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ORIGINAL ARTICLE

The Prevalence and Associated Risk Factors of Uncontrolled Hypertension amongst Antihypertensive Medicines Taking Patients

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ABSTRACT

Objective: The purpose of this study was to determine how common uncontrolled HTN is among medicated hypertensive individuals in Pakistan.

Study Design: Cross-sectional study

Place and Duration: This study was carried out at Hayatabad Medical Complex from Jan 2022 to April 2022

Methods: Total 165 hypertensive patients of both genders were presented. Enrolled cases were aged between 18-80 years. Baseline detailed demographics included age, sex, body mass index and socio economic status were recorded. Frequency of anti-hypertensive medications and uncontrolled hypertension among all cases were assessed. SPSS 24.0 was used to analyze all data.

Result: Majority of the patients 95 (57.6%) were females and 70 (42.4%) were males. Mean age of the patients was 60.4±9.30 years and had mean BMI 30.3±17.85 kg/m^2. 101 (61.2%) patients had poor socio-economic status. Frequency of married patients was 130 (78.8%) cases and 105 (63.6%) cases were non-educated. Mean duration of hypertension was 5.8±6.20 years. Most frequently used antihypertensive drug was combination therapy. Frequency of uncontrolled hypertension was found in 82 (49.7%) cases. Males, people older than 60, and smokers were more likely to experience uncontrolled hypternsion. Obesity, hyperlipidemia, diabetes, anaemia, malignancy, and reflex or gastric reflux disease were all associated with an increased risk of uncontrolled hypternsion in individuals with comorbid illnesses (P <0.05).

Conclusion: According to the findings, there is an urgent requirement for more productive measures aimed at enhancing HTN control. Patients with hypertension who also smoke cigarettes, have diabetes, have a poor education level, and have a body mass index that is greater than normal should be the focus of the efforts.

Keywords: Un-controlled hypertension, Comorbidities, Anti-Hypertensive Medications, Risk Factors

INTRODUCTION

Globally, HTN accounts for more than 1.7 million deaths each year [1-3] and affects over a billion people. The PHC system has an issue with untreated hypertension. Despite the fact that the worldwide epidemic of uncontrolled HTN is well documented [4, 5], its root causes remain a mystery.

When compared to normotensive individuals, those with HTN had a twofold increased risk of developing coronary artery disease, as well as a fourfold and sevenfold increased risk of heart failure, vascular disease, or stroke, respectively [6]. Prolonged high blood pressure has also been linked to proteinuria and renal failure [7]. Treatment and control of hypertension are crucial for minimizing the risk of cardiovascular disease and the related burden of sickness in light of the increasing incidence of HTN in emerging nations.

In people with hypertension, intensive vs routine BP management (systolic BP of 120 vs. 140 mmHg) reduces the risk of major cardiovascular events by 25% and of all-cause death by 27% [8]. This was observed by the Systolic Blood Bp Intervention Trial (SPRINT). Unfortunately, myocardial infarction, heart problems, stroke, and renal disease are only some of the long-term complications that can arise when hypertension is not managed. There is a doubling of risk for severe cardiovascular and stroke events for every 20 mmHg rise in systolic BP to > 115 mmHg (or 10 mm increase in diastolic BP to > 75 mmHg) [9]. Both all-cause and heart disease mortality are increased in those with uncontrolled hypertension [10].

Less than a third of people in Africa reach their treatment goals, according to most research [12]. One study found that less than 30% of people in Sub-Saharan Africa (SSA) have their blood pressure (BP) under control at the recommended threshold of 140/90 [12]. In a small sample of hospitals across Ethiopia, the incidence of high blood pressure among patients receiving therapy ranged from 11.4% at Gondar University Hospital to 59.9% at Tikur Anbessa Hospital and 69.9% at Zewditu Memorial Hospital [10, 12].

Compared to the population, the prevalence of HT is much higher among those with RA.[11] Because studies may vary in population size, number of patients included, and definition of HT utilised, reported estimates of the prevalence of HT among RA patients vary greatly. In contrast, a recent meta-analysis found that HT was present in 52%-73% of rheumatoid arthritis patients. [13] Although HT has been observed in RA patients, the underlying processes that cause it remain unclear. Chronic systemic irritation on the vascular endothelium, [14] a lack of physical exercise, and hereditary variables have all been implicated in certain publications as potential explanations of this connection. [14]

High blood pressure (HT) control rates are still below ideal, despite the availability and improvement of diagnostic and therapies with proven advantages in reducing cardiovascular morbidity and death. Despite widespread access to antihypertensive medication, only 37% of Saudi Arabians with hypertension report feeling in control of their condition. In spite of the fact that CVD problems might result from high blood pressure (BP), [15]

The purpose of this study was to determine the event with a probability of uncontrolled HTN amongst patients using anti-HTN medicines and the related risk factors in Pakistan.

