaire containing socio-demographic characteristics and information on disease, created by scanning the literature, and the Morisky Medication Adherence Scale.

The Morisky Medication Adherence Scale was developed by Donald E. Morisky in 1986. Validity study of the scale was conducted by Morisky D. E., Green L. W. Cronbach's alpha

value of the scale was found as 0.61. Adaptation of the scale into Turkish was made by Yılmaz in 2004 and Cronbach's alpha value was found as 0.63. Cronbach's alpha value was found as 0.70 in this study.

The Morisky Medication Adherence Scale consists of 4 articles. Questions are being answered with "Yes", "No" answers and show adherence of patients to medication at three levels as "good", "moderate" and "poor".

Data Collection

The forms used for data collection was completed by the researcher through face-to-face interviews with patient individuals. It took about 8-10 minutes to complete the forms.

Statistical Analysis of Data

Data, obtained as a result of the study, was analysed in computer environment using the SPSS (Statistical Package for Social Sciences) 18.0 package program. Socio-demographic characteristics, disease-related characteristics and medication adherence level variables of the patients were presented in percentage. Statistical analysis of the study data was performed using descriptive statistics, Chi-square test and correlation analysis. The results were evaluated at 95% confidence interval and $p < 0.05$ significance level.

Ethics and Legal Aspects of the Study

Written informed consents were obtained from the patients participated in the study and institution approval was obtained from the Department of Chief Physician of the State Hospital. The principle of willingness to participation in the study was observed and written consents of the patients who constituted the sampling group were obtained after they were informed about the purpose of the study, expectations from them and their legal rights. They were assured that information obtained would be kept confidential.

Results

When the distribution of socio-demographic characteristics of the patients enrolled in the study was examined, it was found out that the average age was 65 ± 9.63 years, 57% of them were male, 78% were married, 41% were housewives, 43% were primary school graduates, 42% had 4 and more children, 49% were non-smokers and 28% had an additional medical condition of Diabetes Mellitus.

Table 1. Examination of Hypertension Process

HISTORY OF HYPERTENSION	%
DURATION OF HYPERTENSION DISEASE	
1 month to 5 years	33
6 to 10 years	22
11 to 15 years	21
16 to 20 years	12
21 years and above	10
AGE OF DIAGNOSIS	
Age 30 or below	3
Age 31 and above	97
TREATMENT RECEIVED	
Received	100
Not received	0
COMPLICATIONS	
Eye	14
Chronic heart failure	5
Chronic renal failure	19
None	45
Other	17
FAMILY DISEASE HISTORY	
Mother and/or father	37
Siblings	5
Children	4
Other	10
None	44
BEING INFORMED ABOUT TREATMENT	
Informed	
Not informed	55
	45
PERSON PROVIDING INFORMATION	
Physician	25
Nurse	7
Physicians and nurses	23

When disease information of the patients, enrolled in the study, was analysed, it was discovered that 33% were suffering from hypertension for one month to five years, 97% were diagnosed with hypertension at age 31 and above, 100% were given hypertension treatment, 44% had physician control once a month or less, 55% developed complications which 19% of these complications was chronic renal failure, 56% had a family history of hypertension and mothers and/or fathers of 37% had hypertension, 55% were informed about hypertension to and given that this information was given by nurse practitioners which 23% of this information was provided by physicians while 25% by physicians and nurses, 52% applied alternative methods to medications and 22% used lemon as an alternative.

Table 2. Level of Adherence to Medication by the Morisky Medication
Adherence Scale

LEVEL OF ADHERENCE TO MEDICATION	n
Low Adherence	16
Moderate Adherence	30
High Adherence	54
Total	100

When the levels of adherence to medication of the patients were examined by the Morisky Medication Adherence Scale, it was observed that 54% were of high adherence, 30% of moderate adherence and 16% of low adherence.

