

Causes of failure to control hypertension in people over 65 years of age
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Abstract

BACKGROUND: Hypertension is a major cause of cardiovascular diseases whose prevalence increases by 10% for every 10 years after 50 years of age. This study aimed to investigate the causes of failure to control blood pressure in people aged over 65 years old.

METHODS: This descriptive case-control study was conducted on 200 participants aged over 65 years old who were diagnosed with hypertension through a routine travel check-up for pilgrimage to Mecca in Amin Hospital, Isfahan, Iran during 2003. Following the medical examinations and blood pressure measurements according to the World Health Organization (WHO) standards, the participants were divided into two groups of controlled blood pressure case and uncontrolled blood pressure (control). A questionnaire was filled in for each participant and the data was analyzed using chi-square and student-t tests.

RESULTS: The mean age was 70.7 ± 5.2 and 69 ± 4.9 in case and control groups, respectively. Less than half of the participants in the case group took anti-hypertensive medicine, out of which 87.5% were treated by a physician and 12.5% practiced self-therapy. In addition, 25% took their medicine regularly and 55% expressed a lack of motivation as the cause of discontinuing their medication. Furthermore, patients with controlled blood pressure had significantly better knowledge and performance than the case group ($P < 0.05$).

CONCLUSION: The most common causes of failure to control blood pressure were poor knowledge, inappropriate practice in diet, stress, smoking, and irregular intake of medication.

Keywords: Hypertension, Cardiovascular Diseases, Antihypertensive Agents, Diet Therapy.

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Introduction

Hypertension is one of the most important risk factors of cardiovascular diseases.¹ Although in most developed countries, cardiovascular mortality has decreased, many European countries witness a rising trend.^{2,3} During 1970-7, cardiovascular diseases were the most important cause of death in Lithuania, where the prevalence of hypertension (systolic blood pressure ≥ 140 mmHg, diastolic blood pressure ≥ 90 mmHg) was 55.2% in men and 43.7% in women.^{4,5} Some hypotheses mention the effective and preventive role of monitoring blood pressure (before appearance of symptoms) in controlling hypertension.⁶ Long term studies have shown that hypertension can occur in childhood or adolescence, but its prediction and diagnosis is difficult.⁷

The prevalence of hypertension increases linearly with age, i.e. after 50 years of age, each 10 years would increase blood pressure by 10%.⁸ Some studies have suggested that although hypertension can be

seen at any age, 90% of the cases are diagnosed in patients above 60 years old. Most patients have needed treatment at younger ages and thus hypertension remains inappropriately controlled in 70% of the sufferers.⁹ In a study in China, while 71% of the participants have been under treatment by antihypertensive medicine, hypertension was controlled only in 20%.¹⁰ Out of all hypertensive people, 80% have been reported to take antihypertensive medicine. However, 60% do not continue their medicine.^{9,10} Previous studies have shown that diet impacts on controlling hypertension. Although salt was considered as the only effective factor in the past, nowadays, other factors such as kind and amount of oil in food, and the amounts of consumed fruits and vegetables are also important.^{11,12}

Controlling hypertension is related with several factors such as age, sex, obesity, and continuing medical treatment. Several studies on hypertensive people have suggested physical activity to reduce

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diastolic and systolic blood pressure by 1.5 mmHg and 4.5 mmHg, respectively.¹³ Failure to control hypertension, its high prevalence, and its direct relationship with coronary artery diseases highlight the importance of this risk factor in cardiovascular disease epidemic.^{14,15} Every 10 mmHg increase in blood pressure is associated with 30% increase in the risk of coronary artery diseases.¹⁴ This study was conducted to determine the causes of failure to control hypertension and to recognize preventive measures for hypertension.

Materials and Methods

This case-control study was conducted on 200 patients over 65 years of age who were diagnosed with hypertension (by their own physician) and were referred to Amin Clinic (Isfahan, Iran) for check-up before pilgrimage to Mecca in 2003. The number of participants in each group was 100 people who entered the study by simple random sampling. Patients who had diabetes or kidney diseases or used antidepressants were excluded.