MATERIAL AND METHODS

This cross-sectional study was conducted at Hayatabad Medical Complex from Jan 2022 to April 2022 and comprised of 165 patients. Baseline detailed demographics included age, sex, body mass index and socio economic status were recorded after taking

informed written consent. Patients who had not been diagnosed as HTN or were not on anti-HTN medications were not included. Participants were selected from hypertension patients receiving anti-HTN drugs who matched the following inclusion criteria and consented to take part in the study: individuals aged 18 who have been taking a pharmaceutical HTN treatment for a minimum of 3 months. Untreated hypertension was the outcome of interest. Independent variables included patients' demographic information (age, gender, marital status, education level), risk factors for poorly managed hypertension (lack of adherence to a low-salt diet, smoking status), and clinical characteristics (i.e., the frequency of anti-HTN medications taken and BMI).Two medical students in their sixth year of study were instructed to measure blood pressure. While the subject was comfortably seated, blood pressure was taken from the upper right arm. After the subjects had rested for 5 minutes, their blood pressure was taken using a mercury blood pressure monitor that had been standardized and calibrated (with a 14 cm cuff). Three measurements were taken and averaged to the closest 2 mmHg. When the relevant noises (the initial Korotkoff sounds) first appeared, systolic BP measurements were taken, and when they faded away, diastolic BP measurements were taken.

It was version 24 of the Statistical Package for the Sciences (SPSS) that was used for the statistical analysis. Since all of the independent factors were categorical, a univariate analysis was performed using the Chi-square test to examine the correlation between each predictor variables and BP regulation. The significance level of the correlation was set at P values lower than 0.05.

RESULTS

Majority of the patients 95 (57.6%) were females and 70 (42.4%) were males. Mean age of the patients was 60.4±9.30 years and had mean BMI 30.3±17.85 kg/m^2. 101 (61.2%) patients had poor socio-economic status. Frequency of married patients was 130 (78.8%) cases and 105 (63.6%) cases were non-educated. Mean duration of hypertension was 5.8±6.20 years. Most frequently used antihypertensive drug was combination therapy. (table-1)

Table-1: Characteristics of hypertensive patients

Variables	Frequency	Percentage
Mean age (years)	60.4±9.30	
Mean BMI (kg/m^2)	30.3±17.85	
Gender		
Female	95	57.6
Male	70	42.4
Marital Status		
Married	130	78.8
Unmarried	35	21.2
Socio-economic status		
Poor	101	61.2
Middle/Higher	64	38.8
Education Status		
Educated	105	63.6
Non-Educated	60	36.4
Mean Duration of hypertension (years)	5.8±6.20	
Anti-hypertensive drugs		
Combination therap	90	54.5
Monotherapy	75	45.5

Frequency of uncontrolled hypertension was found in 82 (49.7%) cases. (figure-1)

Among 82 patients of uncontrolled hypertension, 52 (63.4%) were males and 30 (36.6%) were females. Patients older than 60, and smokers were more likely to experience uncontrolled hypternsion. Obesity, hyperlipidemia, diabetes, anaemia, malignancy, and reflex or gastric reflux disease were all associated with an increased risk of uncontrolled hypternsion in individuals with comorbid illnesses (P <0.05).

