

To investigate which antihypertensive drug is the most popular prescription amongst Physicians

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ABSTRACT

Background: Globally, hypertension has been recognized as a main health problem for under developed as well as developed countries. It can also be defined as a non-transmittable illness due to its high rate of death and delay in early diagnosis, it is called “silent killer”. There are limited research findings available in Pakistan for assessing its prevalence and no latest researches are carried out.

Objective: The main goal of current research is to investigate which antihypertensive drug is the most popular prescription amongst Physicians.

Material and Methods: It was a cross sectional descriptive study performed at the pharmacology section, Lahore Medical and Dental College (LMDC). All adult participants (20 ≥ 50 ≤ years) for the period of 11th to 20th April 2017. After taking informed permission from all the participants were enrolled. A questionnaire was used to collect the data and analyzed by using SPSS 20. A comparative test was used to compute results.

Results: 50 participants were interviewed for the survey. There were 25(50%) males and 25(50%) females in this research. The average age of the subject was 32.15±2.63 years. There were 22(44%) married subjects, 15(30%) hypertensive and 11(22%) smokers in this research. 28(56%) study subject were suffering from genetically inherited hypertension. Hypertensive patients were treated with one drug therapy 35(70%) as compare with multi drug 15(30%). Prescribed drug groups of ACE Inhibitors & Beta-Blockers as 21(42%) and Diuretics given as 6(15%). Most popular drug prescribed by physicians in single drug was Captopril 11(22%) and in multi drug Spirolactone medicine was 12(24%).

Conclusion: There are several recommendations and pharmacologic treatments available for decreasing the morbidity and mortality associated with the disease. The most essential part of treatment hypertension, regardless of whatever medication is used, is lowering blood pressure. Physicians, other healthcare workers, and patients must communicate effectively for management of hypertension.

Key Words: ACE Angiotensin-converting enzyme LMDC Lahore Medical and Dental College

INTRODUCTION

Hypertension also called elevated blood pressure is defined as long term medical condition where the blood pressure in the arteries is continuously high. Typically it produces no effects however it is associated with significant risk factors i.e. coronary heart attack, stroke, heart failure, peripheral artery disease progressive kidney disease and dementia. Despite the fact that hypertension is widely recognized as a major risk factor for cardiovascular disease and death, data on its prevalence in most developing countries is insufficient, which is required to estimate the economic cost of hypertension and to better allocate health resources to its diagnoses, therapy, and management. Many population-based surveys have been conducted in Pakistan during the last two-to-three decades. However, there are no nationwide estimates of hypertension prevalence or trends in prevalence over the previous few decades.

In the United States, hypertension affects around one out of every three individuals, over 2 million new cases diagnosed every year. Another 28% of the population in the United States is suffering from pre-hypertension while around 7% is unconscious about their illness. ⁽¹⁾HTN affects >1000million people and expected to cross to 156000million by the year 2025. It is the most common

reason of mortality as well as second big cause of disability across the world. ⁽²⁾

Many randomized controlled clinical studies have been conducted worldwide, the findings of these trials showed that the effective hypertension treatment reduces the risk of stroke, CAD, HF, renal failure, PVD and death. ⁽³⁾ The risk of developing these complications is continuous, starting at a blood pressure (BP) level as low as 115/75 mm Hg. ⁽⁴⁾

Hypertension is the leading cause & contributing factor in the development of cardiovascular illnesses across the world. Despite the availability of effective antihypertensive drugs and extensive research, substantial numbers of individuals in clinical practice nevertheless have uncontrolled hypertension. According to studies, control rates differ depending on the country and geographic location. ⁽⁵⁾ Despite the fact that hypertension knowledge is high, ranging from 62 percent in Australia to 72 percent in the United States, control rates remain low, at 24 percent and 35 percent, respectively. In the South Asian area, the situation is more concerning, with China reporting just 8% control rates and India reporting only 6% control rates in the management of hypertension. Hypertension affects an estimated 1 billion individuals globally. ⁽⁶⁾

