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ETIOLOGY OF HYPERTENSION WITH ITS MANAGEMENT: AN AYURVEDIC APPROACH AND MODERN APPROACH

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ABSTRACT

Ayurvedic science believes that prevention is better than cure. Various theories are proposed in Ayurveda as well as modern science regarding diseases, their symptoms and management. Modernization came up with various technologies which provides rest to human body. This luxury caused a lot of problems to the human body. Hypertension is one of the major problems. According to Ayurvedic perspective, Hypertension is a symptom which is caused due to the *prasaravastha* followed by *sthanasamshraya* of vitiated *tridosha* (morbid factor) wherever modern science revealed Hypertension as "silent killer" which can be caused by various factors like stress, hereditary and sometimes it's cause is unknown. Elevation in blood pressure is also named as *uchharaktachaap* (tachycardia) in Ayurvedic Science. The path of Hypertension is pointed out by RAAS system, *samprapti* (manifestation) and *samprapti ghatakas* (components of manifestation procurement factor disease). To prevent this disturbance, some lifestyle changes are required in daily routine life. Different types of Ayurvedic and modern therapies are provided to cure the particular problem.

Keywords : RAAS, Hypertension, *Uccha raktachaap*, Blood pressure, Silent killer

Introduction

Ayurveda "The mother of all Healing" helps to maintain the health and it can cure the diseased person with the nature along with lesser or negligible side effects. As each and every person on the earth have their unique fingerprints and every person have their unique pattern of energy. It comprises of the combination of physical, mental and emotional characteristic which differ in every individual (Kamble *et al.*, 2018).

In Ayurvedic science human body is composed of "*Panchamahabhuta* (five elements)" and "*Tridosha* (morbid factor)" which constitutes the unique characteristics in an individual. Now a days due to modernisation life has become very easy but it has generated many diseases in human life. This luxury life, faulty food intakes and many changes in lifestyle may lead to many diseases like arthritis, diabetes and hypertension etcetra (Bhatt & Khader, 2020).

Hypertension or we can say elevated blood pressure is very common problem seen worldwide. Hypertension is a hemodynamic derangement which is responsible for 57% stroke deaths and 24% of coronary disorders (Namdeo & Joshi 2020). According to modern science, reason of hypertension or elevation in blood pressure is unknown but it can be said that it may be caused due to genetic factor, environmental factors and mutual interactions. According to Ayurvedic perspective the main reason of hypertension could be vitiated *vatadosha*. According to ancient literatures hypertension is not a *Vyadhi* (disease), but if we require an easy, safe and cost-effective healing of hypertension then we should go for Ayurvedic medication and for understanding

the disease in Ayurvedic perspective we must know about *Dosha* (morbid factor), *Dhatus* (tissue) and *srotas* (source) (Kamble *et al.*, 2018; Menon & Shukla 2017; Vithalani *et al.*, 2015).

In present era, hypertension is a very common disease every 5th person is found affected with hypertension. Untreated hypertension may cause its adverse effects on retina, heart, kidney, vessels and these can be detected easily. In most of the developing countries untreated hypertension can lead to increase mortality and morbidity (Kamble *et al.*, 2018; Narayan *et al.*, 2017). In fact the original cause of elevated blood pressure is not yet known and as it is asymptomatic condition so it is also referred as "Silent killer" (Menon & Shukla 2017; Vithalani *et al.*, 2015) It can be treated by various antihypertensive drugs in modern science and also we can change the lifestyle along with balancing the vitiated *Dosha* (Ananthasayana, 2010; Shandilya & Shreevastha).

