

EFFECT OF VITIATED VYAAN VAYU IN HYPERTENSION

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ABSTRACT

Ayurveda is a science of life which is based on three basic entities or pillars named as *Tridoshas* – *Vata*, *pitta* and *kapha*. All these three *Doshas* work along with each other in the body as separate structural and functional units as if maintaining equilibrium inside the body to keep us healthy. Any imbalance of any one among these *Tridoshas* caused different kind of ailments and in turn, different diseases in our body. *Vata Dosha* is considered as the primary *Dosha* without which even rest of the *Dosha* can't work properly. All kind of movement or "*Gati*" as per Ayurveda classics are under control of *Vata Dosha*. There are five types of *Vata* or *Vayu* and they have been assigned different type of functions in the body to perform. *Vyaan Vayu* among all five types of *Vayu* is considered to be as basic element for circulation through the body. It resides in the *Hridaya* as *Ashray Sthan* but responsible for circulating *Rasa* – *Rakta* all around the body continuously. So, its *Sthana* is *Sarva- Sharer* as cited in the classical texts. Vitiating of *Vayu* (*Vyaan Vayu*) is responsible for the disturbance in the movement and circulation of body fluids along with blood as an important entity. *Vyaan Vayu* is responsible for forceful ejection of *Rasa-Rakta* out of *Hridya* and circulating it throughout the body. So we can include both sympathetic and parasympathetic function of heart under the control of *Vyaan Vayu*. Sympathetic control increases the heart rate and conduction velocity which is vasomotor centre (120) in medulla and para- sympathetic has its apposite effects. In this study patients of hypertension were clinically examined to find out the *Dosha Vikriti* as per Ayurveda principals. During research it was found that every patient with Hypertension was suffering from the symptoms and *lakshanas* of vitiated *Vayu* (*Vyaan Vayu*) and moreover, on taking history of all of them, the *Nidanas* or the causative factors were all relating to the *Nidanas* of *Vyaan Vayu* vitiation. These observations helped us to conclude that Blood Pressure of an individual is affected by Vitiating of *Vyaan Vayu* in his /her body and so Hypertension or increased blood pressure can be easily managed with the Ayurvedic management of Vitiating *Vyaan Vayu* described by our *Acharyas*, bringing *Vaikrita* / Vitiating *Vyaan Vayu* to its *Prakrita* / normal *Avastha* or state.

KEYWORDS: *Vyaan Vaayu, Hypertention, Vitiating of vaayu, Raktagata vaat, Raktachaap.***INTRODUCTION**

Tridosha is basic concept of Ayurvedic physiology; tridoshas are *vata*, *pitta* and *kapha*. *Vata* have a dominating factor in tridosha which is explain by the *Sharangdharsamhita*.

A separate chapter has been devoted in *Caraka Samhita* to explain its importance. In general, the functions ascribed to '*Vaayu*'^[1] are: Control and co-ordination of different parts of the body, initiation of all movements, regulation of psychological process, initiation of all activities of sense organs, transmission of different sensations, production of speech, secretory-motor functions in the gut, expulsion of wastes from the body and control of respiration. All the five types of *vaayu*^[2,3,4] i.e., *pran*,

udaan, *samaan*, *apaan*, and *vyaan* perform their separate functions in coordination to maintain normal functioning of the human body.

Vyaan vaayu is considered to be present all over the body regulating various body movements and circulatory functions related to body fluids including blood.

The active site '*VyanaVata*' is Heart, it makes the circulation of blood possible by controlling the heart. *Vyana* makes '*Rasa*' (the intravascular fluid including plasma and lymph) to get forcefully ejected out of the heart and makes it circulate throughout the body. So, sympathetic and parasympathetic control of heart should be included under '*VyanaVata*'. Some authors have

ascribed the functions of somatic nervous system also to 'VyanaVata' as movements like flexion, extension, opening and closure of eyelids have been said to be under its control.

