

Research Article

AN EPIDEMIOLOGICAL SURVEY OF HYPERTENSION

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ABSTRACT

Epidemiological surveys of hypertension on 500 volunteers were conducted, in which 137 volunteers were hypertensive. During the Epidemiological study, it was observed that sedentary life style, āmapradoshaka aahar & vihar, snehyukta ahar & excessive intake of lavan rasa are the causative factor of hypertension.

Key words : *Vyan vikriti, vyan bala, Raktavritta vata, Raktagata vata, Dhamani Pratichaya, Siragata vata, Rasabhara, Dhamani Prapurnata, Vyanavrita vata etc.*

INTRODUCTION

High blood pressure (hypertension) is designated as either essential (primary) hypertension or secondary hypertension and is defined as a consistently elevated blood pressure exceeding 140/90 mm Hg. In essential hypertension (95% of people with hypertension) no specific cause is found. While secondary hypertension (5% of people with hypertension) is caused by an abnormality somewhere in the body such as in the kidney, adrenal gland & aortic artery etc. High blood pressure is called "the Silent Killer" because it often causes no symptoms for many years, even decades, until it finally damages certain critical organs like kidney, brain, blood vessel, eye etc. mostly its diagnosis is ruled out all of sudden when the person comes in contact of doctor or health worker etc. Heightened public awareness and screening of the population are necessary to detect hypertension early enough so it can be treated before critical organs are damaged. It is one of the major risk factors for cardiovascular mortality, which accounts for 20-25% of all deaths.

Aims & Objective

- For find out how many individual suffered from Hypertension in randomized survey of 500 Individual in a particular area. The

survey of carried out by survey proforma, questionnaire pattern & some criteria based on ayurvedic nidana, sign & symptoms.

- To reduce the incidence of hypertension from the society by discarding the use of nidana (etiological factor) known by this survey.
- Heightened public awareness about nidana (etiological factor) mention in our samhita) by this survey.

Selection of sample & Patient: Sample of 5 hundred people for epidemiological study was taken from OPD of National Institute of Ayurveda & local regional area. Out of 500 People for epidemiological survey 137 individual were found hypertensive.

Epidemiology: The study of the distribution and determinants of health related stages or events in specified populations, and the application of this study to the control of health problems"

Patient Screening Criteria of Assessment: Based on survey proforma, questionnaire pattern and some criteria based on ayurvedic nidana, sign & symptoms.

Age group of year (People) : 20-30/ 31-40/ 41-50/ 51-60/ 61-70/ 71-80
Sex : Male / Female, Religion - Hindu /Muslim/ Sikh/ Christian
Socio economic status: Good (Annual Income > Rs.2 lacs) Fair - (Annual Income > Rs.75000 to 2 lacs) Poor - (Annual Income > Rs.75000)
Occupation: Government / Public/ Housewife
Education: Illiterate / Literate - Primary, Secondary, Higher
Habitat: Rural/ Urban/ Metro politician
Habits of Addiction: Yes/ No
If yes then which type of addiction: Alcohol / Tobacco / Tea/ Coffee/ Bidi/ Cigarette.
Amount of Addiction:ml. per dayliter per week
Duration of Addiction:day/month /year