Aim and objective

- For understanding the common problem of people in a better way.
- To gain the knowledge about hypertension and its causative factor involved in it.
- To find the treatment with herbs along with lesser side effects

Literature review of hypertension:

1. *Nidana*: The causative factors of hypertension are mentioned in table no. 1

Table 1: *Nidana* of Hypertension (Narayan *et al.*, 2017; Sahu *et al.*, 2015)

<i>Aharaja</i> (sustenance)	<ul style="list-style-type: none"> • <i>Madyapana</i> (intoxicating drinks) • <i>Viruddhasana</i> (incompatible of forbidden food) • <i>Atilavana</i> (excessive salt intake)
<i>Viharaja</i> (lifestyle)	<ul style="list-style-type: none"> • <i>Vegadharna</i> (suppressing the urges) • <i>Atinidra</i> (hypersomnia) • <i>Sthoulya</i> (obesity) • <i>Dhumrapana</i> (smoking)
<i>Mansaka</i>	<ul style="list-style-type: none"> • <i>Chinta</i> (stress) • <i>Krodha</i> (anger) • <i>Shok</i> (depression) • <i>Bhaya</i> (fear) • <i>Irshya</i> (hate) • Profession • Family size and crowding
<i>Dosha</i> (morbid)	<ul style="list-style-type: none"> • <i>Vata- vyan,prana,apana,saman</i> • <i>Pitta- sadhaka, pachaka</i> • <i>Kapha- kledaka,avalambaka,tarpaka</i> • <i>Mamsa- raja,tama</i>

2. *Purvarupa* and *Rupa* (symptoms before and after disease)
Various symptoms are observed before and during disease condition like: *Shiroruka* (headache), *Anidra* (sleeplessness), *Bhrama* (body imbalance), *Klama* (nausea and vomiting), *Sammoha* (sluggishness to intellect), *Mada* (delirium), *Moorcha* (stupor), *Sanyasa* (coma) *Sirobhrama* (dizziness), *Sweda* (sweating), *Uchha raktachaap* (tachycardia), *Dhamni avarodha* (blood vessel block).
3. Relation with *Tridosha* (relation with morbid factor)
There is no any specific description of Hypertension in Ayurveda. But we can relate hypertension with *Tridosha* imbalance. Blood is ejected out from heart for circulation in body and then returned back to the heart. It is balanced by *Vata Dosha*.
Dushita (abnormal) vata dosha like *vyana vayu* (out ward moving air), *samana vayu* (balancing air), *udana vayu* (upward moving) can be the causes of Hypertension. In other hand *Ranjaka Pitta* Vitiation also lead to high blood pressure. Vitiated *Avalambaka Kapha* is also a reason of hypertension. So, imbalance of these above mentioned dosha leads to hypertension (Raghuram, 2015; Mishra *et al.*, 2015; Narayan *et al.*, 2017)
4. *Samprapti* (manifestation): It is mentioned in Figure No. 1