देहव्याप्रोतिसर्वेतुव्यानः शीघ्रगतिर्नृणाम्। गतिप्रसारणाक्षेपनिमेषादिक्रियः सदा। चि० चि० 28/9

Vyanavayu being quick-moving pervades the entire body and performs the functions of movements, extension, contraction, blinking etc.

Bhel Samhita also described about VyanaVayu in Sutra Sthana and Acharya Bhel also described relation in between VyanaVayu and Blood circulation.

Vyana Vayu, by contraction and relaxation of heart, propels blood from heart to the body tissues and keep blood pressure in normal limits. Vitiating of vaayu (vyaan vaayu) due to various causative factors and pathological conditions, causes disturbance in the *gati* of *rakta* as mentioned in the ayurveda classics, so causing increase in the blood pressure, which is termed as Hypertension.

Modern Review,^[4,5,6,7,8,9,10,11] High blood pressure or hypertension is circulatory state, arise from any cause, in which the pressure of the blood within the arteries becomes elevated beyond normal limits. In general the term includes any rise in arterial pressure whether temporary involving systolic pressure, diastolic pressure or both of renal or normal origin. Blood pressure can be defined as the amount of pressure exerted by the blood on the walls of arteries along with the amount of resistance offered by the arteries on the blood. The normal amount of pressure exerted is 120mmHg systolic and 80mmHg diastolic. When this pressure exceeds its normal limits, it is called as Hypertension.

Blood pressure \propto Blood volume \propto Radius of lumen of arteries i.e. $1/r^4$
(where 'r' is radius of artery)

As per WHO, increased intake of processed food as well as increased amount of salt in diet results in rise in blood pressure. High blood pressure is not a disease but is the primary sign which if ignored can lead to various major diseases like Stroke, MI, Heart failure, CAD, and peripheral artery disease and kidney diseases etc. In recent era, Hypertension and Heart diseases had become global health concern. Rise in blood pressure causes symptoms like Headache, Palpitation, Sweating, Anxiety, Insomnia, and Blushing etc. In majority of cases, it doesn't show any symptom so it is also called as "Silent Killer". Various physical as well as psychological factors are responsible for rise in blood pressure like irregular exercise, excessive smoking, excessive alcohol intake, sedentary life style, depression, stress, anxiety, fear etc. According to World Health Report 2002, Cardiovascular Diseases will be the largest cause of death and disability by 2020 in India. Near about 2.6

million people are predicted to die due to Coronary Heart Disease which constitutes 54.1% of all deaths. Nearly half of these deaths are likely to occur in young and middle aged individuals i.e. 30-69 years of age people.

AIMS AND OBJECTIVES OF THE STUDY

1. To understand etiology of VyanaVayu.
2. Compile the scattered description about VyanaVayu which is described in various *samhitas* and *tika*.
3. To understand the concept of relation in between VyanaVayu and hypertension.
4. Role of VyanaVayu in modern life style.

MATERIAL AND METHODS

a) Related to this topic

Literature related to the research topic was collected from various classical books of *Ayurveda*, like *Charaka Samhita*, *Sushruta Samhita*, *Ashtang Hrudayam* and some modern books, like Davidson (1991): Principles and Practice of Medicine, Dorland: Pocket Medical Dictionary, Oxford and IBH Publishing Co. Pvt. Ltd., Essential of Medical Pharmacology by Tripathi, Harrison: Principles of Internal Medicine Vol. II, Handbook of Hypertension by G.T.McInnes edition (International COLLECTION OF ALL THE AVAILABLE LITERATURE edition), Principles of Anatomy and Physiology by G.J. Tortora and S.R.Grabowsh, New York, Oxford Advanced Learners Dictionary, Oxford Dictionary.

b) Critical study of collected literature to understand the physiology of vyan vayu on the basis of ayurvedic literatures and study of hypertension as per modern aspect

- a) Finding out etiology of *Vitiated Vyan Vayu* described in *Ayurvedic* literatures with reference to symptoms of Hypertension.
- b) The literary and conceptual study will be undertaken by the data compiled from *Bhrihatrayi*, *Laghutrayi* and other classical texts including journals, papers, previous work done and correlated, analysed with the knowledge of contemporary science on the subject.
- c) A series of hundred patients of Hypertension visited opd of Himalaya Ayurvedic Medical College And Hospital will be selected for the study based on the given Inclusion and Exclusion criteria.

