ANALYSIS OF ORAL ANTI-HYPERTENSIVE MEDICATION IN BLOOD PRESSURE ELEVATION AND THEIR OUTCOMES IN PAKISTANI POPULATION

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Abstract:

Introduction: Asymptomatic elevation of systemic blood pressure is an expected event in a determined percentage of hospitalized patients, taking into account the emotional conditions that occur in disease-related admittance, characterizing hypertensive pseudo emergencies.

Objectives of the study: The main objective of the study is to analyze the oral anti-hypertensive medication in blood pressure elevation and their outcomes in Pakistani population.

Methodology of the study: This cross sectional study was conducted in Mayo hospital Lahore during April 2018 till September 2018 with the permission of ethical committee of hospital. The data was collected from 200 patients which was suffering from high blood pressure and use oral antihypertensive medication. We defined the presence of a written item in the medical records consenting to the use of oral antihypertensive medication when blood pressure reached a certain level as antihypertensive prescription before elevation of blood pressure. We collect some demographic information regarding age, sex, socio-economic status and history of blood pressure.

Results: The data was collected from 200 patients who used antihypertensive medication. Nifedipine was the medication given before elevation of blood pressure in 53 patients and captopril in 25 (4.3%). Clonidine was not prescribed during the study period. In 22 (50.7%) patients, prescription of antihypertensive medication before elevation of blood pressure occurred in the absence of treatment with maintained antihypertensive therapy. There are number of factors which influence on blood pressure levels.

Conclusion: In conclusion, the results of the present study show a high frequency of prescription of antihypertensive medication preceding elevation of blood pressure.

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INTRODUCTION:

Asymptomatic elevation of systemic blood pressure is an expected event in a determined percentage of hospitalized patients, taking into account the emotional conditions that occur in disease-related admittance, characterizing hypertensive pseudo emergencies. Individually, this blood pressure elevation is not a matter of using antihypertensive medication. It is also important to observe that hypertensive patients experience a decrease in blood pressure after being admitted to the hospital regardless of the treatment [1].

In the last 2 decades, antihypertensive medications that act quickly after oral or sublingual administration have been used. The ease of administering such drugs contributes to their prescription before elevation of blood pressure [2]. However, the safety and real benefit of this procedure has not been supported by scientific evidence. In fact, severe complications related to the use of these medications have been reported. Sleep blood pressure (BP) is a powerful predictor of cardiovascular complications, and there is suggestive evidence that controlling BP during sleep has beneficial outcomes [3]. When drugs are given in the morning, the drug concentration may be lowest at the time when good BP control is desirable. This has led to the idea that it may be preferable to give medication in the evening. Much epidemiologic, experimental, and clinical data confirm the relevance of nutritional factors in determining blood pressure (BP) in the population as a whole, and among subjects with hypertension. Factors epidemiologically related to BP such as weight, caloric intake, and the minerals sodium, potassium, calcium, and magnesium also have been the focus of therapeutic intervention trials [4]. These trials have shown that lowering dietary calorie, alcohol, or salt content, and providing increased amounts of calcium, potassium, or magnesium may each lower BP in at least some "sensitive" subjects.

Hypertension is a noteworthy hazard factor for various genuine health conditions, including cardiovascular ailment, cerebrovascular malady, and constant kidney illness [5]. Worldwide, 9.4 million passing are credited to difficulties from hypertension, including 45% of all passing because of coronary vein illness and 51% of all passing because of stroke. These relations are steady in the two people, in youthful, moderately aged, and more seasoned subjects, among different racial and ethnic gatherings, and inside and between nations [6].

Objectives of the study:

The main objective of the study is to analyze the oral anti-hypertensive medication in blood pressure elevation and their outcomes in Pakistani population.

Methodology of the study:

This cross sectional study was conducted in Mayo hospital Lahore during April 2018 till September 2018 with the permission of ethical committee of hospital. The data was collected from 200 patients which was suffering from high blood pressure and use oral antihypertensive medication. We defined the presence of a written item in the medical records consenting to the use of oral antihypertensive medication when blood pressure reached a certain level as antihypertensive prescription before elevation of blood pressure. We collect some demographic information regarding age, sex, socio-economic status and history of blood pressure. For this purpose we prepare a questionnaire and fill that from patients.

Statistical analysis:

Student's t-test was performed to evaluate the data. Statistical significance for differences in proportion was estimated with the chi-square test or Fisher's exact test.

RESULTS:

The data was collected from 200 patients who used antihypertensive medication. Nifedipine was the medication given before elevation of blood pressure in 53 patients and captopril in 25 (4.3%). Clonidine was not prescribed during the study period. In 22 (50.7%) patients, prescription of antihypertensive medication before elevation of blood pressure occurred in the absence of treatment with maintained antihypertensive therapy. There are number of factors which influence on blood pressure levels. Age, cholesterol, BMI and diet are the main factors which directly effect on blood pressure levels. Table 02 shows the values of control group and diseased group which was suffering from the low and high blood pressure problems.