When knowledge of the patients, enrolled in the study, about hypertension and medication adherence was examined, it was revealed that there was a statistically significant positive correlation between disease duration, regular drug use, family presence of additional medical condition and medication adherence ($p<0.05$). It was observed that there was a statistically significant negative correlation between complications, concomitant use of alternative medicines with medications and medication adherence ($p<0.05$).

Table 3. Investigation of the Correlation between Disease Status and Medication
Adherence

		MEDICATION ADHERENCE			p	r
		Low	Moderate	High		
DURATION OF DISEASE	10 years or less	10	9	36		
	11 years and above	6	21	18	0.04	0.138
	Total	16	30	54		
AGE	Age 60 and below	4	11	24		
	Age 61 and above	12	19	30		
	Total	16	30	54	0.35	0.142
REGULAR USE OF DRUG	Regular Use	5	23	50		
	Irregular Use	11	7	4		
	Total	16	30	54	0.00	0.497
TREATMENT RECEIVED	Received	15	30	54		
	Not received	1	0	0		
	Total	16	30	54	0.07	0.186
BEING INFORMED ABOUT TREATMENT	Yes, informed	10	14	31		
	No, not informed	6	16	23		
	Total	16	30	54	0.51	-0.03
ADDITIONAL MEDICAL CONDITION	Yes	16	29	31		
	None	0	1	23		
	Total	16	30	54	0.00	0.436

Discussion

When the levels of adherence to medication were examined in the study performed in order to assess the levels of knowledge of patients aged 40 and older diagnosed with hypertension admitted to internal medicine outpatient polyclinic of a state hospital about their treatments and adherence to their medications, it was observed that 54% were of high adherence, 30% of moderate adherence and 16% of low adherence. It was seen that only 15.8% of patients adhered to their treatments in the study by Gün et al. (2014) and that the level of adherence of 33.3% of patients to their treatments was poor in the study by Cingil et al. (2009) (9,14). That 46% of the patients in the study sample showed adherence to medication at moderate to low levels was found that the drug was found to be compatible with these studies.

The results of the study were found to be similar with the duration of hypertension disease, age of diagnosis, family history of hypertension and administration of hypertension treatment in the studies conducted by Eryonucu et al. (1999), Hacıhasanoğlu et al. (2007) and İçyeroğlu et al. (2012) on hypertensive patients (12,15,18). When the status of providing patients with training was examined, it was found out that 66.4% of patients in the study by İçerlioğlu et al. (2012) were not provided with any training (18). In the study by Clark et al. (2000), normal blood pressure values were found in 71% of hypertensive patients as a result of training provided and visits made to patients with hypertension by nurses (8). It was determined in the study by Oakeshott et al. (2003) that blood pressure levels of patients reduced as a result of training that nurses had provided to reduce blood pressure (22). Grandi et al. (2006) and Bogdan et al. (1998) reported in their studies that levels of adherence of patients with hypertension to their medications and diseases increased following regular follow-ups in health institutions and at home as a result of training provided to hypertensive individuals (6,13). When the study sample was examined, it was determined that 55% of patients were provided with information about their treatments and 25% of this information were provided by physicians, 7% by nurses and 23% by physicians, and nurses and it has been planned that nurses should further involve in patient training.

When the correlation between disease duration and medication adherence of the patients in the study sample was examined, it was found out that the level of medication adherence of the patients suffering from hypertension for 10 years and less was high at the rate of 36%. It was observed in the study by Akgül (2008) and Gün (2014) that adherence of patients to treatment increased as the duration of treatment extended, and the results were found consistent with this study (1, 14).

A positive significant correlation was found when the relationship between regular drug use and additional medical condition and medication adherence of the patients were examined (p<0.05). According to Akgül (2008), increased duration of hypertension, additional medical conditions and increased symptoms due to hypertension renders treatment inevitable for patients and this enables patients to use their medications more regularly (1). It was determined in the study by Vatansever and Ünsar (2014) that there was no significant difference between the mean scores of additional medical conditions and adherence to medication/self-efficacy of hypertensive patients (25).