According to a survey conducted in Pakistan hypertension affects 18% of total population and 33% population over the age of 45 years. Another research showed that 18% Pakistanis have hypertension and every third person over the age of 40 developing the chance of different co-morbidities but reported only half of these hypertensive patients were treated. As a result, just 12.5 percent of hypertension patients were effectively managed⁽⁶⁾. In distant locations, such as Balochistan, the awareness regarding hypertension disease not satisfactory and control rate is expected to worsen.⁽⁷⁾

Approximately 90% to 95% of individuals in the USA with high BP have no prominent reason for their disease. Renal dysfunction and renovascular disorders are the most prevalent causes among the 5% with known causes. Several factors have been identified as contributing to the high prevalence of uncontrolled hypertension. Along with unhealthy lifestyles, a poor understanding of hypertension, biased public health system and physicians who treating hypertension not accordingly established standards guidelines. Uncontrolled hypertension can also be caused by noncompliance with antihypertensive treatment. In an outpatient environment at a tertiary care institution, 43% of patients were not entirely adherent to taking antihypertensive medicines.⁽⁸⁾

Committee on Prevention, Diagnosis, Control and Treatment of High BP supports diuretics as a first choice of treatment against hypertension. Nevertheless, strong clinical trial data suggests other drugs for treatment of hypertension, like angiotensin converting enzyme inhibitors (ACEIs), decrease hypertension consequences.⁽⁹⁾ According to all popular guidelines, most individuals with hypertension require just one antihypertensive medication to achieve BP level that successfully decreases risks of co-morbidities.⁽¹⁰⁾ There is variety of medicines against hypertension prescribed by doctors worldwide. Calcium channel blockers (CCBs), Beta blockers (b-blockers), Angiotensin converting enzyme inhibitors (ACE)/Angiotensin receptor blockers (ARB), and diuretics are the most frequently advised medicines for treatment of hypertension in many countries⁽¹¹⁾.

MATERIAL & METHOD

The research was done at the Pharmacology section, Lahore Medical & Dental College (LMDC). All adult participants of age $20 \geq 50 \leq$ years for the period of 11th April to 20th April 2017, who were known hypertensive and using antihypertensive drugs for at least 42 days, were included. Antihypertensive drugs were advised by experts. Those patients were excluded from research who failed to show documented proof.

Usage of multi antihypertensive medicine was primary outcome of the current research. Secondary outcome was use of diuretics against hypertension. Basic information, co morbidities, antihypertensive drug type number as well as average duration of using medicine were observed by statisticians.

SPSS version 21.0 was used for entry and compiling of the data. Mean \pm SD was computed for numeric data while numbers and %ages for categorical data. Chi square test and independent sample t test was applied

for comparison of different variables, p-value < 0.05 was considered significant.

RESULTS

50 subjects were enrolled and interviewed for the survey, which were equally divided into 25(50%) males and 25(50%) females. The mean age of the participants was 32.15 ± 2.63 years. The mean age for males was 26.0 ± 3.2 years and for females 35 ± 5.0 years. In this study there were 22(44%) married participants, 15(30%) hypertensive, 11(22%) smokers and 28(56%) have family history of hypertension (Table 1).

Table 1: Background characteristics of the study subjects.

