Research Article

Analysis of factors influencing blood pressure levels in population of Pakistan: A population analysis

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ABSTRACT

Introduction: 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.

Objectives of the study: The main objective of the study is to find the common factors which are influencing blood pressure levels in local population of Pakistan.

Methodology of the study: This study was conducted at Children's Hospital & Institute of Child Health, Multan, Pakistan during 2017. The data was collected from 100 patients which was suffering from high blood pressure and any kind of heart issue. We collect some demographic information regarding age, sex, socio-economic status and history of blood pressure.

Results: 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.

Conclusion: It is concluded that there are several factors which are responsible of elevation and decreasing blood pressure but the diet is the main factor which directly influence on the levels of blood pressure.

INTRODUCTION

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[1]. 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. 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[2].

Hypertension is a noteworthy hazard factor for various genuine health conditions, including cardiovascular ailment, cerebrovascular malady, and constant kidney illness[3]. 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[4]. 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. In spite of the fact that there is a continuum of cardiovascular hazard crosswise over levels of circulatory strain, the characterization of grown-ups as indicated by pulse gives a system to differentiating levels of hazard related with different circulatory strain classes and for characterizing treatment edges and helpful objectives[5].

Despite the fact that subjects with high-ordinary circulatory strain are probably going to have a

hoisted danger of cardiovascular infection (given the continuum of hazard), there is a scarcity of data in regards to the supreme and relative dangers of cardiovascular ailment in these people[6]. In spite of the fact that information on deadly coronary occasions and strokes in people with high-typical circulatory strain are accessible, data on the danger of nonfatal cardiovascular occasions among individuals in this pulse class is restricted. We attempted a planned examination of the danger of cardiovascular sickness in people with high-typical pulse[7].

PROBLEM STATEMENT

Elevated blood pressure (BP) is a causal risk factor for cardiovascular disease (CVD). In addition, randomized clinical trials among people with hypertension have illustrated, in total, a decrease in CVD occasions by 20%, coronary illness (CHD) by 17%, stroke by 27%, and heart disappointment by 28% for each 10 mm Hg systolic BP (SBP) bringing down with medicinal treatment. In this manner, counteractive action, location, treatment, and control of lifted BP, and its clinical connect hypertension, is a critical general health need and an essential focus for CVD aversion[8].

OBJECTIVES OF THE STUDY

The main objective of the study is to find the common factors which are influencing blood pressure levels in local population of Pakistan.

METHODOLOGY OF THE STUDY

This study was conducted atChildren's Hospital & Institute of Child Health, Multan, Pakistan during 2017. This study was conducted according to the rules and regulations of ethical committee of hospital. This research will help towards next findings of effect of blood pressure in hypertension and its responsible factors.

DATA COLLECTION

The data was collected from 100 patients which was suffering from high blood pressure and any kind of heart issue. We collect some demographic information regarding age, sex, socio-economic status and history of blood pressure. Then in second part we collect data regarding high blood pressure and heart issues. For this purpose we prepare a questionnaire and fill that from patients.

STATISTICAL ANALYSIS

Student's t-test was performed to evaluate the data. The relations of BP to other variables were analyzed by linear regression and Pearson correlation coefficients. Multiple regression analysis studied the interdependence of these relations among variables found to correlate significantly with BP. Data are expressed as the mean ± SD.

RESULTS

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 01 shows the values of control group and diseased group which was suffering from the low and high blood pressure problems. Figure 01 explains graphically the role of diet in the level of blood pressure.

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
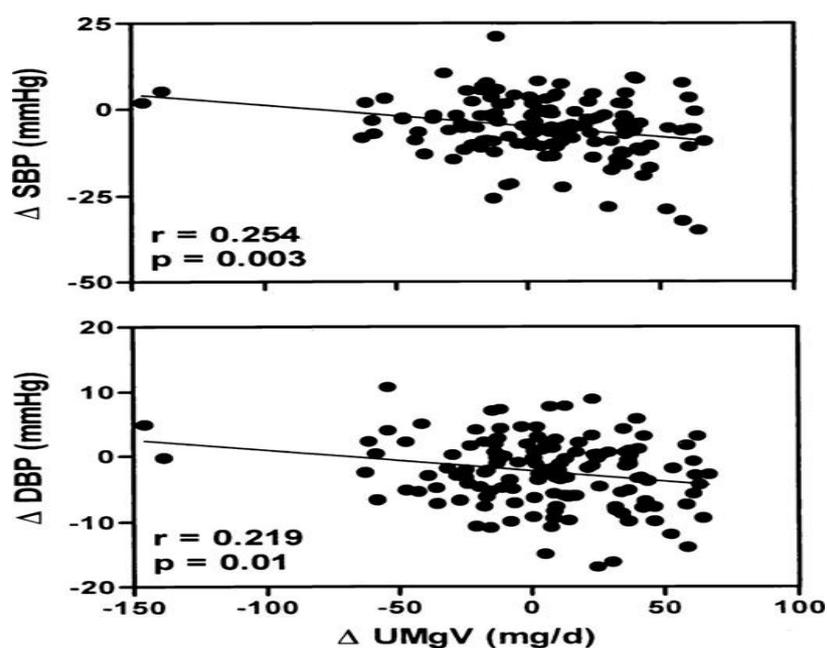
Figure 01: Role of diet and its effect on BP

DISCUSSION

Certain issues arising from previous nutritional interventions in hypertension form the basis of the present study[9]. 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[10]. Third, current diet policies have achieved only limited success, perhaps as a result of the lifestyle changes involved in their implementation. We have begun to address these issues by analyzing the BP, weight, biochemical, and hormonal responses to two food plans conforming to current guidelines of the American Heart Association and the National Academy of Sciences, and administered to un medicated normotensive and hypertensive subjects with and without concomitant hyperlipidemia as part of a multicenter, randomized, controlled clinical trials[11].

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[11].

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 ischemic 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[12]. These findings predated several public health initiatives, including efforts to reduce salt consumption and tobacco use, and the more widespread use of blood pressure-lowering treatments for primary prevention, and did not provide information about major chronic and non-fatal diseases, including heart failure, peripheral arterial disease, abdominal aortic aneurysm, and stable angina[13]. Importantly, no current estimates are available for the lifetime incidence and years of life lost associated with hypertension

attributable to specific cardiovascular diseases. Although in previous studies investigators have estimated the associations of cardiovascular disease risk factors with lifetime risks or cardiovascular disease-free years of life lost, their focus was on total cardiovascular disease, with only one study so far to have analyzed the incidence of specific cardiovascular diseases in a competing risks context[14].

CONCLUSION

It is concluded that there are several factors which are responsible of elevation and decreasing blood pressure but the diet is the main factor which directly influence on the levels of blood pressure.

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