1. Inclusion criteria

- a) Patients of 18 years to 70 years age.
- b) Clinical sign and symptoms of present illness suggestive of Hypertension and study of features of *Vitiated vyan vaayu* as mentioned in *Ayurvedic* literatures.

2. Exclusion criteria

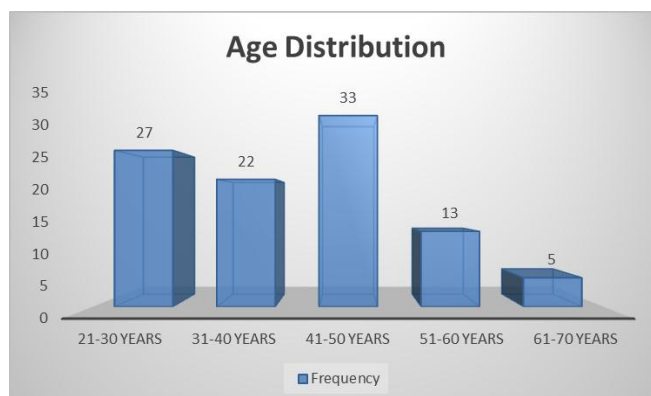
- a) Patients having age less than 18 years and more than 70 years.
- b) Patients having inconclusive diagnosis.

- c) Patients having any malignancy, renal diseases, cardiac disease, endocrine disorders will be excluded in the study to avoid overlapping of symptomatology

OBSERVATIONS AND RESULT

1. Age

Age Group	Frequency	Percentage
21-30 Years	27	27.0
31-40 Years	22	22.0
41-50 Years	33	33.0
51-60 Years	13	13.0
61-70 Years	5	5.0
TOTAL	100	100.0

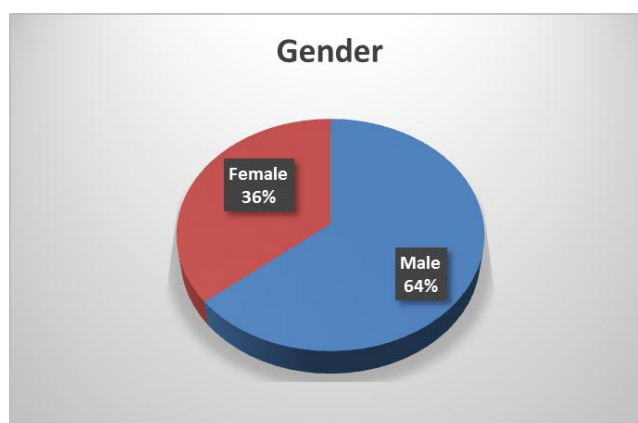


Random sampling of 100 hypertensive patients done for this research study; 27 patients of age group 21-30 years, 22 patients of age group 31-40 years, 33 patients of age

group 41-50 years, 13 patients of age group 51-60 years and 5 patients of age group 61-70 years.

