

The Effect of Acupressure on Blood Pressure Level and Pulse Rate in Individuals With Essential Hypertension

A Randomized Controlled Trial

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A total of 91 people including 47 in the intervention group and 44 in the placebo group were included to a randomized controlled study. It can be asserted that acupressure, applied to the Neiguan (PC 6) acupuncture point in individuals with essential hypertension, provides blood pressure regulation and is effective for management of numerous hypertension-related symptoms. **KEY WORDS:** *acupressure, blood pressure, hypertension, pulse rate*

Holist Nurs Pract 2021;35(1):40–48

INTRODUCTION

Hypertension (HT), which accounts for 50% of coronary heart diseases and 60% of strokes, is the leading cause of deaths in the world.¹ By the year 2000, it was estimated that 26.4% of the worldwide adult population had HT and this rate would increase to 29.2% in 2025.² On the other hand, HT prevalence in the Turkish adult population was 31.8% for men and 36.1% for women.³

Even though HT is a preventable disorder, its prevalence is high and it is regarded as an important community problem and a factor impairing health since its mortality rates increase although it is treatable.^{4,5} Social importance of a disease is related to its prevalence in community as well as the related incapacity level and deaths. Hypertension increases

the risk for renal disorders, cardiac insufficiency, stroke, and myocardial infarction and is an independent main risk factor for renal and cardiovascular diseases.^{6,7} It is very important to control blood pressure in order to prevent these negative results.

BACKGROUND

There are various approaches for the treatment of HT and the common and major purpose of these approaches is to keep blood pressure within normal limits.^{8,9} Taking control of HT attempts the prevention of target organ damage and cardiovascular diseases and maintains patients' quality of life.⁹ In order to achieve these goals, pharmacological and nonpharmacological treatment methods are administered. The fact that drugs from different classes used in pharmacological treatment have excessive side effects and relatively high costs and blood pressure can be controlled with drugs only in 27.3% of patients with HT suggests that efficient integrative methods are required for control of blood pressure in addition to pharmacological treatment.⁹ In the limited number of studies in the literature, it was reported that acupuncture and acupressure applied to acupuncture points decreased blood pressure in people

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The researchers would like to thank all patients participating in the study.

The authors have disclosed that they have no significant relationships with, or financial interest in, any commercial companies pertaining to this article.

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DOI: 10.1097/HNP.0000000000000384

with HT and increased pulse rate and qualities of sleep and life.^{1,10-14} Acupressure is a branch of acupuncture which is based on Chinese traditional medicine. In acupressure, touching techniques are used to balance the energy flow in the body, which can be performed by physicians, nurses, and even the patients themselves.¹⁵ However, different studies have proven the effectiveness of this method on enhancement of sleep quality, decreasing stress and anxiety, decreasing depression, and changing vital signs in patients with cancer, patients with multiple sclerosis, nulliparous women, and hemodialysis patients.¹⁶⁻¹⁹ However, other studies have reported the effect of acupressure from stimulatory to nothing on physiological indices. In this regard, Rajai et al²⁰ reported that acupressure on the P6 point would reduce some physiological indices of patients before angiography and Yeh et al¹ showed no significant difference in heart rate and blood pressure.

Physiological studies have revealed that acupuncture points on deep and superficial somatic nerves are effective.¹⁰⁻¹⁴ Especially, stimulation of the Neiguan (P6) point with acupressure activates the arcuate nucleus and stimulates neurons containing opioid, glutamate, or both in the arcuate nucleus. In this way, it provides regulation of blood pressure through stimulation of the autonomic nervous system and regulation of cardiovascular stimulating reflexes. While studies indicate that stimulation of the P6 (Neiguan) acupuncture point has an effect on blood pressure, this study examines the effect of acupressure performed to this point on regulation of blood pressure and pulse rate.^{9,12,13} There is an absence of studies about the issue in Turkey. Therefore, such study is needed.

