Antihypertensive Drugs - Ayurvedic Perspective

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ABSTRACT

Hypertension is a very common disorder, particularly in past middle age. It is not a disease in itself, but is an important risk factor for cardiovascular mortality and morbidity. According to WHO, it is above 140/90 mmHg. An estimated 1.28 billion adults aged 30-79 years worldwide have hypertension. American Association of Heart mentioned that normal blood pressure is less than 120 mmHg systolic and less than 80 mmHg diastolic. Epidemiological studies have confirmed that higher the pressure (systolic or diastolic or both) greater is the risk of cardiovascular disease. The principal focus of Ayurveda is on maintaining good health and adopting a healthy way of life. There is no description of such a single disease which can resemble with hypertension. It can be correlated with Vata Pradhaan Tridoshaj Vyadhi, Raktabhaar, Uchharaktachapa etc and involves dhatus like Rasa and Rakta and gets influenced by Mana. Our ancient science has provided us various drugs which influences the pressure of the blood. These drugs has directly or indirectly role in curing HTN for example Sarpagandha, Jatamansi, Rudraksh, Ashawgandha etc. which should be analysed by the physician clinically. This article would help future researchers and clinicians for administrating these drugs in different forms clinically and help further researches. There are specific alkaloids present in these drugs which influence different centres resulting in decrease in the Blood pressure. The present work deals with enhancing the role of Ayurvedic drugs and promoting more natural ways of treatment.

Key words: Raktabhaar, Uchharaktachapa, Hypertension, Antihypertensive drugs in Ayurveda.

INTRODUCTION

Hypertension is a Vatapradhaan Tridoshaajvyadhi.¹ There is no any disease in Ayurveda which completely resembles with hypertension mentioned in modern but by viewing the signs and symptoms, analysing Dosh, Dushya, Srotas etc, different nomenclature are given to HTN. By viewing the signs and symptoms, it can be said that it is a Vata Pradhan disease in association with Pitta and Kapha.

As per American Association of Heart Stage 1 HTN is when systolic pressure is 130-139 mm Hg and diastolic pressure is 80-89 mm Hg. Stage 2 is when systolic is 140 mm Hg or higher and diastolic is 90 mm Hg or higher. Stage 3 (Hypertensive crisis) is when systolic is higher than 180 mm Hg and diastolic is higher than 120 mm Hg.²

Nature has gifted us with immense herbs that help to cure the ailments. There are drugs helpful in treating the hypertension. They work according to their Rasa, Guna, Veerya, Vipaka, Prabhava. The exploration of such herbs help in more natural treatment which is compatible and has less adverse effects.

AIMS AND OBJECTIVES

1. To explain hypertension as per Ayurveda.
2. To explain Antihypertensive drugs mentioned in Ayurveda.
**MATERIALS AND METHODS**

To study the Ayurvedic perspective of Hypertension and drugs involved in lowering the blood pressure mentioned in different classical texts, modern literature, research articles with recent clinical researches updates etc were studied and analysed.

**Nomenclature given To HTN**

Various Ayurvedic scholars have coined different names for Hypertension such as; Raktatavat, Siragata Vata, Avritavata, Dhamani prapurana, Rakta vikshepa, Vyana prakopa, Raktamada, Raktavriddhi, Uchharaktachapa, Raktabhaar. It is mainly Vatapradhana Tridoshaja Vyadhi involving Rasa- Raktadhatu in heart greatly influenced by morbid state of Mana and Oja. It is therefore be considered as Sharira and Mans Roga.

According to Acharya Charaka, ‘Vikshepana’ (circulation) of Rasa Dhatu is the karma of Vyan Vayu and Hridaya. Acharya Sushrut has described the circulation process in detail. Chakrapani has mentioned that circulation is a continuous processing in which Rasa, Rakta and other Liquid Dhatus circulate in the body.

**Nidaana according to Ayurveda**

Ayurveda has mentioned involvement of different Doshas in increasing the pressure of Blood in the body. Any disturbance in their functioning increases the pressure of flow of Rakta Dhatu in the body.

**Role of Vayu in Blood Flow**

**Prana Vayu** - The function of Prakrita Prana Vayu is ‘Hridaya Dhruka’ (i.e. Dharana of Heart) which can be correlated with the stimulation and inhibition of the nervous system. In addition to this, vasomotor center controls the blood pressure by vasoconstriction and vasodilation of nerves. Similarly, Prana Vayu also controls the regulation of blood pressure by controlling Vyana Vayu.