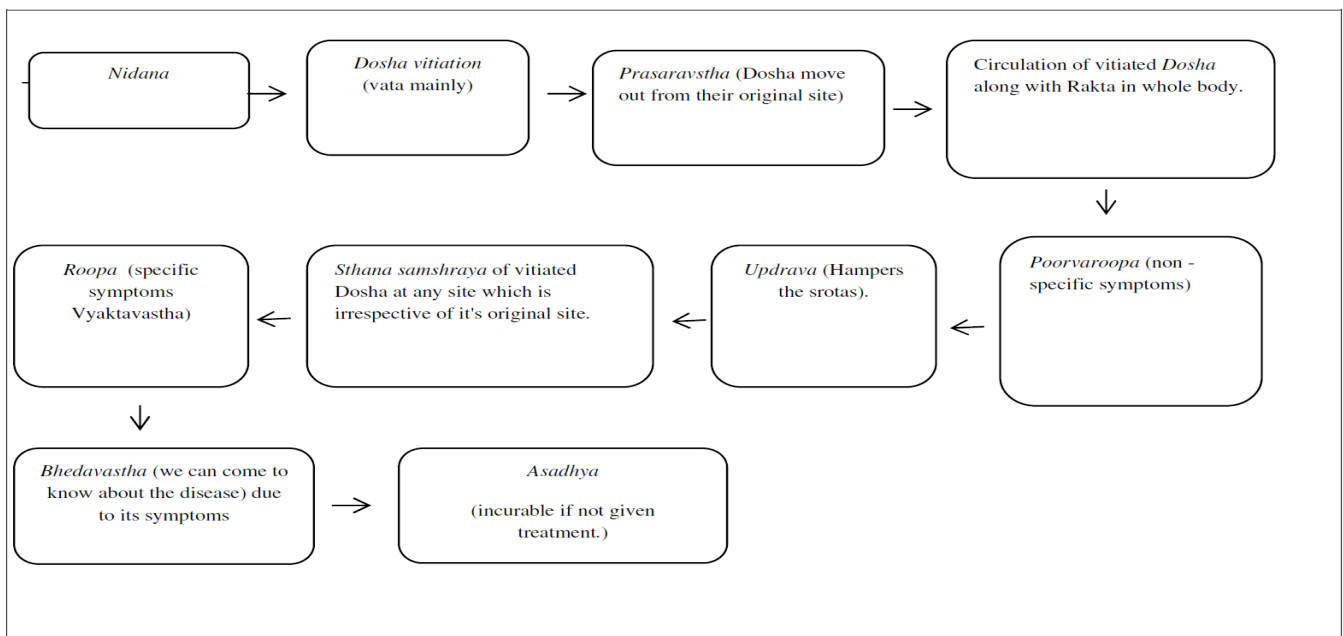


Fig. 1 : *Samprapti* (manifestation)

5. *Samprapti ghataka:*

- *Dosha* (morbid factor): *Tridosha* and *mansa dosha*
- *Dushya* (liable to be spoilt): *Rasa* (plasma), *Rakta* (blood), *Meda* (muscles)
- *Adhisthana* (location): *Dhamni* (blood vessels), *Sira* (vein), *Hridaya* (heart)
- *Udbhavasthana* (site of occurrence): *Hridaya* and *dhamni* (heart and blood vessels) (Tripathi 2018; Narayan *et al.*, 2017; Sahu *et al.*, 2015)

Pathophysiology of hypertension in Ayurveda based on modern view:

1. Types of hypertension: There are mainly two types of Hypertension based on the symptoms-
 - Primary Hypertension: It is also known as essential hypertension. Cause of this type of hypertension are not well known.
 - Secondary Hypertension: It is malignant hypertension. Causes of this hypertension are known.(Natalia *et al.*, 2016; Kono *et al.*, 2015)

2. Etiological risk factors:

Elevation of blood pressure, lacks of exercise, day sleeping, excessive salt intake, stress smoking, family size and crowding, excessive alcohol intake, suppressing natural urges, increase in cardiac preload, increase in cardiac afterload, increase in blood volume, due to arteriolar

constriction, elevated cardiac output or blood volume (Kamble, *et al.*, 2018; Narayan *et al.*, 2017; Sahu *et al.*, 2015).