It was discovered in the study by Anadol and Dişcigil (2009) that patients who paid no attention to the treatment and disease and who failed to adhere to treatment applied to alternative treatments quite frequently (3). A negative correlation was found between the use of alternative methods and medication adherence in this study (p<0.05, r= -0.34). It has been concluded that it is needed to develop patient training programs in order to increase adherence of nurses to medication and eliminate incorrect information about the use of alternative methods.

Conclusion and Recommendations
As a result, the level of patients' medication adherence was found to be moderate to low at the rate of 46%.

In line with these results, employment of special training nurses who will provide patients with training in hospitals, provision of training about drug use and hypertension by healthcare professionals for patients and regular follow-up of patients, provision of training about alternative treatment methods, planning of patient follow-ups with phone, web-based consulting services, establishment and use of systems that can remind drug intakes, development of home care services for patients, examination of initiatives that will increase level of adherence of patients to medication with empirical studies are recommended.

References
1. Akgül C. Hipertansiyon hastalarında antihipertansif uyumun değerlendirilmesi. *Yayınlanmamış Tıpta Uzmanlık Tezi,* İstanbul Üniversitesi Cerrahpaşa Tıp Fakültesi, İstanbul; 2008.
2. Anadol Z. Hipertansif Hastalarda İlaç Uyumu Ve Hastanın Yaşamına Etkileri. *Yayınlanmamış Tıpta Uzmanlık Tezi*, Adnan Menderes Üniversitesi, Tıp Fakültesi, Aile Hekimliği Anabilim Dalı, Aydın; 2008.
3. Anadol Z, Dişcigil G. Hipertansif Hastalarda Tedavi Uyumunu Etkileyen Faktörler. *Türkiye Klinikleri J Cardiovasc Sci,* 2009; 21 (2):184-190.
4. Arıcı A, Altun B, Anadol Z, Dişcigil G. Hipertansif Hastalarda tedavi uyumunu etkileyen faktörler. *Türkiye Klinikleri J Cardiovasculer SCİ,* 2009; 21 (2): 184-90.
5. Aşılar R. Hipertansiyonda tedaviye uyum ve öz bakım yönetimi. *16.*

Ulusal Halk Sağlığı Kongre Kitapçığı. Antalya; 2013.

6. Bogden PE, Abbott RD, Williamson P, Onopa JK, Koontz LM. Comparing standart care with a physician and pharmacist team approach for uncontrolled hypertension. Journal of General Internal Medicine 1998; (13): 740-745.

7. Boylu Ö. Niğde Kemerhisar Kasabasındaki 40 yas ve üzeri popülasyonda Hipertansiyon prevalansı ve farkındalık durumu. Erciyes Üniversitesi Halk Sağlığı Hemşireliği ABD. *Yüksek Lisans Tezi*. 2006; 38-49.

8. Chobanian AV, Bakris GL, Black HR. The seventh report of theJoint national committiee on prevention, detection evaluation and treatment of high blood pressure. *The JNC 7 Report JAMA,* 2003; 289, 2560-2572.

9. Clark MJ, Curran C, Noji A. The effects of community health nurse monitoring on hypertension identification and control. *Public Health Nursing,* 2000; 17 (6): 452-459.

10. Çingil D, Delen S, Aksuoğlu A. Karaman il merkezinde yaşayan hipertansiyon hastalarının ilaç kullanımdurumlarının ve bilgilerinin incelenmesi, *Archives of the Turkish Society of Cardiology,* 2009; 37(8):551-556.

11. Düsing R. Overcoming barriers to effective blood pressure control in patients with hypertension. Current Medical Research and Opinion, 2006; 8(22): 1545-1552

12. Ertaş FS. Avrupa hipertansiyon tedavi kılavuzu. *Türk Kardiyoloji Derneği Araştırması,* 2007;35:343-6.

13. Eryonucu B, Sayarlıoğlu M, Bilge M, Niyazi Güler, Erkoç R, Dilek İ. Van İli Ve Yöresindeki Hipertansif Hastaların Hipertansiyon Konusundaki Bilgi Düzeylerinin Ve Tedaviye Uyumlarının Değerlendirilmesi. *Van Tıp Dergisi,* 1999; 6 (2).

