LIFE STYLE TRENDS IN A GROUP OF KNOWN HYPERTENSIVES: A QUESTIONNAIRE BASED SURVEY

Syeda Sadia Fatima, Rehana Rehman, Faiza Alam

Jinnah Medical and Dental College Hospital Korangi, Karachi

ABSTRACT

Objective: To evaluate the frequency of daily life trends in known hypertensive patients attending a hypertensive clinic regularly.

Study Design: Cross sectional study.

Place and Duration of study: Jinnah Medical and Dental College Hospital Korangi, Karachi from July 2007 to August 2007.

Patients and Methods: A total of 100 known hypertensive patients were administered questionnaire comprising sections on personal information, medical history, tobacco, caffeine, salt consumption, physical activity and sleep pattern. Single blood pressure reading, weight and height were recorded and BMI were calculated.

Results: It was observed that hypertensive patients were obese, had reduced physical activity with preference of salt intake.

Conclusion: The detection of common habits that might be correlated with hypertension and avoiding them may improve awareness and lead to its prevention.

Keywords: Blood Pressure, Body Mass Index, Diastolic, Hypertension, Systolic Blood Pressure.

INTRODUCTION

High blood pressure or hypertension is emerging as a top most common ailment of modern day with increased risk of cerebro-vascular accidents. The prevalence of hypertension has increased over the past decade despite improvements in awareness, treatment, and control of the disease[1].

The Sixth Report of the Joint National Committee on Prevention, Detection, evaluation, and Treatment of High Blood Pressure (JNC VI) defined and classified hypertension in adults, as shown in table 1. The diagnosis of hypertension is made when the average of 2 or more diastolic BP measurements on at least 2 subsequent visits is 90 mm Hg or when the average of multiple systolic BP readings on two or more subsequent visits is consistently 140 mm Hg[2].

When a patient's systolic and diastolic blood pressures fall into different categories, the higher category should apply[2].

Correspondence: Dr Syeda Sadia Fatima, H. No. A-11 Rufi Garden, Block 13D-2, Gulshan-e-Iqbal, Karachi

Email: leo79@hotmail.com

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A number of factors cause an increase in blood pressure (BP), including obesity, insulin resistance, high alcohol intake, high salt intake (in salt-sensitive patients) , aging , sedentary lifestyle , stress , low potassium intake, and low calcium intake.

Obesity is the cause of insulin resistance, adult-onset Diabetes Mellitus, left ventricular hypertrophy, hyperlipidemia, and atherosclerotic disease[3]. Abdominal obesity is one of the main features leading to hypertension; about each 10% of weight gain is associated with a 6.5 mm Hg increase in systolic BP according to the Minnesota heart survey experience[4]. The mechanism by which obesity raises BP is not fully understood, but increased body mass index (BMI) is associated with an increase in plasma volume and cardiac output; both these alterations and BP can be decreased by weight loss in both normotensive and hypertensive subjects[5], even when sodium intake is kept relatively constant. It is hypothesized that weight gain is responsible for increase in BP as a result of increase in; sympathetic nervous system activity, insulin resistance, sodium retention, plasma renin & aldosterone levels and enhanced vascular reactivity[6].

The Atherosclerosis Risk in Community Study (ARIC) pointed out that leisure time physical activity reduced the risk of hypertension in middle-aged white men, but not in black men [7].

Analyses from cross-sectional studies have indicated that physical activity is inversely associated with BP level and the prevalence of hypertension[8]. Blair et al., reported a 52% excess risk of hypertension for people with low levels of physical fitness when compared with highly fit persons[9].

Laboratory studies of short term sleep deprivation have suggested potential mechanisms for a link between sleep loss and hypertension. Partial deprivation is associated with increased sympathetic activity on the basis of heart rate variability[10].

Caffeine is the most widely used pharmacologically active substance in the world; it is consumed in coffee, tea, soft drinks, and, more recently, caffeinated bottled water. The mass appeal of caffeine could have health implications because of its well-documented pressor effect. A recent meta-analysis of controlled clinical trials reported a positive relationship between cups of coffee consumed on a daily basis and elevated systolic blood pressure (SBP), independent of age[11]. The effect appears to be more substantial in older subjects and in those with higher blood pressure[12].

Given this background, a study was designed to evaluate routine habits and life style modalities of known hypertensives in order to get a better understanding of daily routine to prevent the onset.