Nurses have an important role for increasing hypertensive patients' compliance with treatment and controlling and maintaining their blood pressure.²¹ The aim of a nurse in care of the patient with HT should focus on decreasing and controlling blood pressure without side effects and with low cost. It is needed to enhance practical and efficient integrative practices to regulate high blood pressure efficiently due to the chronic and serious results of HT disease.

The aim of this study is to determine the effect of acupressure, which was applied to the Neiguan (PC 6) acupuncture point in individuals with essential HT by using an electrostimulation device for half an hour, every weekday for a month, on blood pressure level and pulse rate.

METHODS

Design

The population of the study consisted of individuals who were registered to health centers of a province located in Turkey and diagnosed with essential HT ($n = 723$). The sample selection of the study was performed by using power analysis in the Minitab program. Individuals 18 years and older, diagnosed with essential HT at least 6 months ago, receiving antihypertensive medication (angiotensin-converting enzyme inhibitors, angiotensin-2 receptor blockade, diuretic, calcium channel blockers, β -blocker, and α -blocker), able to communicate, unemployed or retired, and consenting to participate in the study were included in the study. Individuals who had nerve, soft tissue, and vascular disease in the upper extremity, did not want to continue acupressure application at any stage of study, and did not attend the regular appointments for acupressure application were excluded from the study.

Randomization and intervention

The study was completed with a total of 91 patients who met the inclusion criteria of the study (47 patients in the intervention group and 44 patients in the placebo group) between June 1, 2014, and July 1, 2014. The study data were found as power = 0.995 for the intervention and placebo groups at an error margin of 0.05 by using SigmaStat 3.5 software. The sample selection was carried out in accordance with randomization. Whether the patients meeting study inclusion criteria would be assigned to the intervention or placebo group and the order of the study was determined by drawing lots. As a result of drawing lots, the patients coming on Monday, Wednesday, and Friday were assigned to the intervention group, whereas the patients coming on Tuesday and Thursday were assigned to the placebo group. Those in the intervention group were scheduled for an appointment in the morning, and those in the placebo group were scheduled for an appointment in the afternoon in order to avoid the groups influencing one another. The patients were informed about the aim of the study, and they were asked to come to the health center at the specified appointment time every weekday for a month. Researchers participated in the "acupressure and aromatherapy training" involving a 24-hour theoretical and applied education.

An electrostimulation device was used to perform acupressure on the Neiguan (P6) acupuncture point using electrostimulation on the wrist (ie, the region 2 fingers away from inner curve of wrist, on the line of the middle finger, between the flexor carpi radialis and palmaris longus tendons). It is a battery-powered device. The device applies pressure on PC 6 point at a frequency of 10 Hz with 5-second intervals. Patients completed a questionnaire designed by researchers before acupressure was applied.¹⁰⁻¹⁸ Their systolic and diastolic blood pressures and pulse rate values were measured and recorded by the researchers with regard to the learning guide for skills before acupressure was applied using the electrostimulation device. The electrostimulation device, balancing the blood pressure, was attached to the Neiguan (PC 6) acupuncture point of those in the intervention group for half an hour and their blood pressure and pulse rates were measured before and 5 minutes after the intervention. Unlike the intervention group, the electrostimulation device was attached to the Neiguan (PC 6) acupuncture point of those in the placebo group by sticking a tape on its batteries and thus preventing its electrostatic pulse and pressure. Blood pressure and pulse rates were measured and recorded by the researchers before and after the intervention.

Statistical analysis

The data were assessed by using IBM SPSS Statistics 21.0 and SigmaStat 3.5 statistical package software. Distribution of numerical variables was assessed by using the Shapiro-Wilk normality test. Homogeneity of variances was tested through Levene's test. While independent-samples *t* test was used for comparison of 2 groups, 1-way analysis of variance was used for comparison of more than 2 groups. While the paired *t* test was used to evaluate 2 consecutive measures, 1-way repeated analysis of variance was used to evaluate more than 2 measurements. The Student-Newman-Keuls test for multiple comparisons and the exact method of χ^2 analysis for comparison of categorical variables were used. McNemar and McNemar-Bowker tests were used for consecutive assessments of categorical variables. A value of $P < .05$ was accepted as statistically significant.