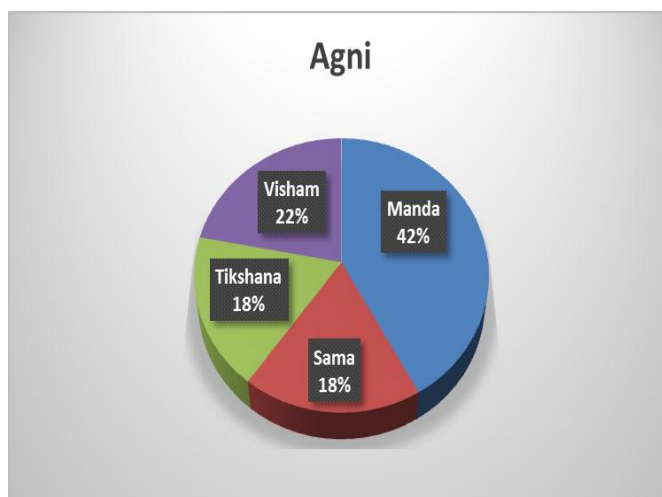
2. Gender

Gender	Frequency	Percentage
Male	64	64.0
Female	36	36.0
TOTAL	100	100.0



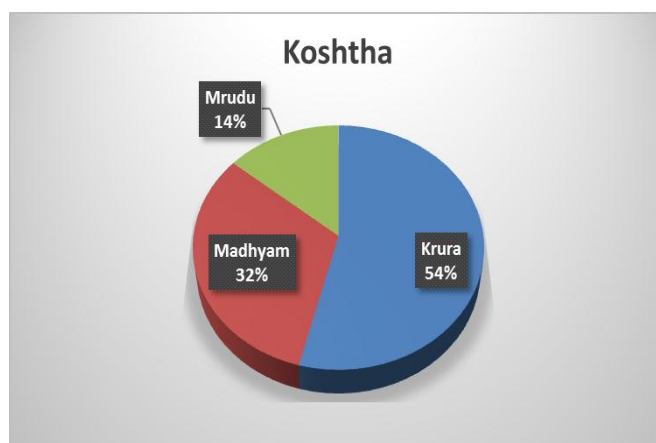
3. Agni

Agni	Frequency	Percentage
Manda	42	42.0
Sama	18	18.0
Tikshana	18	18.0
Visham	22	22.0
TOTAL	100	100.0



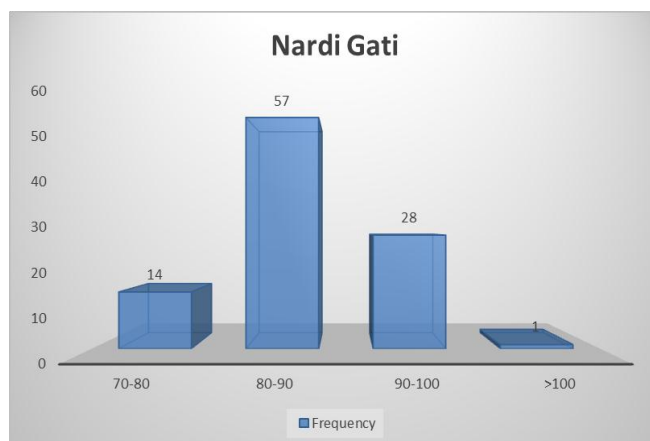
4. Koshtha

Koshtha	Frequency	Percentage
Krura	54	54.0
Madhyam	32	32.0
Mrudu	14	14.0
TOTAL	100	100.0



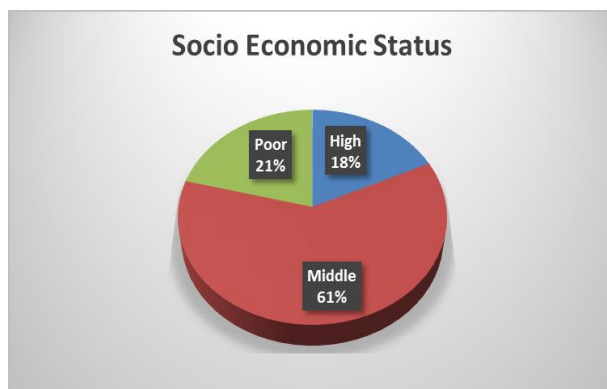
5. Nardi gati

Nardi Gati	Frequency	Percentage
70-80	14	14.0
80-90	57	57.0
90-100	28	28.0
>100	1	1.0
TOTAL	100	100.0