Patients were divided into two groups according to their recorded blood pressure. The first group included individuals with uncontrolled blood pressure confirmed by systolic blood pressure ≥ 140 mmHg or diastolic blood pressure ≥ 90 mmHg during their two last visits to the doctor and despite receiving medical treatment. Subjects with controlled blood pressure (systolic blood pressure ≤ 140 mmHg or diastolic blood pressure ≤ 90 mmHg during their two last visits to the doctor) were allocated in the other group.

According to the World Health Organization

(WHO) standard, right-arm blood pressure was measured at a sitting position, after 5 minutes of rest and 10 minutes afterward. The mean of the two measured values was considered as patient's blood pressure. Since the patients were going to Mecca and in order to receive correct information, we reassured the participants that the study was not related to their pilgrimage. Individuals with uncontrolled blood pressure were referred to the responsible physician. A questionnaire containing demographics, date of hypertension diagnosis, received treatments, patient's knowledge and function toward diet, exercise, smoking, and facing stress was completed for both groups. Data was analyzed using chi-square and t tests in SPSS.

Results

The 2 groups of case and control were matched for age, sex, education level, and employment status, and were thus not significantly different (Table 1).

In 60% of the participants, hypertension was diagnosed in the two years prior to the study, i.e. at about 65 years old, which was not significantly different between the case and control groups. Moreover, 60% of the case and 9.8% of the control group did not receive any treatment. Among those who received treatment, 75% did not take the medicine regularly. Some 12.5% applied self-therapy. Of 90.2% of the patients in the control group who took medicines, 98.5% were treated by a physician, and continued their treatment by repeated visits, and 81.8% took their medicine regularly (Table 2).

Table 1. Comparison of demographics between the case and control groups

	Case Group	Control Group
Mean age (years)	70.7 \pm 5.2	69.5 \pm 4.9
Sex		
Female	62.3%	53.2%
Male	37.7%	46.8%
Education level (years)		
Illiterate	70%	63.8%
1-6	13%	27.7%
7-12	14%	4.3%
> 12	3%	4.2%
Occupation		
Self-employed	14%	21.2%
Worker	22%	12.8%
Employee	2%	0%
Retired	62%	66%

Values are expressed as mean \pm SD, percentage.

Table 2. The prevalence of some causes of failure to control hypertension in the case and control groups

		Case Group	Control Group	P
Time after diagnosis	1-2 months	24	34	NS
	3-12 months	34	20	
	13-24 months	4	10.7	
	> 24 months	38	38.4	
Manner of diagnosis	Accidental	34	41.8	NS
	At home	2	4.1	
	Following another disease	59	50.1	
	Because of headaches	5	4	
Medical treatment	Yes	40	90.2	< 0.05
	No	60	9.8	
Type of medical treatment	Regular	25	81.8	< 0.05
	Irregular	75	18.2	
	By a physician	87.5	98.5	< 0.05
	Self-therapy	12.5	1.5	
The number of physicians changed during hypertension treatment	1 physician	70	64.8	NS
	2-3 physicians	16	27.7	
	More than 3 physicians	14	8.5	

NS: Not significant

Patients in the control group had higher levels of knowledge and function. In fact their knowledge about the effect of diet (66% and 54% in the control and case groups, respectively), salt intake, smoking, exercise, and stress was significantly better than the case group. Furthermore, the function of the 2 groups differed significantly in terms of fruits,

vegetables, and salt consumption, and smoking (Table 3).

Patients in the case discontinued their medication due to lack of motivation (57%) and drug side effects (30%) while in the control group lack of amnesia were the main reasons for not taking the drugs (Figure 1).

Table 3. The relative prevalence of knowledge and function toward factors effective in controlling hypertension in the case and control groups

	Case Group	Control Group	P
Knowledge			
Diet is effective (Yes)	54%	66%	< 0.05
The amount of salt intake is effective (Yes)	14%	91.5%	< 0.05
Exercise is effective (Yes)	46%	83%	< 0.05
Smoking is effective (Yes)	24%	74.5%	< 0.05
Stress is effective (Yes)	38%	57.4%	< 0.05
Function			
Watching the diet for fat (Yes)	80.9%	76%	NS
Eating vegetables and fruits			
A lot	10.6%	58%	< 0.05
A little	89.4%	42%	< 0.05
Salt intake			
Low-salt diet	8.5%	86%	< 0.05
High-salt diet	91.5%	14%	< 0.05
Attempt to lose weight (Yes)	31.9%	30%	NS
Walking			
One hour, 3 times a week	19.1%	30%	NS
No walking	80.9%	70%	NS
Cigarette			
Quit or never smoked	12.8%	96%	< 0.05
Smokes	87.2%	4%	< 0.05
Controlling stress			
Appropriate	46.8%	52%	NS
Inappropriate	53.2%	48%	NS

