AN EPIDEMIOLOGICAL SURVEY OF HYPERTENSION

MANOJ KUMAR GUPTA¹, DINESH SINGH GAUR ², SHRIKRISHNA SHARMA ³, PIYUSH MEHTA ⁴, SURENDRAMA SHARMA ⁵

¹Lecturer, Department of Roga and Vikriti Vijnana, Government Ayurvedic College and Hospital, Atarra, Banda, Uttar Pradesh, India. ²Lecturer Department of Shalakya, Government Ashtang Ayurvedic College and Hospital, Lokmanya Nagar, Indore, Madhya Pradesh, India. ³Ex Associate Professor Department of Roga and Vikriti Vijnana, National Institute of Ayurveda, Jaipur, Rajasthan, India. ⁴Associate Professor Department of Roga and Vikriti Vijnana, National Institute of Ayurveda, Jaipur, Rajasthan, India. ⁵Associate Professor Department of Roga and Vikriti Vijnana, National Institute of Ayurveda, Jaipur, Rajasthan, India.

Email: drmanoj.gupta505@gmail.com

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 lifestyle, 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 nidan, sign & symptoms.
- To reduce the incidence of hypertension from the society by discarding the use of nidan (etiological factor) known by this survey.
- Heightened public awareness about nidan (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 nidan, sign & symptoms.
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 6feet. or 150-180cms.
Tall = > 6feets or 180cms.

Diet: Non vegetarian / vegetarian / mixed
Ras you are more preferred in diet - Madhu/ Amula / 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 in ..........hour 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 many ........day / ........week/ ........month/ ...........year
Duration of used fast vehicle ..........per 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 -
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.

Gaurava / Laghuta

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 media & 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 neuroendocrine axis. Development of stress induced hypertension linked with adrenaline. The mechanism of this is given below:-

• The release, reuptake and presynaptic facilitation of noradrenaline 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 sympathoid & parasympathoid 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.

- 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 causes Hypertension.

- Incidence of Hypertension is more in addicted patient (66.42%) by alcohols (25.27%) by Tobacco chewing (21.97%) & 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 rasa dhatu, which avrīta yana vyayu 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 affected 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 Alcohol/day.

- Incidence of Hypertension is more in over weighted patient (40.87%) perhaps due to medo dustī. According to modern obesity lead to hyperlipidemia, insulin résistance, & 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 āma and āma also vitiated rakta avrit the vyan vayu by this BP is elevated.

- 48.90% incidence was found in the patient who was suffering from Alpanidra or Aandra (Insomnia) & only 10.22% are found those who was taking atimidra probable cause of this is that Aandra vitiated the vata & pitta (Su. sha. chapter. 4)

- Vitiated vata increase force of contraction of heart & pitta increase volume of rakta (vidagda matratamaka rakta) and this both will be leads Hypertension. Catecholamine & cortisol level will be increased in aandra(insomnia) it produce vasocostriction that leads to Hypertension.

- 20.44% incidence of Hypertension is found in the 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 avrīta vyaya vyayu 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 Grimha etc vitiated prana vyaya and prana vyaya control heart then vitiation of this alter the function of heart which produce high B.P. Suppression of sukra & mala, artha etc vitiate apana vyaya. This vitiated apana vyayu by vinamg gaman goes to brain and activate cerbrovasomotor 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 & snigdha ahara was 21.17%, 18.98% respectively and it was least in the patient whose aahar is ruksh (11.68%). The probable cause is that guru & snigdha aahar creates āma by mandagni this āma do medo dustī which leads to hypertension.

- 42.31% incidence was found in the patient who was taking atimratyukta aahar probable cause of this is that atimatra produce mandagni this produce āma & it is causes srotavarodha which is produce hypertension.

- 42.33% incidence was found in the patient of Adhyasana because adhyasan is vata aggravating factors and causes tridosha prakopa, aahar does not digest properly & āma produce & the time of kitta vibhujana vikriti vyaya produce more in quantity, it goes pratiroma gati & sarvadahula gets vitiates 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 & āma vyaya is Hirdaya. Opakshaya leads to the dustī of oja & āma vyaya this lead to produce Hypertension.

- 35.77% incidence was found in the patient of visamagni because of vitiation of vata that also vitiates vyaya vata which produce Hypertension. 32.85% incidence was found in the patient of mandagni because due to mandagni produce āma & āma parudaces Hypertension.

- 35.04% incidence was found in the patient of krura koshtha due to vitiation of vata and 33.58% incidence was found in the patient of Madhyam koshtha 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 vata Pittajaya 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 vatakaphaja vyaya tridoshaja vyaya do vatkaphaja help in the production Hypertension.

- 31.39% have family history of Hypertension it show there is more genetic factor which 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 genetically factor to produce Hypertension.

- In my survey the 48.90% having complain of Aandra (insomnia), 38.69 have complain constipation, 29.20% have complain klama, 20.44% have complain sirsahshool, 18.98% have complain Swaskricchata (Dyspnoea) & 17.52% have complain Hirdrava (Pallpitation) 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
- Āma pradoshaka aahar - atimatra, Aahayasana etc.
- Taking more snehutyaka aahar as excessive use of saturated fat etc.
- Excessive use of lavan rasa
- Vegavidharana & suppression of natural urges like - Apana vyayu, mutra, prurish 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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