Ethical considerations

Ethics Committee approval from the Noninvasive Trials Ethics Committee of a University as well as

institutional permission from 2 health centers where the study was conducted and informed consent from the patients were received for the study (10840098-89).

RESULTS

Table 1 shows the distribution of descriptive characteristics of the patients in the intervention and placebo groups. The patients in the intervention and placebo groups were similar in terms of gender, educational status, marital status, occupation, existence of social security, status of doing exercise, status of eating a salt-free diet, presence of any chronic disease except for HT, and type of chronic disease ($P > .05$).

It was determined that 53.1% of those in the intervention group had the diagnosis of HT for 0 to 5 years, 25.5% were using a β -adrenergic receptor blocker, 91.4% had medication adherence, 25.5% consumed garlic or took a rest in order to control attacks of HT, 83% had blood pressure measured sometimes, and 44.7% had blood pressure measured by health care personnel (Table 2).

It was determined that 40.9% of those in the placebo group had the diagnosis of HT for 0 to 5 years, 27.3% were using an α -adrenergic receptor blocker, 90.9% had medication adherence, 38.7% consumed garlic in order to control the attack of HT, 75% had blood pressure measured sometimes, and 52.3% measured their blood pressure by themselves (Table 2).

While the patients in the intervention and placebo groups were similar in terms of the duration of HT, the drugs used for HT treatment, medication adherence, and the person measuring their HT ($P > .05$), they were not similar in terms of the practices applied for controlling the attack of HT and frequency of having blood pressure measured ($P < .05$, Table 2).

It was observed that symptoms of ringing in the ears, palpitation, blurred vision, foot swelling, chest pain, fatigue, nervousness, and insomnia significantly decreased in the intervention group after the acupressure application compared with the preapplication period ($P < .05$, Table 3). Symptoms of headache, dizziness, palpitation, blurred vision, chest pain, and fatigue significantly decreased in the placebo group after the application compared with the preapplication period ($P < .05$) (Table 3).

It was determined that while average systolic blood pressure of the patients in the intervention group was

TABLE 1. Distribution of Descriptive Characteristics of the Patients in the Intervention and Placebo Groups