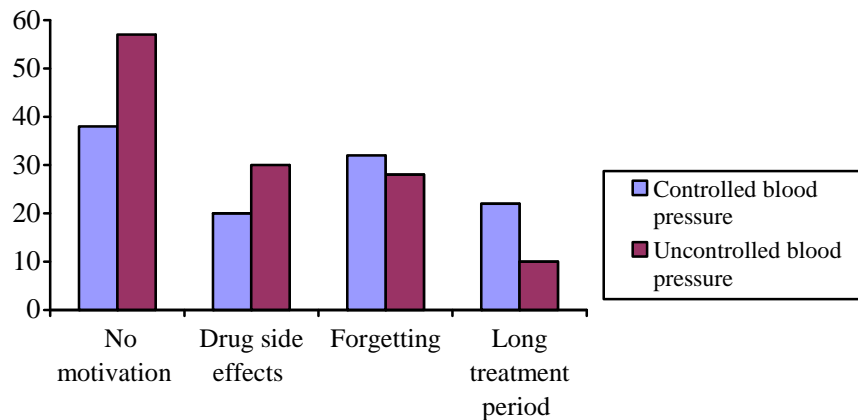


Figure 1. The relative prevalence of failure to take regular medicine in the case and control groups

Discussion

From treatment point of view, 60% of the control and 9.8% of the case group did not take antihypertensive medicines. In general, more than a third of the patients with uncontrolled blood pressure, who received a prescription from a physician, did not complete or were reluctant to treatment. In a study in 1993, 80% of hypertensive people took medicine, but only 40% continued their medication.¹⁵ In another study in the US, although out of 71% of hypertensive patients who took antihypertensive medicines, 63% used the medicine regularly, only 30% had controlled blood pressure. In addition, 61% of hypertensive people took 2 or more antihypertensive drugs while 37% had stopped taking medicine for various reasons.¹⁶

In the present study, 81.8% of the participants with controlled blood pressure but only 25% of the other group took their medicine regularly. On the other hand, 45% had stopped their medication since they believed they did not need any drugs, 30% assumed their blood pressure was normal, 25% forgot to take drugs, 8% stopped medications because of their side effects, and 4% could not afford the expenses. In addition, 80% of the participants received their drugs from Hypertension Clinic health system in 1999.¹⁷ It is noteworthy that in 60% of the participants, hypertension was diagnosed after 60 years of age while many of them needed treatment at younger ages. Among the people whose hypertension was diagnosed after 60 years old, 70% did not control it appropriately.¹⁸

Screening blood pressure at clinics has a significant effect in primary prevention of hypertension.⁶⁻⁸ Studies have shown weight and height to be directly related with hypertension. Weight loss is significantly related with hypertension, i.e. hypertension is better controlled

in people with lower weight, and losing weight decreases the amount of medicine needed to control hypertension.¹⁸⁻²¹ In the present study, both groups acted the same in reducing their weight. However, considering their age (≥ 65 years old) and lipid profile, it cannot be discussed for them.

Nowadays, disregarding antihypertensive medical regimen is the most important factor in failure to control blood pressure, especially in people over 50 or 60 years of age.¹¹ Furthermore, our two groups significantly differed in the level of knowledge about the environmental factors that affect blood pressure or their lifestyle.¹³ In the present study, we found that the case group did not care about a low-salt diet, did not have an appropriate diet, and acted inappropriately regarding stress, smoking, and exercise. Other studies have reported diet to be effective in controlling blood pressure.¹¹

The present study, like other similar studies, showed that increasing patients' knowledge about medication and appropriate lifestyle can affect controlling and preventing their disease. Patients who continue their medication with regular visits to the physician, and have good knowledge about diet, exercise, stress control, smoking, and weight control have a normal and controlled blood pressure. This reveals the effective role of the therapy team including physicians, nurses, dieticians, and families.

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Conflict of Interests

Authors have no conflict of interests.

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