Table 01: Statistical analysis values of Control group and diseased group

Variable	Diseases Group	Control Group	t Value	*p* Value
Age （Year）	56.56±8.46	53.64±8.36	1.716	0.081
BMI （kg/m2）	24.31±2.26	23.37±2.09	2.195	0.031
SBP （mmHg）	140.36±15.70	116.53±13.46	8.248	0.000
DBP （mmHg）	87.94±10.69	75.81±9.94	5.967	0.000
PP （mmHg）	52.42±12.87	40.72±8.74	5.426	0.000
FBG （mmol/）	5.12±0.65	5.06±0.49	1.764	0.081
TG （mmol/L）	1.74±0.75	1.69±0.86	1.838	0.071
TC （mmol/L）	4.95±0.76	4.88±0.82	1.712	0.090
HDL-	1.30±0.43	1.31±0.56	1.717	0.089
LDL-C	3.46±0.58	3.38±0.66	1.139	0.266

Table 02: Oral antihypertensive drugs

Class	Drug	Usual Dose Range in mg/Day	Usual Daily Frequency[*]
Thiazide diuretics	chlorothiazide (Diuril)	125–500	1–2
	chlorthalidone (generic)	12.5–25	1
	hydrochlorothiazide (Microzide, HydroDIURIL†)	12.5–50	1
	polythiazide (Renese)	2–4	1
	indapamide (Lozol†)	1.25–2.5	1
	metolazone (Mykrox)	0.5–1.0	1
	metolazone (Zaroxolyn)	2.5–5	1
Loop diuretics	bumetanide (Bumex†)	0.5–2	2
	furosemide (Lasix†)	20–80	2
	torsemide (Demadex†)	2.5–10	1
Potassium-sparing diuretics	amiloride (Midamor†)	5–10	1–2

	triamterene (Dyrenium)	50–100	1–2
Aldosterone receptor blockers	eplerenone (Inspra)	50–100	1
	spironolactone (Aldactone†)	25–50	1
BBs	atenolol (Tenormin†)	25–100	1
	betaxolol (Kerlone†)	5–20	1
	bisoprolol (Zebeta†)	2.5–10	1
	metoprolol (Lopressor†)	50–100	1–2
	metoprolol extended release (Toprol XL)	50–100	1
	nadolol (Corgard†)	40–120	1
	propranolol (Inderal†)	40–160	2
	propranolol long-acting (Inderal LA†)	60–180	1
	timolol (Blocadren†)	20–40	2

DISCUSSION:

Certain issues arising from previous nutritional interventions in hypertension form the basis of the present study. First, the physiological basis underlying effects of diet on BP trials have included remains uncertain, as most previous intervention le biochemical data. Second, with few exceptions, these studies have tested the efficacy of altering single dietary components, with little assessment of the benefit of overall diets meeting current nutrient recommendations [6]. Third, current diet policies have achieved only limited success, perhaps as a result of the lifestyle changes involved in their implementation. High blood pressure was the leading risk factor for the overall global burden of disease in 2010. The recent decrease in cardiovascular mortality in high-income countries has been associated with a rise in the numbers of patients living with cardiovascular disease, and the wider use of preventive drugs. Thus, an up-to-date understanding of the associations of blood pressure with different non-fatal and fatal cardiovascular disease outcomes would help to refine strategies for primary prevention and inform the design of future clinical trials [7].

The Prospective Studies Collaboration meta-analysis of 61 cohorts recruited between 1950 and 1990 reported log-linear associations of systolic and diastolic blood pressure with death from ischaemic heart disease and stroke, with no apparent threshold below which no further reduction in risk is observed, down to a blood pressure of 115/75 mm Hg, in participants aged 40–89 years [8]. As for the relationship between prescribing antihypertensive medication preceding the elevation of blood pressure and adopting therapeutics for the long-term control of blood pressure, it is important to note that in the present study, we found a greater frequency of prescription of maintained antihypertensive medication in patients who were prescribed captopril, compared with those who were prescribed nifedipine preceding elevation of blood pressure [9]. Although the characteristics of patients may be different, data from the present study suggest that doctors that have

opted for captopril as antihypertensive medication preceding elevation of blood pressure instead of nifedipine have adopted a different conduct concerning the therapeutics of maintained hypertension [10].

CONCLUSION:

In conclusion, the results of the present study show a high frequency of prescription of antihypertensive medication preceding elevation of blood pressure. Data are of use as a warning that this conduct, besides the possible secondary complications to the rapid reduction in pressure levels, can also contribute to inadequate control of blood pressure during hospitalization, because this was the only antihypertesive treatment available in the prescriptions of 50% of the study patients.

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