



A Study on the Demographic Determinants of Hypertension in Rural Areas

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ABSTRACT: In lifestyle disorders hypertension is one of the leading risk factor of stroke, myocardial infarction, heart disease and peripheral vascular disease. Hypertension is asymptomatic in nature that is why it is known as silent killer. In the present study 30 patients of essential hypertension were selected from a rural area of Himachal Pradesh and observed for relation with the socio-demographic factors. In the study, maximum numbers of patients were females and patient between the age group of 55-70 yrs. Other socio-demographic factors like occupation, education and marital status etc. were also taken into consideration.

KEYWORDS: Hypertension, Demographic determinant of hypertension.

INTRODUCTION

The WHO has located India as one of the countries that are going to report most of the lifestyle disorders in the near future. The major lifestyle diseases identified in India include Heart disease, Hypertension, Obesity, Diabetes mellitus, and Cancer.

Hypertension is multi factorial disorder. Increased stress level, less physical activity, obesity and overuse of salt are among its common aetiological factors. Being one of the major risk factors for coronary heart disease, hypertension also contributes to the development of cardiac hypertrophy with heart failure, aortic distension and renal failure, neurogenic effect and development of cerebro- and cardiovascular disorders¹.

The prevalence of hypertension varies among countries and among subpopulation within a country. Hypertension is present in all population except for a small number of individuals living in primitive, culturally isolated societies. It has been estimated that hypertension accounts for 6% of deaths worldwide. In industrialized societies, blood pressure increases steadily during the first two decades².

MATERIALS AND METHOD

Selection of Patient: Total 30 study subjects were selected from OPD/IPD of R.G.G.P.G. Ayurvedic College and Hospital, Paprola, Distt. Kangra (H.P.) 176115, irrespective of caste, gender, race and religion. A detailed history was obtained, physical examination was conducted and relevant investigations of study subjects were carried out before the enrolment and after the completion of trial period.

Criteria of Diagnosis: Diagnosis was mainly based on readings of sphygmomanometer. With the help of sphygmomanometer, 3 consecutive reading of blood pressure in 3 different positions (sitting, standing and supine) on both arms were taken. Their mean value was calculated for each arm separately and the highest reading was utilized for diagnosing and categorizing the patients according to 7th Joint National Committee

on Detection, Education and Treatment of High Blood Pressure. Only newly diagnosed patients of stage –I hypertension were included in trial according to JNC7 guideline. To determine systolic and diastolic blood pressure the Kortokoff sound 1 and 5 were used.

Investigations: Hb%, TLC, DLC, ESR, FBS, Blood Urea, Serum Creatinine, SGOT, SGPT, S. Lipid profile (S. Cholesterol, S. Triglycerides, HDL, LDL, VLDL), Urine- Routine and Microscopic examination.

Observation and Results-

Sr. No.	Observations	No. of Patients/Percentage / Maximum incidence
1.	Age	14 / 46.67% / 55-70 yrs
2.	Gender	17 /56.67% / Female
3.	Religion	30 / 100% / Hindu
4.	Marital Status	29 / 96.67 / Married
5.	Habitat	28 / 98.33% / Rural
6.	Occupation	18 / 60% / House Work
7.	Education	14 / 46.67% / Matric
8.	Socio-economic status	24 / 80% / Middle Class
9.	Diet	23 / 76.67% / Mixed
10.	Addiction	11 / 36.67% / Tea and coffee
11.	<i>Sharirika Prakriti</i>	19 / 63.33% / <i>Vatapittaj</i>
12.	<i>Manas Prakriti</i>	22 / 7.33% / Rajsik
13.	<i>Satva</i>	25 / 83.33% / <i>Madhyama</i>
14.	<i>Samhanan</i>	30 / 100% / <i>Madhayam</i>
15.	<i>Satmya</i>	18 / 60% / <i>Sarvarasa</i>
16.	<i>Pramana</i>	27 / 90% / <i>Madhayama</i>
25.	<i>Ahara Shakti</i>	21 / 70% / <i>Madhayam</i>
26.	<i>Vyayama Shakti</i>	15 / 50% / <i>Madhayam</i>
27.	Weight	12/ 40% /51-60 kg
28.	Incidence of H/O previous treatment	23 /76.67% / Not received treatment

DISCUSSION

The present study was in carried out in 30 patients of hypertension belongs to a rural area of Himachal Pradesh. The maximum number of registered patients of Stage 1 hypertension in the present study was found in age group of 55-70yrs i.e. 46.67. Among the three *Avastha* of human life, 60-100 yrs belong to *Vridha Avastha*. In *Vridha Avastha* physiologically the dominance of *Vata Dosha* is seen and in *Madhyama Avastha* *Pitta* predominance is there.

