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Prevalence and Determinants of Blood Pressure Control Among Patients with Hypertension in Primary Care Settings, Najran Area, Saudi Arabia

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Abstract

Background: Among patients with hypertension, insufficient adherence to drug therapy is one of the common causes of poor control of blood pressure in most countries.

Objective: To estimate the prevalence of blood pressure control among patients with hypertension and their determinants in primary care settings in Najran area.

Methods: We conducted a retrospective analysis of administrative data from adult patients with hypertension followed in primary care clinics in Najran area. A representative sample of patients was randomly selected among eligible patients with hypertension from primary care clinics in Najran area.

Results: A total of 382 patients had available data for a 1-year medical record review. Their mean age was 62,71±14, 16 years. 51.8% was male. The majority of the studied population were married (96.6%). More than 50% of them were analphabet (56.2%). The prevalence of patients with controlled blood pressure was 51.3% among the studied population. older age more than 60 years was a significant predictor of non-controlled hypertension.

Conclusion: This study provides a preliminary finding for identifying patients with hypertension who are at high risk of poor blood pressure control. Older patients can be targeted for greater attention to blood pressure control to prevent serious and heavy complications.

Keywords: Hypertension; Primary Care; Therapeutic adherence

Introduction

Globally, hypertension affects more than a quarter of adults in the world, more than one third in Europe, and its prevalence continues to increase [1-4]. For low-income countries, the increase is part of the epidemiological transition from neonatal diseases, maternal diseases, nutritional diseases and communicable diseases to non-communicable chronic diseases such as cancers and cardiovascular diseases [5]. For high-income countries, it is linked to longer life expectancy, sedentary lifestyles, and a diet high in calories, salt, animal products, and low in vegetables [6]. Hypertension causes a health burden that has increased by 30% in the world between 1990 and 2010, now responsible for more than one out of eight premature deaths and 8% of healthy years lost in health [7]. It is now the modifiable risk factor with the heaviest health consequences.

Over the last few decades, much progress has been achieved regarding hypertension medications and many therapeutic classes are currently available. They have been shown to be effective in reducing morbidity and mortality related to hypertension [8]. However, less than one-third of patients with hypertension have controlled blood pressure in most countries [9]. Adherence to hypertension treatment, defined as the dynamic process in which the hypertensive patient actively collaborates with care professionals

to maintain normal blood pressure levels. Among patients with hypertension, insufficient adherence to drug therapy is one of the common causes of poor control of blood pressure [10].

Few available statistics on therapeutic adherence in Saudi Arabia. Hence the interest of our study which aims to determine the prevalence of blood pressure control among patients with hypertension and their determinants in primary care settings in Najran area.

Methods

Study Design

We conducted a retrospective analysis of administrative data from adult patients with hypertension followed in primary care clinics in Najran area.

Studied Population

A sample of 400 patients was randomly selected among eligible patients with hypertension from 5 primary clinics in Najran area. To be included in the study, patients needed to meet the following criteria:

- Be identified as having hypertension using algorithms employed by disease management program;
- Be at least aged 18;
- Male or female
- Have blood pressure records at least measured three times during the last year

Definition of the Main Variables

For each patient, we calculated mean of the three last Systolic and diastolic blood pressures. We grouped patients into 2 categories:

- Controlled, those who achieved and maintained a mean SBP < 140 mm Hg and mean DBP < 90 mmHg
- Not controlled, those who had a mean SBP >= 140 mm Hg and DBP >= 90 mm Hg
- Medicines used for hypertension control checked from the file of the patient
- General characteristics considered were age, gender, marital status, level of education and monthly income if available in the file.
- According to their smoking status, patients were grouped into two categories: smokers and non smokers.

Statistical Analysis

Data were entered and analyzed using Statistical Package for Social Science program: S.P.S.S 17.0. The Chi square test was used to evaluate the relationships between blood pressure control status and independent variables. A p value less than 5% was considered as significant.

Ethical Considerations

The study was conducted with respect of the total confidentiality of data. Anonymous data were used for the final analysis.

Results

A total of 382 patients had available data for a 1year medical record review. Their mean age was 62,71± 14, 16 years. 51.8% was male. The majority of the studied population were married (96.6%). More than 50% of them were analphabet (56.2%) (Table 1).