3. Mechanism of hypertension: It is mentioned in Figure No. 2.

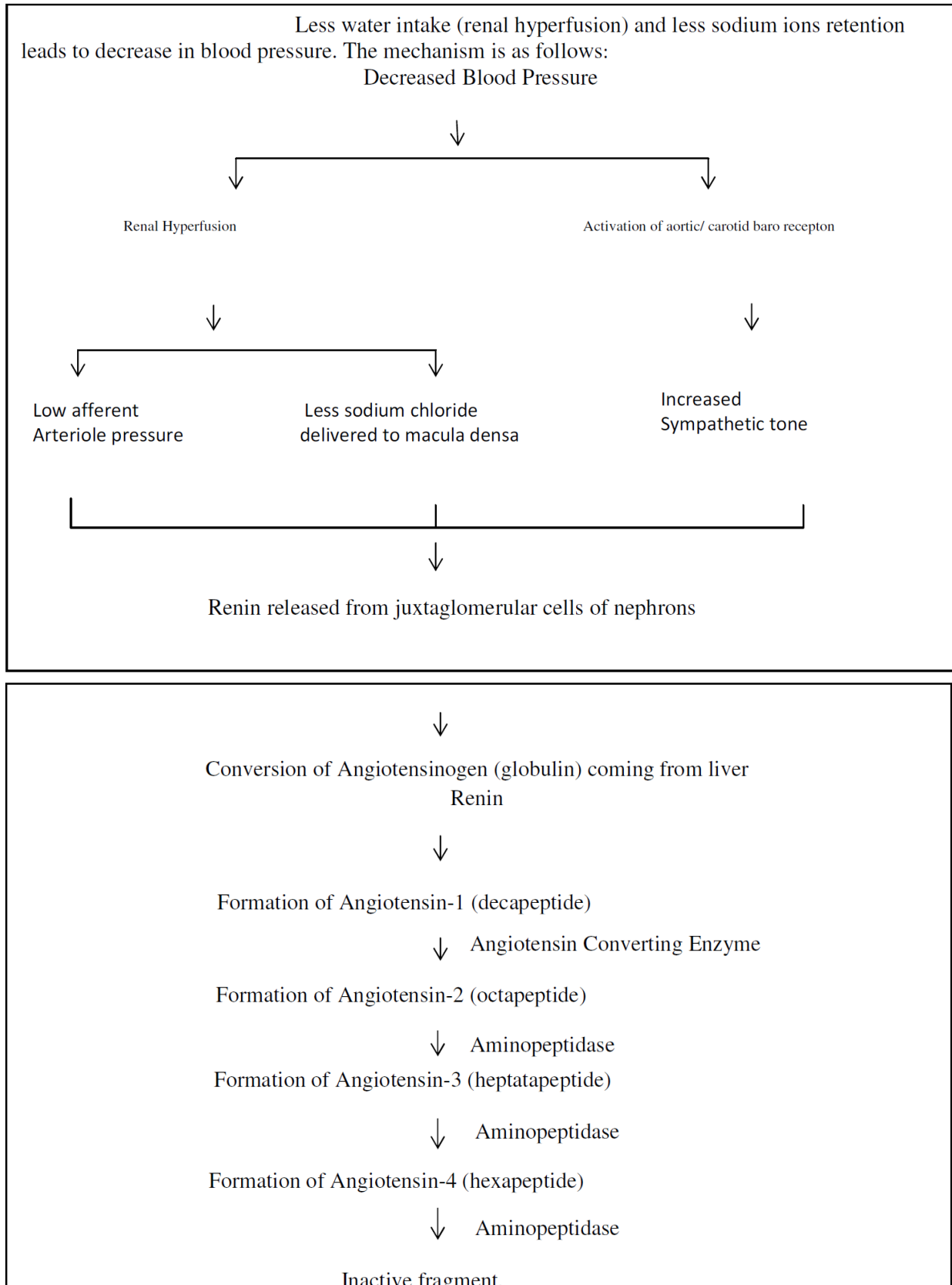


Fig. 2 : Mechanism of Hypertension (Lama & Drawz 2017; Tripathi, 2018; Remuzzi et al., 2015)

4. Relation of hypertension with other diseases

i. *Upadrava* (disease caused by hypertension)

Hridorogas (heart problems), *Shirorogas* (head problems), *Sira* and *dhamni kathinya* (blood vessel constriction), CHF, Myocardial infarction, Pulmonary embolism, Cerebral aneurysm, Renal failure/glomerulopathy, Retinopathy, Angina, Coronary artery disease, Death sometimes due to failure of vital organs. (Kamble, *et al.*, 2018; Mehta, 2020; Satkar *et al.*, 2020).

ii. Diseases that can cause hypertension

- Renal disease (Polycystic kidney, Acute nephritis)
- Vascular disease (Coarctation of Aorta, Arteriosclerosis)
- Endocrinal diseases (Myxedema, Cushing’s Syndrome)
- Neurological diseases (Intracranial pressure raised, Lead encephalitis) (Ginette 2006; Jackson & Bellamy 2015; Kamble, *et al.*, 2018;)

Upshaya (Prevention measures of hypertension)

These are some preventive measures, things to implement in life: improve daily routine like exercise and diet, panchakarma chikitsa should be taken, *rasayana*, *vajikaran*, yoga included with *pranayam*, control emotions, avoid *dhumrapana* (avoid smoking)

Digestive or Metabolic tonic: *Triphala* [*haritaki* (*Terminalia chebula*), *vibhitaki* (*Terminalia bellirica*) and *amalaki* (*Embllica officinalis*)], *pippali* (*Piper longum*), *sunthi*

(*Zingiber officinale*), *katuki* (*Picrorhiza kurrooa*) etc. (Bhatt & Khader, 2020).