**Vyana Vayu** - With the help of Vyana Vayu, heart contracts and propels blood (Rasa Rakta Dhatu) continuously all over the body. Samana Vayu - Samana Vayu helps in circulation of Rasa to the body from Heart. This concept has been explained by Sharangdhar.

**Apanavayu** - Apana Vayu helps in proper chanelling of Vyau and maintains its proper balance. Obstruction of Apana Vayu lead to abstruction of Mutra and Purisha, so any vitiation in its chanelling could affect the Blood pressure.

**Sadhaka Pitta** - The sthana of Sadhaka Pitta is heart. In emergency situations, anger, fear, the adrenal glands get stimulated where the Nidaana is Pittaj and release adrenaline affecting heart rate and cardiac output which can be correlated with vitiation of Sadhaka Pitta. This justifies role of Sadhaka Pitta in heart and maintaining Blood pressure.

**Avlambak Kapha** - Acc to Ranjit Rai Desai, Avlambhak Kapha is responsible for contraction and maintaining tone of cardiac muscles. Hence helping in continuous pumping of heart.

**Rasa Dhatu** - Rasa Dhatu circulates in the blood vessels. Acharya Charaka in Vimanasthana described that excessive intake of Guru (heavy), Shita (cold), excessively unctuous food and constant worry leads to deterioration of Rasa dhatu srotas. Any disturbance in the flow or fluidity of rasa can affect the pressure on the blood vessels thus increasing blood pressure.

**Rakta Dhatu** - Raktavaha Srotas get vitiated due to intake of food and drinks which are irritant, unctuous, hot and liquid; excessive exposure to sunlight and fire. This affects the Doshas and the vitiated Vata gets lodged in the circulating Rakta Dhatu and causes disturbance in its circulation.

**Agni - Jathrogni** is the fire in the body that is responsible for digestion of food and formation of Dhatus in proper way. Vitiation of Agni could lead to many problems. Agni Dushthi occurs at two levels Jatharagni Mandya and Dhatwagni Mandya. Jathragnimandya lead to formation of Ama which blocks the channels due to its various Guna can cause strotorodha and vitiation of Doshas. This leads to narrowing of path of the blood vessels and causing peripheral resistance leading to Hypertension.
Mana - Hypertension is considered as mansik vyadi (psychosomatic), emotional disbalance that could be due to Chinta (worry), Krodha (anger), Bhaya (fear) could lead to disturbance in Mansik Dosha. In Ayurveda Pradnyaparadha and Asatmendriyartha Samyoga are considered as the root causes for every disease, which indicate the involvement of manas in HTN.

Samprapti Ghatakas (Components of pathogenesis)

Doshas
- Vata - Prana Vayu, Vyana Vayu, Samana Vayu.
- Pitta - Sadhaka Pitta
- Kapha - Avalambaka Kapha
- Manas Dosha - Raja, Tama

Dushyas - Rasa, Rakta

Updhatu - Sira, Dhamani

Drugs used in HTN

Ayurveda has mentioned various drugs which are used in hypertension. They work on the basis of their Rasa, Guna, Veerya, Vipaaka, Prabhava. They affect the blood pressure by depressing CNS, Cardiac Output, Vasodilation, relaxing muscles. Diuretics etc.