Descriptive and HT Characteristics	Total (n = 91) n (%)	Groups		P
		Intervention (n = 47) n (%)	Placebo (n = 44) n (%)	
Gender				
Female	65 (71.4)	30 (63.8)	35 (79.5)	.361
Male	26 (28.6)	17 (36.2)	9 (20.5)	
Age groups				
≤50 y	24 (26.3)	10 (21.3)	14 (31.8)	.002
>50 y	67 (73.7)	37 (78.7)	30 (68.2)	
Educational level				
Literate	16 (17.6)	10 (21.2)	6 (13.6)	.108
Primary school	64 (70.3)	30 (63.8)	34 (77.2)	
Secondary school	6 (6.6)	4 (8.6)	2 (4.6)	
High school	3 (3.3)	2 (4.3)	1 (2.3)	
University	2 (2.2)	1 (2.1)	1 (2.3)	
Marital status				
Single	23 (25.2)	13 (27.7)	10 (22.7)	.580
Married	68 (74.8)	34 (72.3)	34 (77.3)	
Job/occupation				
Housewife	70 (76.9)	32 (68.0)	38 (86.3)	.296
Retired	21 (23.1)	15 (32.0)	6 (13.7)	
Income status				
Very high	5 (5.4)	18 (38.2)	5 (11.3)	.017
High	27 (29.6)	25 (53.1)	9 (20.4)	
Middle	49 (53.8)	4 (8.7)	24 (54.5)	
Low	10 (11.2)		6 (13.8)	
Social security				
Yes	78 (85.7)	39 (82.9)	39 (88.6)	.396
No	13 (14.3)	8 (17.1)	5 (11.4)	
Smoking				
Smoker	9 (9.8)	4 (8.5)	5 (11.3)	.016
Nonsmoker	73 (80.4)	34 (72.3)	39 (88.7)	
Quit	9 (9.8)	9 (20.2)		
Exercise				
Doing	24 (26.3)	10 (21.2)	14 (31.8)	.074
Not doing	64 (70.3)	37 (78.8)	27 (61.3)	
Stopped	3 (3.4)	...	3 (6.9)	
Eating a salt-free diet				
Caring	52 (57.1)	28 (59.5)	24 (54.5)	.790
Not caring	39 (42.9)	19 (40.5)	20 (45.5)	
Having a chronic disease except for hypertension				
Yes	50 (54.9)	29 (61.7)	21 (47.7)	.749
No	41 (45.1)	18 (38.3)	23 (52.3)	
Existing systemic disorders (n = 50)				
Cardiovascular system	11 (22.0)	8 (27.5)	3 (14.2)	.211
Endocrine system	28 (56.0)	15 (51.7)	13 (61.9)	
Musculoskeletal system	7 (14.0)	4 (13.7)	3 (14.2)	
Other	4 (8.0)	2 (7.1)	2 (9.7)	

Abbreviation: HT, hypertension.

TABLE 2. Distribution of HT-Related Characteristics of the Patients in the Intervention and Placebo Groups

HT Characteristics	Total (n = 91) n (%)	Groups		P
		Intervention (n = 47) n (%)	Placebo (n = 44) n (%)	
Duration of hypertension				
0-5 y	43 (47.2)	25 (53.1)	18 (40.9)	.370
6-10 y	30 (32.9)	14 (29.7)	16 (36.3)	
>10 y	18 (19.9)	8 (17.2)	10 (22.8)	
Drugs used for treatment of hypertension				
Diuretic	18 (19.8)	11 (23.4)	7 (15.9)	.646
β -adrenergic receptor blocker	20 (21.9)	12 (25.5)	8 (18.2)	
α -adrenergic receptor blocker	20 (21.9)	8 (17.1)	12 (27.3)	
Calcium channel blocker	8 (8.8)	4 (8.5)	4 (9.0)	
Central α 2-receptor blocker	7 (7.6)	4 (8.5)	3 (6.8)	
Angiotensin-converting enzyme inhibitor	9 (9.9)	4 (8.5)	5 (11.3)	
Angiotensin receptor antagonist	9 (9.9)	4 (8.5)	5 (11.3)	
Medication adherence				
Yes	83 (91.2)	43 (91.4)	40 (90.9)	1.000
No	8 (8.8)	4 (8.6)	4 (9.1)	
Controlling the hypertension attack				
Taking additional dose of drug	7 (7.7)	7 (14.9)046
Eating lemon	33 (36.2)	6 (12.8)	7 (15.9)	
Eating garlic	29 (31.8)	12 (25.5)	17 (38.7)	
Taking a rest	22 (34.1)	12 (25.5)	10 (22.7)	
No application	20 (2.2)	10 (21.3)	10 (22.7)	
Frequency of measuring blood pressure				
Every day	15 (16.4)	4 (8.5)	11 (25.0)	.008
Sometimes	72 (79.2)	39 (83.0)	33 (75.0)	
Never	4 (4.4)	4 (8.5)	...	
Person measuring blood pressure				
Healthcare personnel	31 (34.2)	21 (44.7)	10 (22.7)	.057
Own	43 (47.2)	20 (42.6)	23 (52.3)	
Family member	8 (8.8)	2 (4.2)	6 (13.7)	
Other	9 (9.8)	4 (8.5)	5 (11.3)	

Abbreviation: HT, hypertension.