As hypertension generally occurs in elderly age group of patients, it can be said that the disease is mainly related to *Vata* and *Pitta* dominancy, because the susceptibility of body towards *Dosha* dominancy changes according to the age.

Results from the third National Health and Nutritional Examination Survey reported that upto 80% of people over 65 yrs have measurable high blood pressure. Especially the systolic blood pressure rises with age while diastolic pressure tends to fall. This is true for people with increased blood pressure and those with no history of high blood pressure.

It was observed from the study that maximum 56.67 % patients were female. It may be because the prevalence of hypertension is more in females after the age of 40. This suggests that the oestrogen probably play a part in preventing or delaying hypertension. Both animal experimental and human clinical investigations suggest that oestrogen engages several mechanisms that protects against hypertension, such as activation of the vasodilator pathway mediated by nitric oxide and prostacyclin and inhibition of the vasoconstrictor pathway mediated by the sympathetic nervous system and angiotensin.³

Commonly three religions are found in this area, Hindu, Buddhist and Muslims. It was observed from the table that all the registered patients i.e.100% were Hindus. This is because of Hindu dominated population in this area.

In the present study 96.67% patients were married .Although it is not easy to confirm any concern between marital status and disease. Stress due to responsibilities, adjustments and adverse situation and attention to family may be the probable cause of this observation.

Out of 30 patients 46.67% patients were reported to be matriculates. It would be irrelevant to co relate this finding with any aspect of the disease. According to M.PaulAnand in 1990, and GuleriaAnju et.al. in 2002, maximum patients were educated upto high school. Same data was given by Jani Jai Krishan et.al. 2000 that maximum patients were matriculate.

The maximum numbers of patients in present study i.e. 60% were related to house work which includes house wives and retired. Incidence among housewives may be due to the day to day tensions especially of their children education etc. and among service class may be due to over mental stress which also pay a significant role. The factors like erroneous eating habits, low physical activities and lack of energy expenditure may play a vital role in the onset of disease.

The increased incidence among office job whether Govt. or private may be due to the tension of their work overload and sedentary life style. It is known that stress and worries increases blood pressure due to increase in cardiac output and peripheral resistance secondary to increase in the sympathetic activity

Maximum number of patients i.e. 98.33% belonged to rural. It may be due to the geographical location of the hospital in the rural area of Himachal Pradesh.

GuleriaAnju et.al.(2002), YadavBabita et.al.(2003), KumariNeelam et.al. (2007), ChaudharyVijay et.al. (2007), GargGaurav et. al. (2009) RohilaRajnikant et. al. (2010), and Rani Seema et. al. (2011) reported that majority of patients were belonging to rural area.

Maximum number of patients were observed in middle class group i.e. 80% followed by 20% patients from lower class. It may be due to increasing demands of living and earn livelihood. They would adopt mental and physical strains. This might be having increased incidence of essential hypertension.

Studies on 30 patients of stage –I hypertension revealed that 80% i.e. patients had sedentary life style and remaining 6 patients had active life style. According to studies⁴ sedentary life style associated with several cardio metabolic factors, including obesity, low high-density lipoprotein cholesterol, high triglycerides etc. are the main risk factors of blood pressure, which in long run can lead to development of systemic arterial hypertension

Maximum registered patients i.e. 76.67% in the present study had habit of taking mixed diet. In different research it was found that vegetarians had blood pressure that was significantly lower than who took non vegetarian diet. On average, reductions seen across the studies were 5 to 7 mm of mercury for systolic blood pressure and 2 to 5mm of Hg for diastolic blood pressure. While those results are modest, clinical guidelines suggest they could reduce a person's risk of heart attack by 9 percent and risk of stroke by 14 percent⁵.