Some of the drugs are mentioned below in Table no. 1

### Table 1: List of Ayurvedic drugs used in Hypertension.

<table>
<thead>
<tr>
<th>SN</th>
<th>Drug</th>
<th>B.N</th>
<th>Active cons. &amp; Pharmacological action.</th>
<th>Class</th>
<th>Karma</th>
<th>Part used</th>
<th>Formulation and Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sarpagandha</td>
<td>Rauwolfia serpentina Benth ex kurz.</td>
<td>Reserpine, Serpentine, Rauwolfinine</td>
<td>Aparajita Gana Nidrajanana</td>
<td>Raktabhar Shamaka Hridya Avsadhaka</td>
<td>Root</td>
<td>Sarpagandhadi Churana- 1-2 g&lt;sup&gt;14&lt;/sup&gt; Sarpagandhadi Vati</td>
</tr>
<tr>
<td>2.</td>
<td>Jatamansi</td>
<td>Nordostachys jatamansi DC.</td>
<td>Jatamansik, Jatamansone, Valaranone, Ursolic acid</td>
<td>Eladi gana Tikta Skanda Kandughana Sajna Sthapan &lt;br&gt;Effects RAAS Diuretic Mind relaxant&lt;sup&gt;14&lt;/sup&gt;</td>
<td>Raktabhar Shamaka Hridya Niyomaka</td>
<td>Root</td>
<td>Churan -10 g&lt;sup&gt;18&lt;/sup&gt;</td>
</tr>
<tr>
<td>3.</td>
<td>Rudraksh</td>
<td>Elaeocarpus ganitrus Roxb.</td>
<td>Rudrakin, Quercetin, Terpenes</td>
<td>Raktabhaar Shamaka</td>
<td>Raktabhar Shamaka</td>
<td>Phalasthi</td>
<td>Churan-3-5 g&lt;sup&gt;21&lt;/sup&gt;</td>
</tr>
<tr>
<td>4. Ashwagandha</td>
<td>Withania somnifera Linn.</td>
<td>Cardiac glycosides</td>
<td>Antidepressant Effects RAAS[^20]</td>
<td>Balya Gana Madhura Skanda Rasayana</td>
<td>Raktabhar Shamaka</td>
<td>Root</td>
<td>Churan-3-6 g[^23]</td>
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</tr>
<tr>
<td>9. Tambool</td>
<td>Piper betle Linn.</td>
<td>Eugenol Chavibetol Hydroxy chavicol</td>
<td>Hridayadi Varga</td>
<td>Raktabhar Hara Hridya Balya</td>
<td>Leaxes</td>
<td>Swarasa-5-10ml[^33]</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Scientific Name</td>
<td>Compounds</td>
<td>Medicinal Uses</td>
<td>Recipe</td>
<td>Dose</td>
<td></td>
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<tr>
<td>10</td>
<td>Banafsha</td>
<td>Viola odorata Linn.</td>
<td>Violine, Alkaloids, Saponins, Tannins, Vasodilator, Ca(^{2+}) channel inhibitor</td>
<td>Chedana, Raktabhaar Hara, Panchang</td>
<td>Churana-3-6 g Kwatha(^{33})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Kantakari</td>
<td>Solanum surattense Burm. F.</td>
<td>Diosgenin, Diuretic(^{36})</td>
<td>Kaas hara, Kantha, Hikka nigreh, Shoth hara, Varunadi gana, Raktabhaar Hara, Rakta Shodhaka</td>
<td>Panchang</td>
<td>Kwatha-40-70 ml [37]</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Kankusht</td>
<td>Garcinia morella Desr.</td>
<td>Garcenoline, Morellin, Diuretic(^{38}), Antioxidant</td>
<td>Teekshan, Virechak, Raktabhaar Hara, Niryaas, Niryasa- 50-125 mg(^{39})</td>
<td>Raktabhaar Hara</td>
<td>Niryaas</td>
<td></td>
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<tr>
<td>13</td>
<td>Arlu</td>
<td>Ailanthus excelsa Roxb.</td>
<td>B- Sitosterol, Vitexin, ACE inhibitor(^{40}), Cooling effect</td>
<td>Kshaya Skanda, Pureesh, Sangreha, AamaHara, Raktabhaar Hara, Rakta Shodhaka</td>
<td>Bark</td>
<td>Swarasa-10-20ml Churan-1-3 g(^{41})</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Shatavari</td>
<td>Asparagus racemosus Wild.</td>
<td>Steroidal, Saponins, Shatavarin 1-4, Diuretic(^{42}), Mind relaxant</td>
<td>Madhura Skandha, Shukra Janana, Raktabhaar Hara, Raktachaap Hridroga, Kandh</td>
<td>Kandh</td>
<td>Swarasa-10-20 ml Kwatha-50-100ml Churan-3-6 gm(^{43})</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Pooga</td>
<td>Areca catechu Linn.</td>
<td>Catechin, Arecoline, Arecaidine, Guavacoline, Guavacine, Inhibit pressor response to Ang. 1 &amp; Ang. 2 [44]</td>
<td>Vikasi, Raktabhar Hara, Hridya Avasadaka, Fruit, seeds</td>
<td>Churana- 1-3 g(^{45})</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**DISCUSSION**