PATIENTS AND METHODS

An observational cross sectional, questionnaire based study was conducted on a random sample of 100 participants. They were recruited from hypertensive clinic at Jinnah Medical and Dental College Hospital Korangi, Karachi from July 2007 to August 2007.

The tool used was an interviewer based questionnaire, distributed in patient's waiting areas of this clinic. Instrument developed by the researchers, was administered to each one of the participants in a homogenous manner to limit interviewer biases. Known male and female hypertensives between ages of 25-65 years were selected. Written informed consent was obtained from all the participants before administration of questionnaire with the promise of confidentiality. The interviewer explained objectives of the study and assured that they could stop the interviewer anytime they wish to do so. After completion of the questionnaire, the physical examination was done. A single blood pressure measurement, by the recommended procedure mainly on the left arm, with appropriate cuff of a standard mercury sphygmomanometer was taken and record was maintained. Height was measured to the nearest 0.5 cm, weight to the nearest 0.5 kg, and BMI as their ratio (weight/ height^2) represented in kg/m^2).

In the survey, patients with history of hypertension related complications like clinical heart failure, ischeamic heart disease, stroke, transient ischeamic attack, renal failure, retinopathy, were excluded. Other disqualified cases were chronic long standing illnesses with limited mobility like diabetes mellitus and malignancy. Pregnant and lactating females were debarred from the survey. Data was analyzed by SPSS version 15. Descriptive statistics were used to describe the data.

RESULTS

Out of 100 participants, 49% were males and 51% females. The ethnic distribution described in figure 1. shows preponderance of Muhajir respondents. The socio economic status of respondents revealed that 45% fell in average class, 7% and 32% in upper and lower middle class while 16% in lower socioeconomic class. Majority males were shopkeepers followed by taxi drivers and office workers. In females 78% were house wives, rest primary school teachers. Fifty four percent had a primary education till 5th standard while 25% had matriculation certificate, and 21% had a bachelor's degree. Half of the patient's i.e.50% were overweight (Fig. 2).

The results depict higher frequency of hypertensive patients i.e. 57% with salt

preference (adding/sprinkling extra salt in serving platter), around 45% reported of increased consumption of caffeine (5 or more cups per day) and of smoking more than one pack year. About 42% patients admitted of having an anxious, apprehensive behavior owing to the demanding nature of working environment. Trend of lack of physical activity and sedentary lifestyle was observed among 45% of respondents while 55% reported of following a regime of 45 minutes brisk walk, three times per week. Sleep scarcity (less than eight hours of night sleep for more than four nights per week) was reported by 29% respondents.

DISCUSSION

Essential hypertension is a heterogeneous disorder that develops because of several overlapping subsets of patho-physiological mechanisms. It is a multi-factorial trait determined by a complex interplay of genes and environments[13].

Animal studies have shown that sodium reduction can lower pressure[12]. The result to the survey offers insight into possible daily habits of hypertensives in local population and this information can be utilized to conduct a larger community based survey in order to educate and to prevent its early inception.

The positive correlation of sodium intake and blood pressure was recognized a century ago[13]. It was found that 57% of the cases of known hypertension gave history of preference of salt intake. A simple modification of life style by limitation of salt intake can thus decrease the consequences on quality and duration of human life.

Forty five percent of the survey group reported having sedentary lifestyle and less physical activities. The results are similar to a study in which young adults who exercised an average of five times a week experienced a 17% reduction in the risk of developing hypertension, compared to less active participants[7]. This is because regular physical activity decreases renin, catecholamines, stroke volume, contractility of heart, increased urinary excretion and insulin sensitivity is responsible for reduction in BP. Part of this effect is thought to be mediated through improved lipid metabolism, and decreased body weight[14,15].

Fifty percent of hypertensive adults in our study were overweight. The results link obesity to the development of high blood pressure in adulthood. It has been found that maintaining

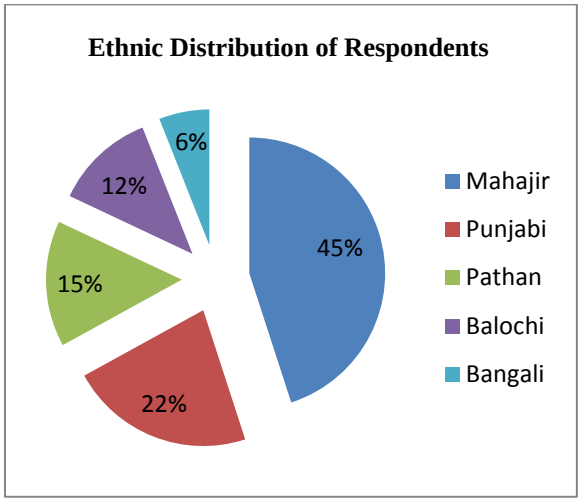

Fig.1: Ethnic Distribution of Respondents (n=100)