151.00 \pm 11.24 before the acupressure application, it was 136.66 \pm 11.57 after the application. While their average diastolic blood pressure was 87.42 \pm 11.01 before the application, it was 73.00 \pm 6.65 after the application. While their average pulse rate was 83.33 \pm 8.33 before the application, it was 76.00 \pm 7.60 after the application; and the decrease in average systolic and diastolic blood pressures and average pulse rates was significant. It was determined that while average systolic blood pressure of those in the placebo group was 146.40 \pm 9.95 before the application, it was 143.50 \pm 9.35 after the application. Their average diastolic blood pressure was 87.50 \pm 8.81 before the application and 88.28 \pm 7.37 after the application. While their average pulse rate was 83.50 \pm 9.86 before the application, it was 73.00 \pm 6.65

after the application. These changes in average systolic and diastolic blood pressures and average pulse rates were not significant ($P < .05$, Table 4). While there was no difference between intergroup average systolic and diastolic blood pressures and pulse rates before the acupressure ($P > .05$), a significant decrease was determined between average systolic and diastolic blood pressures and average pulse rates in the intervention group after the acupressure application ($P < .05$).

DISCUSSION

Despite the developments in treatment of HT, all recommendations and strategies, blood pressure of

TABLE 3. Distribution of Hypertensive Symptoms Experienced by the Patients in the Intervention and Placebo Groups Before and After the Application

Groups	Before Application		P	After Application		P
	Intervention (n = 47) n (%)	Placebo (n = 44) n (%)		Intervention (n = 47) n (%)	Placebo (n = 44) n (%)	
Headache						
Yes	35 (74.4)	26 (59.0)	.521	4 (8.5)	21 (47.7)	<.001
No	8 (17.1)	10 (22.7)		34 (72.3)	18 (40.9)	
Sometimes	4 (8.5)	8 (18.1)		9 (19.2)	5 (11.4)	
F	1.239	0.639		16.123	13.084	
P	.269	.530		<.001	<.001	
Dizziness						
Yes	39 (83.0)	18 (40.9)	.002	6 (12.7)	14 (31.8)	.006
No	4 (8.5)	16 (36.3)		27 (57.4)	25 (56.8)	
Sometimes	4 (8.5)	10 (22.8)		14 (29.9)	5 (11.4)	
F	7.198	4.429		10.318	5.528	
P	.001	.099		.002	.005	
Nasal bleeding						
Yes	8 (17.0)	3 (6.8)	.039	2 (4.2)	5 (11.3)	.377
No	39 (83.0)	39 (88.6)		41 (87.2)	34 (77.2)	
Sometimes	... (...)	2 (4.6)		4 (8.6)	5 (11.3)	
F	6.482	7.230		7.789	9.650	
P	.013	.021		.004	.003	
Ringing in the ears						
Yes	29 (61.7)	27 (61.3)	.026	... (...)	27 (61.3)	<.001
No	12 (25.5)	17 (38.7)		28 (59.5)	17 (38.7)	
Sometimes	6 (12.8)	... (...)		19 (40.5)	0 (0)	
F	3.822	6.723		49.298	6.723	
P	.026	.032		<.001	.032	
Palpitation						
Yes	23 (48.9)	23 (52.2)	.611	0 (0)	21 (47.7)	<.001
No	18 (38.2)	16 (36.3)		29 (61.7)	21 (47.7)	
Sometimes	6 (12.7)	5 (11.3)		18 (38.3)	2 (4.6)	
F	9.024	5.820		59.769	32.162	
P	.039	.043		<.001	<.001	
Blurred vision						
Yes	28 (59.5)	29 (65.9)	.156	4 (8.5)	16 (36.3)	<.001
No	17 (36.2)	11 (25.1)		41 (87.2)	22 (50.0)	
Sometimes	2 (4.3)	4 (9.0)		2 (4.3)	6 (13.7)	
F	9.290	5.972		23.832	6.550	
P	.034	.001		<.001	.024	
Foot swelling						
Yes	29 (61.7)	18 (40.9)	.004	5 (10.6)	21 (47.7)	<.001
No	16 (34.0)	14 (31.8)		40 (85.1)	21 (47.7)	
Sometimes	2 (4.2)	12 (27.3)		2 (4.3)	2 (4.6)	
F	10.959	6.027		35.744	17.736	
P	.004	.004		.000	.000	
Chest pain						
Yes	18 (38.2)	17 (38.6)	.135	... (...)	9 (20.4)	.002
No	25 (53.1)	27 (61.4)		36 (76.5)	33 (75.0)	
Sometimes	4 (8.7)	... (...)		5 (23.5)	2 (4.6)	
F	4.011	5.560		17.736	9.714	
P	.135	.003		.000	.002	
Fatigue						
Yes	38 (80.8)	36 (81.8)	.693	27 (57.4)	18 (41.0)	<.001
No	4 (8.5)	5 (11.3)		15 (31.9)	26 (59.0)	
Sometimes	5 (10.7)	3 (6.9)		5 (10.7)	... (...)	
F	6.680	7.016		30.901	15.325	
P	.018	.014		.000	.000	
Nervousness						
Yes	12 (25.5)	9 (20.4)	.994	... (...)	25 (56.8)	<.001
No	31 (65.9)	29 (65.9)		38 (80.8)	19 (43.2)	
Sometimes	4 (8.6)	6 (13.7)		3 (19.2)	...	
F	0.543	9.260		41.748	9.995	
P	.023	.009		<.001	.005	
Insomnia						
Yes	16 (34.0)	11 (25.0)	.226	2 (4.2)	16 (36.3)	<.001
No	23 (48.9)	31 (70.4)		39 (82.9)	28 (63.7)	
Sometimes	8 (17.1)	2 (4.6)		6 (12.9)	...	
F	4.488	6.710		21.650	12.551	
P	.231	.018		<.001	.001	