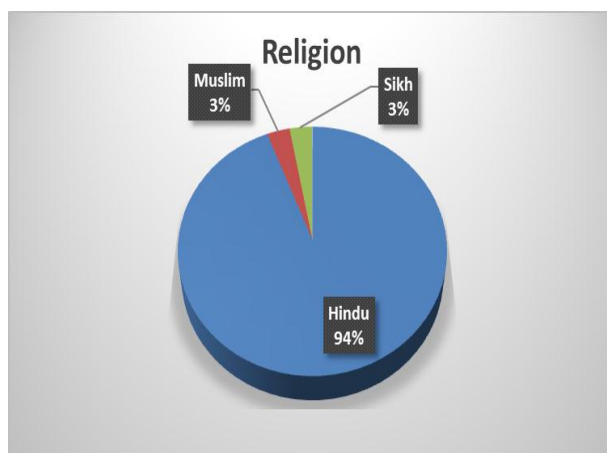
6. Socio economic status

Socio economic status	Frequency	Percentage
High	18	18.0
Middle	61	61.0
Poor	21	21.0
TOTAL	100	100.0



7. Religion

Religion	Frequency	Percentage
Hindu	94	94.0
Muslim	3	3.0
Sikh	3	3.0
TOTAL	100	100.0



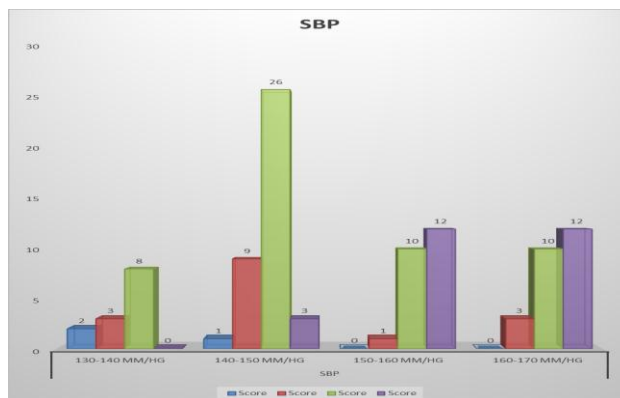
8. Corelation between vitiated vyaan vayu lakshana and systolic blood pressure

			Vitiated vyaan vayu lakshan (Score out of 20)				Total
			1 to 5	6 to 10	11 to 15	16 to 20	
Sbp	130-140 mm/hg	Count	2	3	8	0	13
		%	66.7%	18.8%	14.8%	.0%	13.0%
	140-150 mm/hg	Count	1	9	26	3	39
		%	33.3%	56.3%	48.1%	11.1%	39.0%
	150-160 mm/hg	Count	0	1	10	12	23
		%	.0%	6.3%	18.5%	44.4%	23.0%
	160-170 mm/hg	Count	0	3	10	12	25
		%	.0%	18.8%	18.5%	44.4%	25.0%
Total		Count	3	16	54	27	100
		%	100.0%	100.0%	100.0%	100.0%	100.0%

	Value	df	P-Value
Pearson Chi-Square	32.991 ^a	9	<0.05
N of Valid Cases	100		

To test the association, Chi-Square test is carried out. From above table we can observe that P-Value is less than 0.05. Hence we conclude that there is significant

association (correlation) between Vitiated Vyaan Vayu Lakshan and Systolic Blood Pressure.



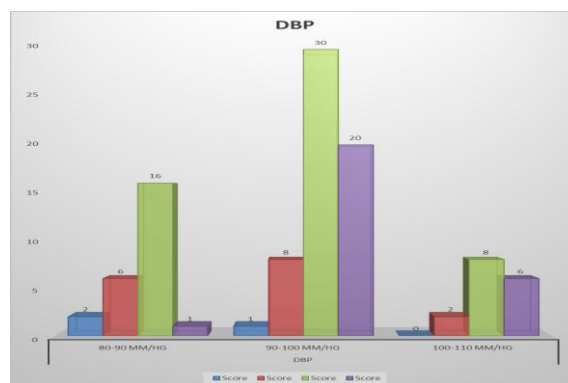
1. Corelation between vitiated vyaan vayu lakshana and diastolic blood preddure