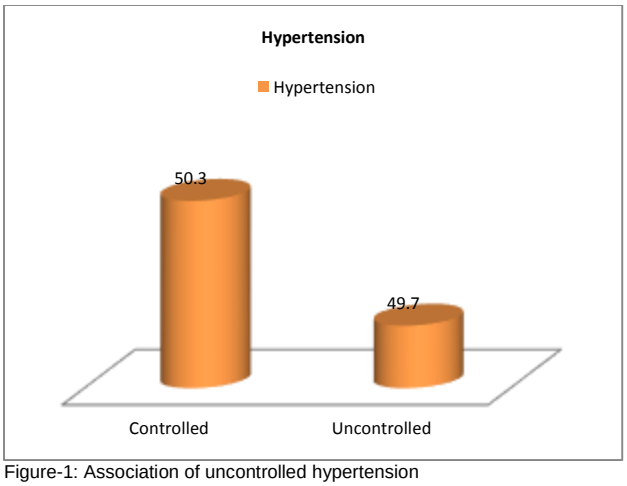

Figure-1: Association of uncontrolled hypertension

Table-2: Frequency of associated risk factors in uncontrolled hypertensive cases

Variables	Frequency (82)	Percentage
Gender		
Male	52	63.4
Female	30	36.6
Age		
>60 years	65	79.3
<60 years	17	20.7
Smokers		
Yes	60	73.2
No	22	26.8
Comorbidities		
Obesity	40	48.8
hyperlipidemia	30	36.6
diabetes	55	67.1
anaemia	26	31.7
malignancy	22	26.8
gastric reflux disease	20	24.4

DISCUSSION

As it is, the health care system is struggling to cope with the consequences of poorly managed high blood pressure. Most of the individuals with HTN in our cross-sectional research had trouble getting their blood pressure down to a healthy range. The morbidity and mortality from cardiovascular disease, stroke, kidney disease, and other HTN-related illnesses are certainly influenced by this failure to manage blood pressure [16]. The expenses of treating uncontrolled hypertension are high [17], and the health of patients is negatively impacted as well. Given the widespread occurrence of poorly treated hypertension, it is reasonable to assume that many cardiovascular events may be averted with better BP management.

An estimated 19%-56% of men and 31%-57% of women may avoid developing coronary heart disease if their HTN was under control, according to the Third National Health and Nutrition Examination Study (NHANES III) [18]. In our study, we found that 49.3% of participants had uncontrolled hypertension; the situation is not much better in other Arab nations. There was a 25% control rate for HTN in Saudi Arabia and a 16.5% control rate for HTN in Bahrain, according to reports [19,20]. From 5.4% in Korea to 58% in Barbados, and a global average of roughly 30%, BP control rates are all over the map. These numbers illustrate the challenge of attaining good BP management on a global scale [21].

Older hypertensive individuals have been reported in several studies to have a higher prevalence of high blood pressure [22]. Similarly, studies in the United States and China found that uncontrolled hypertension was more common in men than women [23], perhaps due to biological variables [24] such hormonal impacts on high blood pressure. Similar studies have found that females had lower top player and relin levels than men, which

contributes to males having greater BP [25]. However, a different research found that men had greater potential for hypertension control [26]. In current study, males, people older than 60, and smokers were more likely to experience uncontrolled hypternsion. Obesity, hyperlipidemia, diabetes, anaemia, malignancy, and reflex or gastric reflux disease were all associated with an increased risk of uncontrolled hypternsion in individuals with comorbid illnesses (P <0.05). Previous studies presented comparable results.[27,28]

Individuals whose blood pressure was not under control were shown to have lower haemoglobin levels than anaemic patients whose blood pressure was managed. Our findings demonstrate that nighttime systolic blood pressure is more common in people with anaemia compared to those with haemoglobin levels that are considered normal. [29] Uncontrolled blood pressure was shown to be more common in persons with anaemia. This finding is mostly attributed to Leptin, a human obesity gene that has been linked to changes in HT microcirculation and erythrocyte rheology. [29]

This study confirms what has been shown in prior research: people with GERD had much higher chances of uncontrolled BP. Patients with reflux oesophagitis and non-ulcer dyspepsia were studied to see whether or not they had an increased risk of cardiovascular disease compared to the general population. As seen in the data, patients with RE were more likely to have uncontrolled BP (OR = 3.8, P .001). Some speculate that inherited characteristics have a major role in the development of this illness. In the context of family research, mutations in around 10 genes have been shown to affect BP. Therefore, it is possible that both genetic and environmental factors contribute to the link between GERD and hypertension. [30]

Over 49.3% of treated patients in this research had uncontrolled hypertension. This was attributed to a number of causes, including insufficient pharmaceutical treatment regimens and co-occurring conditions including diabetes mellitus and obesity. Moreover, a lack of education and smoking also played major roles. Effective efforts are necessary, as enhancing the quality of HTN treatment is a priority for public health. Patients with hypertension, diabetes mellitus, and tobacco use, with a special emphasis on those who are overweight, should be the focus of future planning in the Palestinian primary healthcare system. Patients with lower levels of education should also be given extra information about the significance of controlling their blood pressure and hypertension.

CONCLUSION

According to the findings, there is an urgent requirement for more productive measures aimed at enhancing HTN control. Patients with hypertension who also smoke cigarettes, have diabetes, have a poor education level, and have a body mass index that is greater than normal should be the focus of the efforts.

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