TABLE 4. Comparison of Systolic and Diastolic Blood Pressures and Pulse Rates of the Patients in the Intervention and Placebo Groups Before and After the Application

	Systolic Blood Pressure, mm Hg		Diastolic Blood Pressure, mm Hg		Pulse Rate, beat/min	
	Intervention Group (n = 47)	Placebo Group (n = 44)	Intervention Group (n = 47)	Placebo Group (n = 44)	Intervention Group (n = 47)	Placebo Group (n = 44)
Before the application ^a	151.00 ± 11.24 <i>t</i> = 2.038	146.40 ± 9.95 <i>P</i> = .127	87.42 ± 11.01 <i>t</i> = 0.634	87.50 ± 8.81 <i>P</i> = .528	83.33 ± 8.33 <i>t</i> = 0.077	83.50 ± 9.86 <i>P</i> = .939
After the application ^a	136.66 ± 11.57 <i>t</i> = 3.811	143.50 ± 9.35 <i>P</i> = .000	73.00 ± 6.65 <i>t</i> = 7.892	88.28 ± 7.37 <i>P</i> = .000	76.00 ± 7.60 <i>t</i> = 4.572	73.00 ± 6.65 <i>P</i> = .000
<i>F</i>	9.539	4.152	3.820	9.539	4.152	3.820
<i>P</i>	.000	.045	.000	.000	.045	.000

^aSystolic blood pressure, diastolic blood pressure, and pulse rates (mean ± standard deviation) measured in the first and fourth weeks were given.

patients with HT is not controlled at a desired level due to various reasons.^{22,23} The National Institute for Health and Clinical Excellence also suggests the use of complementary and supportive medical practices as a part of treatment.²⁴

Improvements have been observed in acupressure, being a part of complementary and supportive treatment in the field of health, in recent years. Acupressure applications are performed especially abroad in order to enhance life quality of patients with HT and minimize the adverse effects of disease.^{10,11,24}