Variables	Frequency	%
Age Group (years)	32.15 \pm 2.63 (Age Rang 20-50 years)	
Gender	Male	25 50%
	Female	25 50%
Age Group	20-30	14 8%
	30-40	27 54%
	40-50	9 38%
Marital Status	Unmarried	18 36%
	Married	22 44%
	Others	10 20%
Risk Factors		
Hypertension	Yes	15 30%
	No	28 56%
	Don't Know	7 14%
Smoking	Yes	11 22%
	No	39 78%
Family History	Yes	28 56%
	No	22 44%

Table 2: Frequency distribution of most popular drug group prescribed by Physicians

Variable	F	%
Type of Therapy		
Single Drug Therapy	35	70%
Multi Drug Therapy	15	30%
Drug Group		
ACE Inhibitors	21	42%
Beta-Blockers	21	42%
Diuretics	8	16%

Table 3: Details of Medicine Prescribed by Physicians in Single and Multi Drug Therapy

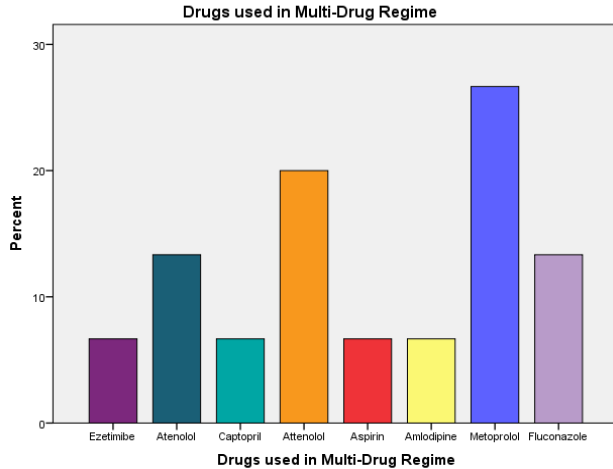
Variable	f	%
Single Drug Therapy		
Propranolol	6	12%
Bisoprolol	5	10%
Captopril	11	22%
Lisinopril	6	12%
Indral	6	12%
Lozartan	5	10%
Hydrochlorothiazide	9	18%
Nebivolol	2	4%
Multi Drug Therapy		
Ezetimibe	5	10%
Clopidogril	4	8%
Atenolol	3	6%
Captopril	7	14%
Telmisartan	3	6%
Aspirin	4	8%
Enalapril	5	10%
Spirolactone	12	24%
Metoprolol	7	14%

Findings indicated that 35(70%) hypertensive patients were treated with single drug therapy while 15(30%) with multi drugs. ACE Inhibitors and Beta-Blockers were equally

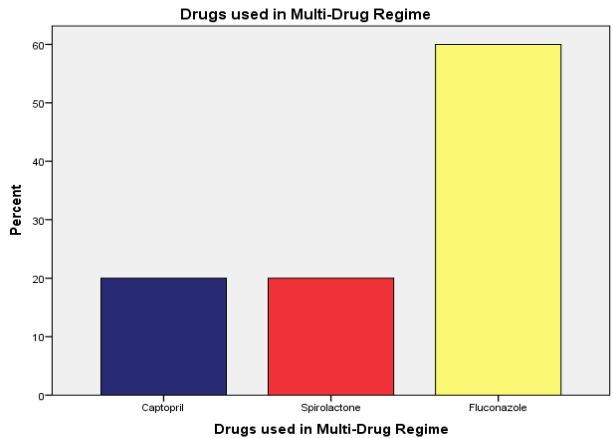
advised by physicians as 21(42%) and Diuretics 6(15%) (Table 2).

Most popular drug prescribed by physicians was Captopril 11(22%) in single drug and in multi drug Spirolactone medicine was 12(24%). (Table 3)

Graph -1:



Graph -2:



DISCUSSION

Hypertension is one of the most serious public health issues in both developed and emerging nations. We reported estimates of the prevalence of hypertension in the adult Pakistani population in this detailed systematic study. Currently, there is a deficiency of data on the prevalence of hypertension on a national scale. Only one current review, which focused on hypertension in Asian nations, was discovered in domestic and international literature searches.⁽¹²⁾

The current study was a cross-sectional, quantitative, descriptive study with data collected at one point from Medical Students of Lahore Medical and Dental College Lahore. The target and study populations essentially had similar characteristics.