The study also reveals affect that most of the patients i.e. 36.67 were addicted to tea and coffee followed by addiction of smoking in 16.67% (5) and 13.33% i.e. 4 patients were addicted to alcohol. Cold climate of

Himachal Pradesh compels most patients to take more tea, coffee and alcohol. Tea is said to be *Vata Pitta Vardhaka* due to *Kshaya Rasa* and smoking is another *Vata Prakopaka Nidana*, which leads to obstruction in vessels leading to increased peripheral resistance commonly associated with hypertension.

The factors like alcohol consumption and smoking are documented determinants of hypertension. Addiction of alcohol has been reported for 5 to 30% of all hypertensions and also causes resistance to antihypertensive treatments.

In the present study maximum number of patients had normal sleep i.e. 66.67% (20), 6.67% i.e. 2 patients had excessive sleep and remaining 26.67% (8) had disturbed sleep. Hypertension is considered as *Vata Pradhana Tridosaja Vyadhi* so disturbed sleep may provoke *Vata Dosha* which is predominantly vitiated in this disease condition.

Treatments wise distribution shows that majority of patients 76.67% i.e. 23 were not taking any antihypertensive treatment before registration in the trial. The observation can be attributed to lack of health awareness as well as symptom less nature of disease. It indicates that the hypertension may diagnose with routine check up.

Weight wise distribution of registered patients shows that maximum number of patients were in weight group of 51-60 kg i.e. 40% (12), 36.67% (11) patients were in the weight group of 61-70 kg and remaining 23.33% (7) had weight more than 71 kg. Obesity and weight gain are strong, independent risk factors for hypertension. It has been estimated that 60% of hypertensive are >20% overweight. Framingham study showed approximately 1 mm of Hg rise in systolic blood pressure for every 2 pounds weight gain, INTERSALT study of 52 communities worldwide showed that weight among all measured characteristics except age had the strongest, significant, most consistent and independent correlation with the blood pressure.

The data on the *Deha Prakriti* of 30 patients reveals the fact that 63.33% i.e. 19 patients were of *Vata Pittaja Prakriti*. The next majority i.e. 26.67% goes to *Pitta Kaphaj*. If such person gets *Vata* and *Pitta Dushtikar Nidanas* the *Doshas* get aggravated easily which may also result in high blood pressure. This may be due to *Mansika Bhavas* like *Chinta, Shoka, Bhaya* etc. which are considered as stress and anxiety as one of the etiological factors of essential hypertension in modern science also.

In the present study maximum numbers of the patients i.e. 70% (21) had *Madhyam Aahar Shakti* followed by patients of *AvarAahar Shakti* i.e. 16.67% (5). This can be attributed to the fact that as age increases *Vata Dosha* increases in body and also hypertension is *Vata* predominant disorder. Increased *Vata* leads to decreased *Abhyaharana* as well as *Jarana Shakti* also with increasing age, decreased taste bud sensitivity, poor denture and loss of appetite leads to reduce power of ingestion and along with this decrease enzymatic secretion, decreased intestinal absorption leads to reduced digestion.

In the present study maximum registered patients had *Madhyama Vyayama Shakti* and *Avara Vayayam Shakti*, YadavBabita et.al. (2003) study revealed equal distribution of *Heena* and *Madhyama Vyayama Shakti*. KumariNeelam et.al. (2007), ChaudharyVijay et.al. (2007), GargGaurav et. al. (2009) RohilaRajnikant et. al. (2010) and Rani Seema et. al. (2011) reported the same data. Exercise increases blood circulation, reduce platelet stickiness, increases fibrinolysis, lower blood lipids and reduces obesity. Exercise appears to have a positive effect on remodelling of the hypertensive heart and prevention of LVH⁶.

In conclusion, the prevalence of hypertension was high in rural area, especially in elderly females, persons having sedentary life style and alcohol consumers. The low level of awareness on hypertension and poor health seeking behaviours in rural area can also lead to more prevalence. Majority of patients also get unnoticed due to asymptomatic nature of disease and lead to complication and high morbidity rate in these areas.

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