Hanfy et al¹⁰ applied acupressure to Liver 3, Spleen 6, and Stomach 36 acupuncture points of postmenopausal hypertensive women for 30 minutes, 18 sessions and 6 weeks, and they found that there was no difference between systolic and diastolic blood pressures of the intervention and control groups during the first follow-up (*P* > .05), whereas a statistically significant decrease was determined between systolic and diastolic blood pressures of those in the intervention group during the second follow-up (*P* < .01). In their study, Zheng et al¹¹ applied acupressure to Shenmen (HT 7) and Taixi (KI 3) acupuncture points of 75 hypertensive elderly individuals in the intervention group for 40 minutes every other day for 4 weeks and found that the acupressure application decreased systolic and diastolic blood pressure and enhanced quality of sleep. Results of the study evaluating the effect of acupressure on blood pressure levels of hypertensive individuals in the literature were also similar to results of this study. In this study investigating the effect of acupressure, applied to the Neiguan (PC 6) acupuncture point of the individuals with essential HT

by using the electrostimulation device for half an hour, every weekday for a month, on their regulation of blood pressure, decreased systolic and diastolic blood pressure and pulse rate (*P* < .001) and reduced the symptoms of headache, dizziness, nasal bleeding, ringing in the ears, blurred vision, foot swelling, chest pain, fatigue, nervousness, and insomnia associated with HT (*P* < .05). No study examining the effect of acupressure on HT-related symptoms in hypertensive people was found in the literature. However, a previous study revealed that acupressure applied to 6 auricular acupuncture points (Shenmen, sympathetic, kidney, liver, heart, and subcortex) in individuals with HT decreased blood pressure and pulse rate although it was not significant and provided physical and mental well-being by reducing anxiety and depressive symptoms.²⁴ It was stated in another study that acupressure applied to the Shenmen point for 3 minutes, 2 times a day, and for 3 days decreased the cortisol level, pulse rate, anxiety, and fatigue severity in postpartum women after cesarean delivery.²⁵ In a systemic review investigating the effect of acupressure on symptom management it was stated that acupressure improved symptom scores of allergic diseases, decreased the chemotherapy-associated nausea and vomiting in patients with cancer, reduced pain level associated with dysmenorrhea and stress and fatigue level, and enhanced the quality of sleep.²⁶ Another review reported that acupressure was stated to be an efficient intervention in the management of dyspnea, fatigue, insomnia, pain, and nausea.²⁷

Based on the biomedical perspective, acupressure applied to acupuncture points via stimulation increases the production of hormones and neurotransmitters, communication substances of the

body, by stimulating the nervous system. The resultant biochemical changes support physical and mental well-being by stimulating the self-regulating homeostatic balance of the body.^{28,29} Special nerves are stimulated upon stimulation of specific points of the skin. Thus, electrical impulses travel to the spinal cord and lower center of the brain and then to the area with disease.^{1,30-39} In the end, acupressure applied to acupuncture points provides homeostasis over the autonomic nervous system, regulates water and electrolyte balance, and transforms HT into normotension by regulating the vascular system.^{1,30-39} The effect of acupressure applied to acupuncture points on the pulse rate is related to points chosen for stimulation. While stimulation of the Neiguan (PC 6) point decreases the pulse rate, stimulation of the Tongli (HT 5) point increases the pulse rate.^{32,33} Thus, in the present study, the Neiguan (PC 6) point was used for acupressure application, and the pulse rate decreased for those in the intervention group ($P < .001$).

CONCLUSIONS

It was determined that acupressure could be used for decreasing systolic and diastolic blood pressures and pulse rate and reducing the HT-related symptoms in individuals with essential HT.

In accordance with these results, it is recommended to repeat this study as a double-blind randomized controlled trial evaluating individuals within a longer period to increase the evidence level of the study.

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