Management of hypertension in Ayurveda with modern techniques

1. According to Ayurveda
 - *Nidana privarjana* (cause eradication)
 - i. *Vataj nidana: Murdhnitail* (provide mental relaxation and psychological upgradation)
 - ii. *Pittaj Nidana: Virechana* (purgation), Raktamokshana (bloodletting)
 - iii. *Kaphaj Nidana: Panchakarma Therapy* (five step detoxification), (Raghuram 2015; Narayan *et al.*, 2017)
 - *Shaman* and *shodhana chikitsa* (pacifying and purification treatment)
 - i. *Gokshura* (*Tribulus terrestris*)
 - ii. *Punarnava* (*Boerhavia diffusa*)
 - iii. *Kasni* (*Cichorium intybus*)
 - iv. *Shilajit* (Asphaltum)
 - v. *Pitta Shamak* and *Agni Deepaka chikitsa* (Narayan *et al.*, 2017)
 - Other drugs
 - i. Acts on heart: *Arjuna* (*Terminalia arjuna*) *Hardya maha kashays*(formulation)
 - ii. Act on *Raja* or *Tama*
 - Brahmi* (*Bacopa monnieri*)
 - Shankapushpi* (*Convolvulus*)
 - Sarpagandha* (*Rauvolfia serpentina*)
 - iii. Act on *Oja*
 - Jivanya varga*, *kakalodigana* (Mishra *et al.*, 2015; Narayan *et al.*, 2017)

2. Treatment according to modern

Table 2 : Treatment according to modern (Aronow, 2018; Tripathi, 2018)

Category of drug	Classification	Example
Diuretics	Thiazide diuretics High ceiling/ loop diuretics Potassium sparing’s diuretics	Hydrochlorothiazide Furosemide Spironolactone
ACE inhibitors		Captopril, Enalapril
At1 receptors		Losartan
Direct renin inhibitors		Aliskiren
Adrenergic Blockers	Alpha Adrenergic Blockers Beta Adrenergic Blockers Alpha+ Beta Adrenergic Blockers	Prazosin, Terazosin Propranolol, Atenolol Labetalol
Calcium channel blockers		Aerapamil, Amlodipine
Central sympatholytics		Clonidine, Methyldopa
Vasodialators	Arteriolar vasodialators Arteriolar+venous vasodialators	Hydralazine, Minoxidil Sodium nitroprusside
Parenteral therapy		Sodium nitroprusside, Glyceryl trinitrate, Esmolol, Phentolamine, Hydralazine, Labetalol, Furosemide
Others		
For pregnancy		Prazosin and Clonidine (for postural hypertension) Methyldopa, Hydralazine. Dihydropyridine (safe before labour)

Conclusion

Laziness, some diseases, improper lifestyle and food or sometimes unknown factors can *vitiata dosha* (morbid factor) and *dhatu*s which results in raised blood pressure which can lead the improper body functioning. The *vitiated dosha* circulates (prasaravastha) all over the body with the help of blood and affect the organs like brain or blood vessels or heart. As the Modern technologies are in progress the

Hypertension can be diagnosed easily and at its early stages. As soon as we come to know about the problem we can prevent and cure the problem with the same hurry. According to the severity of the disease preventive measures could be prescribed and some possible and best treatments could be provided to the patient.