Weight: normal / over / under Normal weight = Height in Centimeter - 100. Over weight = Height in Centimeter + more than 5 kg. Under weight = Height in centimeter - more than 5 kg.	
Height: Short/ medium / tall Short = < 5 feet or 150cms. Medium = between 5 to 6feets. or 150-180cms. Tall = > 6feets or 180cms.	
Diet: Non vegetarian / vegetarian / mixed	
Ras you are more preferred in diet - Madhur/ Amala / Lavan/ Katu/ Tikta / Kashaya / All	
Duration of Preferred Ras- day/ week / month/ year	
What is your diet regime - Breakfast/ Lunch/ Dinner/ Other	
Any change your diet pattern-..... Duration of change of diet pattern-.....	
Exercise: Yes / No If yes, duration of exercise inhour per day. How many day / month / year you are doing exercise-..... Duration of exercise in per day -hour	
Physical Activity: Yes/ no If yes - mild/ moderate / hard Mild work = As house work, Office work etc. Moderate = Hackers etc. Hard work = Labour etc.	
How is your nidra: Samyak nidra / Alpa nidra / Atinidra Samyak nidra = Between 6 - 8 hours per day Alpa nidra = < 6 hours per day Atinidra = > 8 hours per day	
Which type of water you used - Supply / boring / purified / mineral	
Intake of water: In between meal/ At the end of meal/ at the beginning of meal	
Do you used fast moving vehicle - Yes / No If yes how manyday /week/month/year	
Duration of used fast vehicleper day in hour.	
During the past 12month have you ever been told by doctor or other health worker that you have hypertensive- Yes/No	
Are you currently taking any herbal or traditional remedy for BP - Yes / No	
Sign symptoms:	
Do you feel palpitation -	Yes/No
Do you feel tiredness in these day -	Yes /No
Do you feel any kind of respiration problem in night-	Yes/No
Do you have constipation -	Yes/No
Do you feel pain in calf muscles -	Yes/No
Do you feel vertigo -	Yes/No
Do you feel more anger now in these days -	Yes/No
Do you feel any time syncope -	Yes/No
Do you feel your memory is decrease now-a-days -	Yes/No
How do you feel after your digestion -	Gaurava / Laghuta
Similarly various criteria are used in the survey of five hundred individual in a particular area. all the criteria is not possible to write down here.	

Cross-sectional studies (Non-experimental)

It is one time or at a point of time study of all persons in a representative sample of a specific population such as examination of all people in age group 20 to 80 years, detection of hypertension (HT) cases and study of the factors that lead to examination of people in age group 20 to 80 years for classifying into hypertension (HT) grades, finding prevalence in age group of 20 to 80 years of people or morbidity due to hypertension (HT).

Observation, result & Discussion

- According to age the incidence of Hypertension should be more in old age but now in these days and also in this survey it is found that it is somewhat more in adult age group 25.35% in male & 27.27% in female.
- The probable causes of this may be because of the increased salt intake and influence by environmental factors which lead to increase sodium & water retention leading to increased blood volume which increases right arterial pressure & finally increased cardiac output & blood pressure (BP) are resulted
- According to Charaka pitta is more in middle age & when these people take more pitta vardhaka Aahar Vihar then it leads to

increase in dusya rakta due to similarity in Pitta & Rakta. This increased dustha rakta finally produce Hypertension.

- In Indian culture women suppress their natural urges it leads to prakopa of Apana vayu. Vitiation of apana vayu hamper the excretion of mutra, so the body fluid level become imbalance & increases. Consequently increases right atrial pressure & cardiac output to produce high blood pressure. This survey shows that B.P. rise with age in both men & women is almost same in adult age.
- In my survey the prevalence of hypertension is high in good socioeconomic status (40.14%) & government status (44.52%). The probable causes of this is sedentary life style, excessive stress meda & kapha vardhaka Aahar vihar (over nutrition) leads to produce Hypertension.
- In my survey the incidence of Hypertension is more in literate persons (71.54%) the probable causes of this may be the literate persons have more mental stress as compare to the illiterate persons.
- The role of stress in genesis and maintains of hypertension may be increasing the sympathetic tone through neuroendocrinal axis. Development of stress induced hypertension linked with adrenaline. The mechanism of this is given below:-
- The release, reuptake and presynaptic facilitation of noradrenaline release acts as positive feedback loop. Although the half life of adrenaline in plasma is only few minutes but, if it is stored in

sympathetic nerves it may last for many hours. The growth of vascular smooth muscles can be influenced a number of stress related factor including angiotensin, catecholamine and corticosteroid raised the level of cortisol are found in high effort and high stress situation.