			Vitiated vyaan vayu lakshan (score out of 20)				Total
			1 to 5	6 to 10	11 to 15	16 to 20	
Dbp	80-90 mm/hg	Count	2	6	16	1	25
		%	66.7%	37.5%	29.6%	3.7%	25.0%
	90-100 mm/hg	Count	1	8	30	20	59
		%	33.3%	50.0%	55.6%	74.1%	59.0%
	100-110 mm/hg	Count	0	2	8	6	16
		%	.0%	12.5%	14.8%	22.2%	16.0%
Total		Count	3	16	54	27	100
		%	100.0%	100.0%	100.0%	100.0%	100.0%

	Value	df	P-Value
Pearson Chi-Square	11.451 ^a	6	0.040
N of Valid Cases	100		

To test the association, Chi-Square test is carried out. From above table we can observe that P-Value is less than 0.05. Hence we conclude that there is significant

association (correlation) between Vitiated Vyaan Vayu Lakshan and Diastolic Blood Pressure.



		SBP	DBP
Score	Pearson Correlation	0.905	0.700
	P-Value	0.000	0.000
	N	100	100

Above table gives correlation coefficient between Score and SBP, Score and DBP. Correlation Coefficient between Score and SBP is 0.905 and between Score and DBP is 0.700. Which shows there is highly positive correlation between Vitiating Vyaan Vayu Lakshana and Blood Pressure.

CONCLUSION AND RECOMMENDATION

This topic of study entitled 'Effect of Vitiating Vyaan Vayu in Hypertension' was selected to establish association between Hypertension and Vitiating of Vyaan Vayu. Moreover, this study was done for the below mentioned reasons also-

1. To understand etiology of VyanaVayu.
2. To compile the scattered description about VyanaVayu which is described in various *samhitas* and *tika*.
3. To understand the concept of physiological and pathological relation in between Vyana vayu and hypertension.

For the research study, a series of hundred random patients of hypertension from opd of Himalayiya Ayurvedic Medical College and Hospital were selected between 18-70 years of age group and a comparative assessment was done between the blood pressure level of the patient and the no. of vitiating vyaan vayu lakshanas found, based on the clinical features and chief complaints of the patient. During the study, it was observed that among 20 lakshanas of vitiating vyaan vayu taken as one of the inclusion criteria, most of the patients were showing more than 10 lakshanas and the score of lakshanas was increasing with the increase in the blood pressure level.

This random sampling of 100 hypertensive patients of HAMC was assessed under various categories, like age, gender, *agni*, *koshtha*, *nardi gati*, socio-economic status and religion. The comparative study between blood pressure level and the vitiating vyaan vayu lakshanas have shown their close association with each other. Twenty lakshanas of vitiating vyaan vayu were taken as

criteria for the research study on hundred hypertensive patients which are as mentioned below :-

1. Shirah Shoola
2. Bhrama
3. Hruda Drava
4. Pada Shotha:-
5. Sweda Adhikya
6. Nindra Nash
7. Atisaar
8. Santapa/Sarvanga Daha
9. Ati Daurbalya
10. Klama
11. Karana Nada
12. Akshi Raga
13. Tamo Darshana
14. Rakta pitta
15. Krodha:-
16. Murcha
17. Prabhut Mutrata
18. Urah Shoola
19. Swaas Krishta
20. Pipasa

After completion of this study, the ultimate conclusion can be drawn from the deductive reasoning of the applicable information and unreliable data comprehended in the present study.

In classical literature of *Ayurveda*, the word like Hypertension is not given. But certain conditions involving *Rakta* as well as channels of circulation (*Dhamini*) and also knowledge of *Nadi* has been described in ancient *Ayurvedic* literature.

The involvement of *Dosha*, *Dushya*, the site and the mode of onset are important things for understanding the disease.