14. Grandi AM, Maresca AM, Sessa A, Stella R, Ponti D, Barlocco E, Banfi F, Venco A. Longitudinal study on heypertension control in primary care: The Insubria Study. American Journal of Hypertension 2006;19 (2):140-145.

15. Gulanick M, Myers JL, Klopp A, Galanes S, Gradishar D, Pusaz MK. Nursing Care Plans: Nursing Diagnosis and Intervention. Fifth Edition. *Mosby an Affiliate of Elsevier*, United States of America, 2003; 258-264.

16. Gün Y, Korkmaz M. Hipertansif Hastaların Tedavi Uyumu ve Yaşam Kalitesi. *Dokuz Eylül Üniversitesi Hemşirelik Yüksekokulu Elektronik Dergisi,* 2014; 7(2), 98-108.

17. Hacıhasanoğlu R. Birinci Basamakta Hipertansiyon Hastalarına Yönelik Eğitim Ve Evde İzlemin İlaca Uyum Ve Hipertansiyon Yönetimine Etkisi. Atatürk Üniversitesi Sağlık Bilimleri Enstitüsü, *Doktora Tezi*, Erzurum, 2007.

18. Hacıhasanoğulları R. Hipertansiyonda tedaviye uyumu etkileyen faktörler. *TAF Preventive Medicine Bulletin,* 2009; 8 (2): 167-172.

19. Hill M, Miller NH. Antihipertansif Tedaviye Uyum. Primer Hipertansiyon. Ed. İzzo JL, Black HR. Çev.ed. Kazancı G. 3. baskı. Nobel kitapevi, 2004.

20. İçyerlioğlu G. Hipertansiyon Hastalarının Tedaviye Uyumu Ve Yaşam Kalitesi. Fırat Üniversitesi Sağlık Bilimleri Enstitüsü. *Yüksek Lisans Tezi*. Elazığ, 2012.

21. Kabakçı G. Antihipertansif tedavide yaşam kalitesi ve hasta uyumu. Folia. *Hipertansiyon*

Diyabet Ateroskleroz Dergisi, 2006;6 (1): 5-6.

22. Kearney, P. M., Whelton, M., Reynolds, K., Whelton, P. K. (2004).Worldwide prevalence of hypertension: a systematic review. *J Hypertens.;* 22: 11-9

23. Lagi A, Rossi A, Passaleva MT, Cartei A, Cencetti S. Compliance with therapy in hypertensive patients. *Intern Emerg Med.*, 2006; 1(3): 204-208.

24. Oakeshott P, Kerry S, Austin A, Cappuccio F. Is there a role for nurse- led blood pressure management in primary care?. *Family Practice,* 2003;20 (4):469-473.

25. Özkan M. Afyonkarahisar ili Dinar ilçesi 40 yaş ve üzeri popülasyonda hipertansiyon prevalansı ve ilişkili faktörlerin araştırılması. Afyonkarahisar Kocatepe Üniversitesi.*Yüksek Lisans Tezi*. Afyonkarahisar, 2008.

26. Ünalan PC, Çifçili S, Uzuner A, Akman M. Hastaların hipertansiyon ve antihipertansifler konusundaki algı ve inanışları. *Türk Aile Hekimliği Dergisi,* 2005*;* 9(4): 153-158.

27. Vatansever Ö, Ünsar S. Esansiyel Hipertansiyonlu Hastaların İlaç Tedavisine Uyum/Öz Etkililik Düzeylerinin ve Etkileyen Faktörlerin Belirlenmesi. Türk Kardiyoloji Derneği Kardiyovasküler Hemşirelik Dergisi, 2014; 5(8): 61-67.