ANALYSIS OF BLOOD PRESSURE MEASUREMENT AND TREATMENT OF HYPERTENSION IN PAKISTAN

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Abstract:
Introduction: Hypertension is a modifiable and major risk factor for coronary artery disease, heart failure, cerebrovascular disease and chronic renal failure. It is also recognized as a global chronic, non-communicable disease and a "silent killer" due to its high mortality rates and lack of early symptoms.
Objectives of the study: The main objective of the study is to analyze the blood pressure measurement and treatment of hypertension in Pakistan.
Methodology of the study: This cross sectional study was conducted at DHQ hospital Narowal during January 2018 to October 2018. All patients older than 18 years were included in the study. For this study a standard questionnaire was used to collect medical history from each patient. Age, sex, marital status, education, work history, smoking, alcohol intake, and physical activity level were recorded. Patients were also asked about personal and family history of hypertension, diabetes mellitus, cardiovascular disease, and chronic kidney disease. Blood pressure measurements were performed using a mercury sphygmomanometer for patients seated for 5 min with the arm positioned at heart level.
Results: Demographic values and treatment of hypertension has direct relationship. As there are many factors which are responsible for medication and treatment in a country like Pakistan. Table 01 explains the demographic values of all male and female patients.
Conclusion: It is concluded that there is a difference between standard BP treatments which affect the decision to start medication and the decision to initiate treatment, but not the decision regarding alteration of regime for those already on treatment.
Key words: *Blood, Hypertension, risk, Hypertensive*

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INTRODUCTION:

Hypertension is a modifiable and major risk factor for coronary artery disease, heart failure, cerebrovascular disease and chronic renal failure. It is also recognized as a global chronic, non-communicable disease and a "silent killer" due to its high mortality rates and lack of early symptoms. One-quarter of the world's adult population is hypertensive and it is estimated that by 2025 this figure is likely to increase to 29% [1]. The high prevalence of hypertension in both developed and developing countries makes it a significant factor for mortality and morbidity. Unfortunately, the prevalence of hypertension is growing rapidly in developing countries which are undergoing epidemiological transitions, economic improvement, urbanization and longer life expectancy. Adequate management of hypertension can effectively reduce the risks of stroke, myocardial infarction, chronic kidney disease and heart failure [2].

Hypertension is a significant public health problem, with a worldwide prevalence of 40.8% and a control rate of 32.3% [3]. Hypertension is a major risk factor for a number of serious health conditions, including cardiovascular disease, cerebrovascular disease, and chronic kidney disease. Worldwide, 9.4 million deaths are attributed to complications from hypertension, including 45% of all deaths due to coronary artery disease and 51% of all deaths due to stroke [4].

Hypertension is more common in low-income countries, where nearly 80% of deaths due to cardiovascular disease occur. In Pakistan, two large epidemiological studies, the first based on the 1990–1994 National Health Survey and the second based on rural northern areas of the country reported hypertension prevalence rates of 19.1% and 14%, respectively [5]. However, given that the data collection occurred 15–20 years ago, these studies are not representative of the current burden of disease [6]. Studies from other countries have demonstrated global increases in the prevalence of hypertension over time due to population growth, aging, and modifications in behavioral risks. Therefore, there is a need to provide updated data on the prevalence, awareness, treatment, and control of hypertension in Pakistan [7].

Objectives of the study

The main objective of the study is to analyze the blood pressure measurement and treatment of hypertension in Pakistan.

METHODOLOGY OF THE STUDY:

This cross sectional study was conducted at DHQ hospital Narowal during January 2018 to October 2018. All patients older than 18 years were included in the study. For this study a standard questionnaire was used to collect medical history from each patient. Age, sex, marital status, education, work history, smoking, alcohol intake, and physical activity level were recorded. Patients were also asked about personal and family history of hypertension, diabetes mellitus, cardiovascular disease, and chronic kidney disease. Blood pressure measurements were performed using a mercury sphygmomanometer for patients seated for 5 min with the arm positioned at heart level. Pressures were measured using manual auscultatory technique with the appropriate sized cuff for each patient. Blood pressure was checked twice, and then the average of the two readings was used. Height was measured on barefoot patients using a fixed stadiometer with the measurement taken to the nearest 0.1 cm. Weight was measured using a manual scale with accuracy up to 0.5 kg. Body mass index (BMI) was calculated as weight in kilograms divided by height in square meters. Healthcare professionals involved in data collection were trained beforehand to ensure consistency and accuracy.

Statistical analysis

The data were analyzed using one-way analysis of variance (ANOVA) followed by multiple comparison test. All biochemical experiments were performed thrice in triplicates to ensure reproducibility.

RESULTS:

Demographic values and treatment of hypertension has direct relationship. As there are many factors which are responsible for medication and treatment in a country like Pakistan. Table 01 explains the demographic values of all male and female patients.

Table 01: Demographic characteristics of participants.

Characteristics	Variables	S.D.
Males	32	-
Females	28	-
Mean age in years (standard deviation)	43	14.2
Mean body mass index	29	-
Prevalence of hypertension	25%	-
Mid-upper arm circumference (in centimetres)	32	-

Table 02 clearly explains the medication which is used in local hospitals of Pakistan for the treatment of hypertension and high blood pressure

Table 02: Medicines that used for high blood pressure

Medication		Dosage	Analysis
	Telmisartan	40 mg once per day	Consider alternative in patients with acute kidney injury or severe renal disease; may cause hyperkalemia
	Atenolol	25 to 50 mg once per day	Avoid in patients with bradycardia; may cause bronchospasm
	Metoprolol succinate (Toprol XL)	25 to 100 mg once per day	
	Amlodipine (Norvasc)	2.5 to 5 mg once per day	May cause flushing and edema
	Nifedipine*	30 mg once per day	
	Hydrochlorothiazide	12.5 to 25 mg once per day	Use with caution in patients with gout; may cause hypokalemia and hyponatremia

DISCUSSION:

We suspected that the difference was mostly because of the precise arm position and a known problematic phenomenon of wrist devices in which there is a systematic error introduced by the hydrostatic effect of differences in the position of the wrist relative to the heart. This can be avoided if the wrist is always at heart level when the readings are taken, but there is no way of knowing retrospectively whether this was performed when a series of readings are reviewed [8].

The mercury sphygmomanometer is generally regarded as the gold standard against which all other devices for BP measurement should be compared. However, recent studies have shown that ambulatory BP measurements correlate better with the exact BP. Hodgkinson et al. have recently concluded that ambulatory BP was more cost effective than clinic or home BP [9]. However, guidelines for diagnosis and treatment of hypertension are still based on clinic BP measurements

Blood pressure elevations during hospitalization are often exacerbated by pain, anxiety, or acute illness. When these factors have been excluded and the patient remains hypertensive, it is best practice to reinitiate or adjust oral antihypertensive therapy in those with preexisting hypertension. Our approach to understand disease development in early life, identify key pathways of interest in predisposition to hypertension and develop specific preventive approaches has been to use multi-modality imaging to capture information on cardiovascular structure and function 'from heart to capillary [10]. With this approach it becomes possible to model the interrelationship between features of the cardiovascular system and, with longitudinal data, study the progression of disease across vessel and heart. By extending the data collection to other organs such as brain and liver, a holistic view of disease development can be captured [10].

CONCLUSION:

It is concluded that there is a difference between standard BP treatments which affect the decision to start medication and the decision to initiate treatment, but not the decision regarding alteration of regime for those already on treatment.

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