- Due to chinta the sympathetic & parasympathetic nervous system get over activated it enhance the cardiac output, pulse rate, respiration rate & blood pressure. According to Ayurveda, Chinta is a function of mana but excessive chinta leads to aggravation of rajo guna of mana. Rajo guna & vata are interlinked, aggravated rajo guna influence the prana vata & this prana vata has function over other vata in maintaining the blood pressure so aggravated prana vata will initiate the process of Hypertension.
- 3. In my survey the incidence of Hypertension is more in urban population 68.6% the probable causes is that due to over nutrition, sedentary life style & lack of exercise it leads to kapha meda vardhaka aahar which creates Hypertension.
- 4. Incidence of Hypertension is more in addicted patient (66.42%) by alcohols (25.27%) by Tobacco chewing (21.97%) & by tea & coffee (52.74%). The probable cause of this is that alcohols, tobacco, tea/coffee etc aggravates vata & pitta. These causes hyperacidity & Agnimandya, Agnimandya produce āma, and āma produce sama ras dhatu, which avrita vyanaya vayu by this blood pressure is elevated.
- Nicotine & carbon mono oxide (CO) is a product of Tobacco consumption are potent vasoconstrictor, cigarette smoking acutely raise BP by rising plasma norepinephrine, excessive use of alcohols increase BP perhaps by increasing plasma catecholamine. SBP is more effected than DBP it increase red cell volume & hence increase blood viscosity is another possible mechanism. Hypertension can be difficult to control in patients who consume more than 40 ml of Alcohols/day.
- 5. Incidence of Hypertension is more in over weighted patient (40.87%) perhaps due to medo dusti. According to modern obesity lead to hyperlipidaemia, insulin resistance, & increased blood volume, its lead to Hypertension.
- 72.99% incidence was found in medium stature patient for this no any specific cause is found but it suppose that in this population more persons were of medium sized and hence this high percentage was found.
- 56.93% of incidence was found in non vegetarians. Probable cause of this is that non vegetarians more uses snigdha, guru, medovardhaka aahar it leads to āma by mandagni which produce medo dusti and more Hypertension is occurs in these kind of patient.
- 52.55% incidence of Hypertension was found in the patient to do mild work probable causes of this is that mild work or no exercise leads to mandagni by which āma is produced, this āma do medo dusti, by this rakta is also vitiated. This vitiated rakta avrit the vyanaya vayu which produce Hypertension. According to modern no exercise or mild work creates hyperlipidaemia which will leads Hypertension.
- 48.90% incidence was found in the patient who was suffering from Alpanidra or Anidra (Insomnia) & only 10.22% are founding those who was taking atnidra probable cause of this is that Anidra vitiated the vata & pitta (Su. sha. chapter. 4)
- Vitiated vata increase force of contraction of heart & pitta increase volume of rakta (vidagdha matratamaka rakta) and this both will be leads Hypertension. Catecholamine & cortisol level will be increased in anidra (insomnia) it produce vasoconstriction that leads to Hypertension.
- 20.44% incidence of Hypertension is found in patient who uses more Lavan rasa, the probable cause of this is consumption of more Lavan rasa aggravated the pitta it lead to hyperacidity & agnimandya produce āma which produces sama rasa dhatu, which avrita vyanaya vayu by this BP is elevated.
- According to modern it has been postulated that essential hypertensive have a genetic abnormality of kidney which makes salt excretion difficult except at raise level of arterial pressure.
- Incidence of Hypertension in more in the patient who suppress their natural urges was 51.09%, the probable causes this is follows-
- Suppression of natural urges as Chhardi, Udgar Grimbha etc vitiated prana vayu and because prana vayu control heart then vitiation of this alter the function of heart which produce high B.P.

Suppression of sukra & mala, artva etc vitiate apana vayu. This vitiated apana vayu by vimarg gaman goes to brain and activate cerebrovasomotor centre which causes vasoconstriction & produce Hypertension, suppression of urine causes reabsorption to toxic substance as urea, uric acid, & creatinine in the blood. These toxic substance constrict blood vessels and increase blood volume which produce Hypertension.