In present study total 50 research subjects were interviewed and male and female ratio was 50 %. The average age (\pm SD) of the study subject was 32.15(\pm 2.63) years and for male and female, it was 26.0 (\pm 3.2) years and 35(\pm 5.0) years, respectively. Majority of the study subjects were married 22(44%), 15(30%) participants were hypertensive and smoker 11(22%) and have family history of hypertension.

Singh et al. (2017) conducted a meta-analysis and discovered that 42,618 people matched the qualifying criteria. Hypertension was found to be prevalent in 26.34 percent of the population. Males accounted for 24.99 percent of the population, while females accounted for 24.76 percent. When compared to data published in local and foreign publications, they found a significant prevalence of hypertension among adult Pakistanis: 23.32 percent and 27.44 percent, respectively. We also discovered that the prevalence of hypertension differed between small, medium, and large trials.⁽¹²⁾

HTN in women was also shown to be somewhat higher than men. Many additional studies have indicated that women have a higher prevalence of hypertension than men. Our findings contradict earlier published data. In high-income nations, women have better detection, treatment, and control rates than males, owing to the fact that pregnant women have more chances to have their blood pressure monitored.

For reducing high blood pressure, a variety of medicines are available, including diuretics, -blockers, CCBs, ACE inhibitors, and ARBs. These medications have been shown to decrease the disease and death rate associated with hypertension.⁽¹³⁾

The results of current study indicated that 35(70%) hypertensive patients were treated with single drug therapy as compare with multi drug 15(30%). ACE Inhibitors and Beta-Blockers were equally prescribed by physicians as 21(42%) and Diuretics 6(15%) used to management.

Most popular drug prescribed by physicians was Captopril 11(22%) in single drug and in multi drug Spirolactone medicine was 12(24%).

Although there is no obvious pharmacological rationale for the combined use of an ACE inhibitor and a beta-blocker in the treatment of hypertension, Hansson (1989) conducted a study that demonstrated that this combination is more effective than monotherapy in a number of studies, some of which are reviewed. Furthermore, research suggests that this combination may be helpful following a myocardial infarction. As a result, the usage of an ACE inhibitor in conjunction with a beta-blocker should be investigated further.⁽¹⁴⁾

Nguyen et al. (2010) conducted study and found that if lifestyle changes are ineffective in bringing blood pressure back to normal, drug therapy is necessary. Diuretics, ACE inhibitors or ARBs, beta-blockers, and CCBs are among the first-line medicines used to treat hypertension. To attain their blood pressure desired level, some individuals will require two or more antihypertensive drugs. After using the first medicine at the maximum prescribed dose, a second drug with a complimentary mode of action should be added to reduce adverse effects.⁽¹⁵⁾

A CCB plus an ACE inhibitor combo is also highly helpful, according to the ACCOMPLISH research. Concurrent use of an ACE inhibitor and an ARB is not recommended, even though it is seldom used in heart failure or diabetic patients with severe proteinuria. As proven by the ONTARGET investigation, there is an increased chance of adverse effects. In this research, patients who took an ACE inhibitor and an ARB at the same time had a significantly increased risk of low blood pressure and renal dysfunction. Some of the ineffectual beta-blockers include ACE inhibitors, beta-blockers/alpha-blockers or agonists, and beta-blockers/non-dihydropyridines.⁽¹⁵⁾

CONCLUSION

Although hypertension is a global epidemic, there are numerous recommendations and pharmaceutical alternatives available to reduce the disease's morbidity and mortality. Despite the fact that lifestyle modification is commonly ignored but these changes should be implemented early and maintained permanently. Some people will have need of more than one antihypertensive medication to keep BP under control. In combination treatments are successful and recommended. The most crucial component of treating hypertension, regardless of whether medicine is used, is lowering blood pressure to the target level. In order to treat patients effectively, physicians, other healthcare providers, and patients must communicate effectively.

Conflict of Interest: The authors declare no conflict of interest.

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