%	N	
Age		
43.7	167	< 60
56.3	215	≥ 60
Gender		
51.8	198	Male
48.2	184	Female
Marital Status		
96.6	282	Married
0.7	2	Single
2.7	8	Divorced
Level of education		
56.2	68	Analphabet
17.4	21	Primary
14.0	17	Secondary
12.4	15	University

Table 1: General characteristics of the studied population.

The mean SBP for the studied population was 140, 38 ± 16, 40 mmHg, and the mean DBP was 80, 31 ± 8, 90 mmHg. Based on the mean of the last 3 BP measurements, 51.3% were normotensive. The mean of SBP in the controlled patient was 128, 12 ± 8, 66 mmHg and the mean of DBP was 77, 70 ± 6, 80 mmHg. Within the non-controlled patients, the mean of SBP was 153, 3 ± 12, 1 mmHg and the mean of DBP was 83, 07 ± 9, 9 mmHg (Table 2).

Mean DBP ± SD	Mean SBP ± SD	Variable
77.7 ± 6.80	128.12 ± 8.66	Controlled Hypertension
83.07 ± 9.9	153.12 ± 12.1	Non-controlled Hypertension

Table 2: Mean of SBP and DBP by Hypertension Control Status.

The prevalence of non-controlled hypertension was higher among females (52.7%) than males (44.9%) with no significant statistical difference p= 0.12. In the same way, the prevalence of non-controlled hypertension showed a positive trend within age groups. It varied from 36.7% within 30-40 years age group to 54.7% within 70-80 years age group and 57.1% within 80-90 years age group.

The results showed no significant statistical association between blood pressure control status and the number of taken medication but globally the patients who takes less than 2 antihypertensive medication had lower levels of SBP and DBP (Table 3).

%	Un controlled	Controlled	
Age			
0.03	71 (42.5)	96 (57.5)	<60
	115 (53.5)	100 (46.5)	≥60
Gender			
0.12	89 (44.9)	109 (55.1)	Male
	97 (52.7)	87 (47.3)	Female
Marital Status			
0.99	145 (51.4)	137 (48.6)	Married
	5 (50)	5 (50)	Not married
Level of Education			
0.49	37 (54.4)	31 (45.6)	Analphabet
	8 (38.1)	13 (61.9)	Primary
	9 (52.9)	8 (47.1)	Secondary
	6 (40)	9 (60)	University
Number of Medications			
0.73	40 (48.8)	42 (51.2)	< 2
	35 (46.1)	41 (53.9)	≥ 2

Table 3: Univariate Predictors of Poor Blood Pressure Control.

On univariate analysis of the predictors of poor blood pressure control, only older age was a significant predictor of non-controlled hypertension.

Discussion

Our findings showed that the prevalence of patients with controlled blood pressure was 51.3% among the studied population. Similar findings were reported elsewhere 53.4% in Hong Kong [11] and 56.5% in Eastern Nepal [12]. Lower adherence prevalence rate was observed among Tunisian population 36.6% [13]. Age more than 60 years old was found to be a significant predictor of poor blood pressure control. We observed a positive trend of SBP and a negative trend of DBP with age. Consistent results of previous studies showed positive correlations between the levels of increase of systolic blood pressure and cardiovascular events [14]. The efficacy of antihypertensive treatments for the prevention of complications is the best argument in favor of the causative role of hypertension. In the absence of co morbidity, the benefit derived from antihypertensive therapy depends very much on the amplitude of the reduction in blood pressure that it achieves and not on the choice of one pharmacological class rather than another [15,16]. Treatment that decreases systolic BP of 10 mmHg reduces the incidence of coronary heart disease by approximately 25% and stroke incidence by 40%, regardless of age or baseline risk. The greater the benefit, the more rapid and consistent the control of high blood pressure [17].

We didn't find in our study any significant association between the number of antihypertensive drugs and blood pressure control. This finding is not in concordance with other studies using similar methodology [18].

This study provides a preliminary finding for identifying patients with hypertension who are at high risk of poor blood pressure control. Older patients can be targeted for greater attention to blood pressure control to prevent serious and heavy complications.

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