- The incidence of Hypertension is more in the patient who is taking more guru and snigdha aahar was 21.17%, 18.98% respectively and it was least in the patient whose aahar is ruksh (11.68%). The probable cause of this is that guru & snigdha aahar creates āma by mandagni this āma do medo dusti which leads to hypertension.
- 42.31% incidence was found in the patient who was taking atimatrayukta aahar probable cause of this is that atimatra produce mandagni this produce āma & it is causes srotoavarodha which is produce hypertension.
- 42.33% incidence was found in the patient of Adhyasan because adhyasan is vata aggravating factors and causes tridosha prakopa, aahar does not digest properly & āma produce & the time of kitta vibhajana vikriti vayu produce more in quantity, it goes pratiloma gati & sarvadaihika gets vitiate it help to produce pathogenesis of Hypertension.
- 62.04% of incidence found in patients were not do any kind of exercise 73.72% of incidence was found in the patient who were using fast motor vehicle the probable cause of this is lack of exercise or sedentary life style.
- 59.12% incidence was found in patient who were feeling gaurav after digestion the probable cause of this is due mandagni or āma production.
- The incidence of Hypertension more in the patient of anxiety (36.50%) the causes of this is earlier discussed under observation (Point no.2)
- 43.07% incidence was found in the patient whose sexual desire was more because excessive sexual activity causes oja kshaya. The site of oja & vyanaya vayu is Hridaya. Ojakhaya leads to the dusti of oja & vyanaya vayu this lead to produce Hypertension.
- 35.77% incidence was found in the patient of visamagni because of vitiation of vata that also vitiate vyanaya vata which produce Hypertension. 32.85% incidence was found in the patient of mandagni because due to mandagni produce āma & āma paroduces Hypertension.
- 35.04% incidence was found in the patient of krura kostha due to vitiation of vata and 33.58% incidence was found in the patient of Madhyam kostha due to mandagni.
- 28.47% incidence was found in the patient of vatakaphaja prakriti. 26.28% was in the Tridoshaja prakriti, 24.09% was in the vatapittaja prakriti & 21.17% incidence was in the patient of pittakaphaja prakriti, incidence was slightly higher in the patient of vatakaphaja prakriti because Hypertension is suppose to be vatakaphoulavana tridoshaja vyadhi so vatakaphaja help in the production Hypertension.
- 31.39% have family history of Hypertension it show there is more genetical factor who is responsible for Hypertension as well as 68.61% was not having family history. It shows that other factors such as sedentary life, over nutrition etc are more important than genetical factor to produce Hypertension.
- In my survey the 48.90% having complain of Anidra (insomnia), 38.69 have complain constipation, 29.20% have complain klama, 20.44% have complain sirahshool, 18.98% have complain Swaskricchata (Dyspnoea) & 17.52% have complain Hriddrava (Palpitation) The probable causes of above is fast life style, stress, obesity, salt intake, use of saturated fat, alcohol, lack of physical activities and poor socioeconomic status.

SUMMARY & CONCLUSION

After completion of my survey I have found the follow my most probable causes Hypertension.

- Sedentary life style
- Ama pradoshaka aahar - atimatra, Aahayasana etc.
- Taking more snehyukta ahara as excessive use of saturated fat etc.
- Excessive use of lavan rasa
- Vegavidharana & suppression of natural urges like - Apana vayu, mutra, purisha etc.

On the basis of this for the avoiding of hypertension the society should do the following things.

- Do routinely exercise.
- Taking their diet regularity at a fixed time & according to their agni bala.
- Avoiding use of saturated fat in place of this use unsaturated fat.
- Avoid excessive use lavana rasa.
- Do not suppress their natural urges.
- Do yoga or meditation to avoid mental stress chinta.

ABBREVIATIONS

ECG = Electrocardiogram, FBS = Fasting Blood Sugar, PPBS = Post Prandial Blood Sugar, LDL = Low Density Lipoprotein, HDL = High Density Lipoprotein, VLDL = Very Low Density Lipoprotein, MI = Myocardial Infarction, CCF = Congestive Cardiac Failure, SBP = Systolic Blood Pressure, DBP = Diastolic Blood Pressure, CO = Carbon Mono Oxide, Hb = Haemoglobin, ESR = Erythrocyte Sedimentation rate, COP = Cardiac Out Put, VR = Venous Return, HT = Hypertension, BP=Blood Pressure

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