References

- Ananthasayana, G.H. (2010). Management of Essential Hypertension In Ayurvedic Perspectives.
- Aronow, S.W. (2018). Antihypertension Drug Therapy. *Ann Transi Med*, vol. 6, issue 7.
- Bhatt, K. & Khader, A. (2020). Hypertension: From Ayurvedic Understanding. *Journal of Ayurveda and Integrative Medicine*, 5(4): 130-133.
- Raghuram, Y.S. MD (Ay). Hypertension Cause, Types, Symptoms, Ayurvedic Treatment.
- Natalia, D.M.; Fuentes, C. A.; Castillo, A.E.; Gomez, L.M.G.; Vecchiola, A.; Fardella, C.E. and Kalergis, A.M. (2016). Role of the Renin-Angiotensin Aldosterone System beyond Blood Pressure Regulation: Molecular and Cellular Mechanism Involved in End-Organ Damage during Arterial Hypertension. *Int J Mol Sci.*, 17(7): 797.
- Ghazi, L. and Drawz, P. (2017). Advance in Understanding the Renin-Angiotensin-Aldosterone System (RAAS) in The Blood Pressure Control and Recent Pivotal Trials of RAAS Blockade in Heart Failure and Diabetic Nephropathy. *Version 1. F1000Res.* 2017; 6: F1000 Faculty Rev-297.
- Ginette, A. (2006). Pharmacology of Antihypertensive Drugs. *Journal of Obstetric, Gynecologic, & Neonatal Nursing / Volume 28, Issue 6*
- Jackson, R.E. and Bellamy, M.C. (2015). Antihypertensive Drugs. *BJA Education*, Volume 15, Issue 6, December 2015, Pages 280–285.
- Kamble, S.S.; Khuje, S.; Dwivedi, O.P. and Jain, J. (2018). Concept of Essential Hypertension in Ayurvedic Perspectives. *Journal of Drug Delivery & Therapeutics*. 8(6-s):407-410
- Tripathi, K.D. *Essentials of medical pharmacology*. Jaypee Brotter Medical Publisher (p) LTD, 5th edition, 558-559.
- Suminori, K.; Kushiro, T.; Hirata, Y.; Hamada, C.; Takahashi, A. and Yoshida, Y. (2015). Class of Antihypertensive Drugs, Blood Pressure Status, and Risk of Cardiovascular Disease in Hypertensive Patients: A Case – Control Study in Japan. *Hypertension research. Official Journal of the Japanese Society of Hypertension*, 01 Oct 2005.
- Mehta, R. (2020). *Ayurvedic Approach Towards High Blood Pressure*
- Menon, M. and Shukla, A. (2017). Understanding hypertension in the light of Ayurveda. *Journal of Ayurveda and Integrative Medicine* 2018 Oct-Dec; 9(4): 302–307. Published online 2017 Nov 17.
- Mishra, D.; Tubaki, B.R.; Jain, P. and Sadanandam, Ch. (2015). Critical Analysis of Hypertension – An Ayurvedic View. *International journal of technical research and application e-ISSN:2320-8163*
- Naryan, S.J. and Ghorband, S.D. (2017). Aetiopathogenesis, Prevention and Management of Hypertension – An Ayurvedic View. *International Journal of Complementary & Alternative Medicine*, 9(5): eISSN: 2381-1803
- Remuzzi, G.; Perico, N.; Macia M. and Ruggenti, P. (2015). The role of renin- Angiotensin-aldosterone system in the progression of chronic kidney disease. *NIH, Kidney Int Suppl.* (99): S57-65.
- Sahu, D.; Gupta, M.C. and Indoria, A.K. (2015). Understanding Hypertension On Ayurvedic Perspective – A Critical Review. *Ayurpharma Int J Ayur Alli Sci.*, 4(3):48-53.
- Satkar, A.; Namdeo and Joshi, M.M. (2020). Hypertension from Ayurvedic Prospective. *World Journal of Pharmaceutical Research*, 9(6): 2475-2483.
- Shandilya, P. and Shreevathsa. *Ayurvedic Understanding of Hypertension/High Blood Pressure.* (B.P)
- Vithalani, L.V.; Dalvi, S.A.; Lele V.T. and Sakharkar B.V. (2015). Hypertension – An Ayurvedic Perspective. *International Ayurvedic Medical Journal*, 3(11): ISSN: 2230 5091.