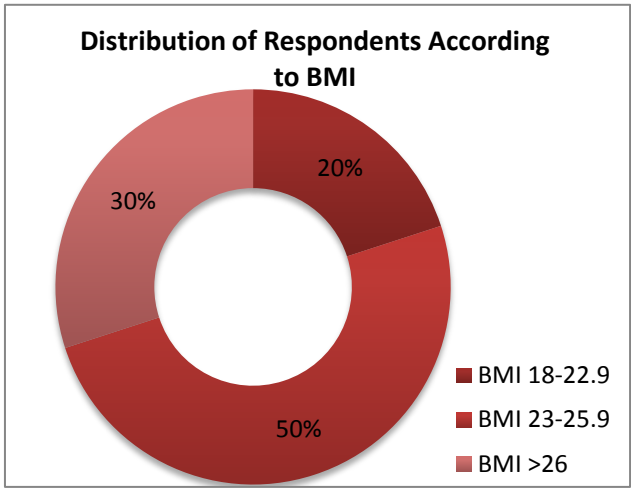

Fig. 2: Division of Participants on the basis of BMI (n=100)

Table: Definitions and Classification of Blood Pressure Levels

Category	Systolic (mm Hg)	Diastolic (mm Hg)
Optimal	120	80
Normal	130	85
High normal	130–139	85–89
Hypertension Stage 1 (mild)	140–159	90–99

a lean body weight throughout adulthood seems to be beneficial in the primary prevention of hypertension[16]. In another study, overweight individuals were associated with a greater relative risk for hypertension in 20 to 45 years of age than in those 45 to 65 years of age[17]. Many clinical trials have shown that short-term weight loss often results in a significant reduction in blood pressure and potentiates the effects of antihypertensive drugs among hypertensive patients.

Personality may indeed play some role in the development of high blood pressure. Previous studies have depicted an association of high blood pressure in angrier, anxious and depressed personalities. Studies have also found characteristics such as restrained aggression, inner tension and submissiveness to be associated with high blood pressure. Men in highly demanding jobs with little decision-making power were more likely to have hypertension. In our study however less than half (42%) of the reported had high demanding jobs, anxious and stressed out personalities; however the statement could not be validated.

In our study 47% respondents gave history of smoking and caffeine intake combination of which was associated with increase in blood pressure. A meta-analysis of eleven controlled clinical trials found that ingested coffee (median dose five cups per day) increased systolic blood pressure and diastolic blood pressure by 2.4 and 1.2 mmHg, respectively[18]. Limiting caffeine intake and cigarette smoking in hypertensive individuals, therefore, may be of some benefit in controlling their high blood pressure.

It is known that the central biological clock or suprachiasmatic nucleus which synchronizes activity to the rising and setting of the sun using hormones and the autonomic nervous system is disturbed by chronic short sleep durations; contributing to hypertension. The researchers found that women who slept less than or equal to five hours per night were twice as likely to suffer from hypertension as women who slept for seven hours or more a night[19]. Other studies have observed increased blood pressure after a night of partial or total sleep deprivation[20]. Poor sleep is also associated with three other problems affecting many older adults: bodily pain, excess weight and ambulatory restrictions, which itself are risk factors for hypertension. In our study only 29% of respondents showed relationship of sleep deprivation with hypertension, but no gender dimorphism was observed.

There is a long list of factors suspected to be causative agents for hypertension. Clinical trials have documented that weight loss, sodium reduction; exercise, alcohol restriction, and potassium supplementation reduce BP in persons with hypertension[21]. This study was meant to highlight frequency of salt intake, obesity with reduced physical activity, disturbed sleep patterns, type of personality and practices of caffeine intake and smoking in relation to hypertension. The study however has limitations of a small sample size.

CONCLUSION

Correction of life style by reduction in weight, salt restriction, and curtailment of smoking, with normal sleep patterns may contribute in deferring appearance in symptoms of hypertension. Our study can be used as a public health message to emphasize on role of regular physical activity in prevention and control of hypertension and its complications.

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