Vata is prominent *Dosha* in this disease and circulating *Rakta* (*Ras-Rakta* complex) is main *Dushya* and *Srotas-Rasavaha*, *Raktavaha* together with *Manovaha Srotas* are involved. *Pitta* lakshana are also seen because of

association of *Rakta* with *Pitta* (*Ashraya- Aashriya Bhava*). The symptomatology quoted under *Raktapradoshaja Roga* by *Aacharya Charaka* almost coincides with essential Hypertension symptomatology among those *Anidra*, *Sirahashool*, *Bhrama*, *Buddhisammoha* etc., are common, hence *Rakta* is considered as a main *Dushya*, in this disease. Ageing is one of the main factors for essential hypertension. *Vata* is stated as dominant in old age and signs of premature ageing are mentioned under *Pitta-Prakuti*. *Agni Dushti* (*mandagni*) is principal source at the back of every disease. *Ama* in *Rasa-Rakta Dhatu* increases viscosity and also pressure. *Dhamini uplepa*, result from *Vikruta Kapha* also has a contributing factor for creating condition of Hypertension and comes under *Kapha – Nanatmaja Vikara*. *Kapha* is mala of *Rasa dhatu*. *Agni mandhya* give *Rasa Dushti* as a result of this, more and more *Vikruta Kapha* produced. *Vikruta Kapha* gives rise to Atherosclerosis changes and aggravated *Vata* gives repeated spasm resulting increased peripheral resistance to the circulating fluid. Hence, Hypertension can be assigned as *Tridoshaja Vyadhi* with predominance of *Vata* and *Pitta*.

Life style changes are also the main origin of psychosomatic disorder. Repeated and constantly factors responsible for Anxiety, worry, tension and *Srotorodha* in the blood vessels induce hypertension of pressure substance from renal, suprarenal, sympathetic, Parasympathetic system. Hormonal imbalance due to these factors results in *Dhatwagni-Mandhya* which can consider under *Pitta Dushti*.

Since, this disease predisposes hereditary trait, it can be classified under *Adibala Pravrutta* also. *Manoabhighata* and *Mithya Aahara- Vihara* play a chief role in the pathogenesis of Hypertension. The main *Dosha* are *Vata Pitta* and the main *Dushya* are *Rasa, Rakta* considered under *Bhaya Roga Marga* disease. In advance stage of disease, the *Hridaya, Sira*, and *Basti (Trimarma)* are part of *Madhyama Roga Marga* also get involved.

During the study, it was observed that among all the 100 patients, 92 had complaint of *sirahshool*, 48 had *bhrama*, 52 had *hruda drava*, 55 had *pada shotha*, 88 had *swed aadhikya*, 78 had *nindra nash*, 22 had *atisar*, 89 had *santap/sarvang daha*, 67 had *ati daurbalya*, 77 had *klama*, 35 had *karana naad*, 67 had *akshi raag*, 58 had *tamo darshan*, 72 had *rakta pitta*, 89 had *krodh* as a significant feature, 15 had history of *moorcha*, 80 had *prabhut mootrata*, 74 had *urah shoola*, 67 had *swaas krishta*, and 90 had *pipasa* as a chief complaint.

So, this was showing a close relation between vitiation of *vyaan vaayu* and the hypertension.

On taking history of all the hundred patients, it was also found that the severity of all the above mentioned twenty *lakshanas* of vitiated *vyaan vaayu* was increasing with increase in blood pressure level.

Random sampling of 100 hypertensive patients done for this research study; 27 patients of age group 21-30 years, 22 patients of age group 31-40 years, 33 patients of age group 41-50 years, 13 patients of age group 51-60 years and 5 patients of age group 61-70 years.

During study it was observed that blood pressure level and score of vitiated *vyaan vaayu lakshanas* as per criteria are directly proportional to the increase in the age of the patients and vice versa, which means elderly people are more hypertensive as compare to the younger individuals and more over the score of vitiated *vyaan vaayu lakshanas* is also increasing with the age and blood pressure level.

Among these patients, most of the patients were suffering from vitiation of *agni*; 42 patients had *mandagni*, 22 patients *vishamagni*, 18 patients had *tikshna agni* and 18 had *samagni*. It was also observed that 54 patients had *krura koshta*, 32 had *madhyama koshta* and 14 had *mridu koshta*; which means vitiation of *vyaan vaayu* also effects the *koshta* of the patient. After this study after Random sampling of 100 hypertensive patients, it was observed that 57 patients had *nardi gati* between 80-90/min, 28 patients had *nardi gati* between 90-100/min, 14 patients had *nardi gati* between 70-80/min and 1 patient had *nardi gati* more than 100/min which means *nardi gati* also gets influence by the vitiation of *vyaan vaayu*.

For this research study, maximum patients taken were from middle socio economic status so 61 among them were from middle socio economic status, 21 were from poor socio economic status and 18 were from high socio economic status.

Area near the HAMC hospital has Hindu majority population so 94 patients among the 100 patients were Hindus, 03 were Muslims and 03 were Sikhs.

During the research study we observed that there is significant association between vitiated *vyaan vaayu lakshanas* and systolic blood pressure. Among all the 100 hypertensive patients, the patients having systolic blood pressure between 130-140 mm of Hg were 13, between 140-150 mm of Hg were 39, between 150-160 mm of Hg were 23, between 160-170 mm of Hg were 25 and all were showing the *lakshanas* of vitiated *vyaan vaayu*, taken as criteria for the study.

During the research study we observed that there is significant association between vitiated *vyaan vaayu lakshanas* and systolic blood pressure. Among all the 100 hypertensive patients, the patients having diastolic blood pressure between 80-90 mm of Hg were 25, between 90-100 mm of Hg were 59, between 100-110 mm of Hg were 16 and all were showing the *lakshanas* of vitiated *vyaan vaayu*, taken as criteria for the study.

Thus, It is concluded that this study shows how Ayurveda have descriptive explanations related to the

diseases like Hypertention. Though, our classical texts do not explain Hypertention in clear terms but, the knowledge and concepts of *Vyaan Vaayu* vitiation were showing the direct relation of the *Vyaan Vaayu* with the Blood Pressure.

So, we can clearly state that the vitiation of *Vyaan Vaayu* is responsible for causing Hypertention and that is why, all the hypertensive patients had shown complaints related to *Vyaan Vaayu* vitiation during the study.

Recommendations

1. Sample size can be increased for more precision and accuracy of the observations and result.
2. Research study can be done based on a single criteria in an elaborated manner, like gender or age-wise.
3. Age group criteria for sample selection can be taken separately for different age-groups to study relation between hypertension and vitiated *vyaan vayu*.
4. The group among the random sampling which is maximum close to the observational study and result can be taken as a separate large sample group for bigger research studies.

REFERENCES

1. Charaka Samhita with Ayurveda Dipika commentary of Chakrapani Datta. Reprinted. Varanasi, Chaukambha orientalia, 2011; 704.
2. Charaka Samhita with Ayurveda Dipika commentary of Chakrapani Datta. Reprinted. Varanasi, Chaukambha orientalia, 2011; 3386.
3. Astanga Hrudaya with Sarvangasundara commentary of Arunadatta and Ayurvedarasayana commentary of Hemadri. Varanasi, Chaukambha orientalia, 2011; 193: 1.
4. Sushruta Samhita with Nibandha sangraha commentary of Dalhana. Reprinted. Varanasi. Chaukambha Sanskrit Sansthan, 2009; 296.
5. Davidson Principles and Practice of Medicine, 1991; 16.
6. Dorland: Pocket Medical Dictionary, Oxford and IBH Publishing Co. Pvt. Ltd., 25.
7. Essential of Medical Pharmacology by Tripathi, 6.
8. Harrison: Principals of Internal Medicine, 15.
9. Handbook of Hypertension by G.T. McInnes edition (International edition).
10. Principales of Anatomy and Physiology by G.J. Tortora and S. R. Grabowsh, New York, 7.
11. Oxford Advanced Learners Dictionary, 6.
12. Oxford Dictionary.