Hypertension is one of the leading health problems worldwide. It leads to various cardiac problems and affects other organs too. This problem is increasing day by day, conventional medicines play a vital role to treat it. Ayurvedic drugs have proved to be effective in lowering the blood pressure and improving heart functions. This article has documented several drugs which acts as antihypertensive as per mentioned in the text. The main alkaloids are mentioned in the table and their mechanism of lowering the blood pressure. Some affects the RAAS, some acts as diuretics, cardio depressants, muscle relaxants, ACE inhibitors etc. Drugs like Sarpagandha, Jatamansi, Ashawgandha have mind relaxant properties and leads to reduction in cortisol level thus relaxing the blood vessels leading to lowering of blood pressure. Ashawgandha, Bhringraja, Kantakari, Kantakari, Shatavari, Chilhint, Ankol act as Diuretics. They pull out water from the body thus decreasing pressure on the vessels and heart. Vacha and Banafsha act as Calcium channel antagonists. Tagara helps in Katp channel activation, lowering the Blood pressure. Shankhpushpi and Pooga are ACE inhibitors. Pooga inhibits Ang 1 and Ang 2. Sadpushpa has anti-depressant activity which cools the hyperactivity of the mind which releases the constriction in the blood vessels and relaxes the flow of blood. The dose of the drugs mentioned are either the clinical trials dose which has shown results and the dose mentioned in the text itself. The specific function of the drug is mentioned as per the Ayurvedic text which helps directly or indirectly in Hypertension. We believe that this article would help to enhance knowledge of the antihypertensive drugs, their alkaloids and how they act as antihypertensive. This will provide a base for further studies to find out more uses of the alkaloids and their working. This would promote the use of more natural medicines for the treatment of the health issues.

**CONCLUSION**

Natural medicinal products are considered in the case of primary healthcare because of better cultural acceptability, safety, potency, and lesser side effects. Several traditional herbal medicines and supplements have been recognized as potential therapeutic agents to manage hypertension and its associated complications. This review aims to document medicinal plants having potential Antihypertensive action given in Ayurveda. This compilation may help the Researchers, Pharmaceutical companies, and Investigators to further use these plants for Clinical research purposes.

**REFERENCES**

health-topics/high-blood-pressure/understanding-blood-pressure-readings


13. V Vithalani Lalitkumar, HYPERTENSION - AN AYURVEDIC PERSPECTIVE, International Ayurvedic Medical Journal ISSN:2320


21. Sharma P.V, Dravya Guna Vijnana,Chaukhambha Bharati Academy, Varanasi, India, 1993


23. Sharma P.V, Dravya Guna Vijnana, Chaukhambha Bharati Academy, Varanasi, India, 1993


27. Sharma P.V,Dravya Guna Vijnana, Chaukhambha Bharati Academy, Varanasi, India, 1993

28. Sohit Singh et all, A CRITICAL REVIEW OF VACHA (ACORUS CALAMUS L.) IN AYURVEDIC & MODERN CONTEXT, WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH. ISSN 2455-3301

29. Sharma P.V, Dravya Guna Vijnana, Chaukhambha Bharati Academy, Varanasi, India, 1993


31. Sharma P.V, Dravya Guna Vijnana, Chaukhambha Bharati Academy, Varanasi, India, 1993
33. Sharma P.V, Dravya Guna Vijnana, Chaukhambha Bharati Academy, Varanasi, India, 1993
35. Sharma P.V, Dravya Guna Vijnana, Chaukhambha Bharati Academy, Varanasi, India, 1993
37. Sharma P.V, Dravya Guna Vijnana, Chaukhambha Bharati Academy, Varanasi, India, 1993
39. Sharma P.V, Dravya Guna Vijnana, Chaukhambha Bharati Academy, Varanasi, India, 1993
41. Sharma P.V, Dravya Guna Vijnana, Chaukhambha Bharati Academy, Varanasi, India, 1993
43. Sharma P.V, Dravya Guna Vijnana, Chaukhambha Bharati Academy, Varanasi, India, 1993
45. Sharma P.V, Dravya Guna Vijnana, Chaukhambha Bharati Academy, Varanasi, India, 1993
47. Sharma P.V, Dravya Guna Vijnana, Chaukhambha Bharati Academy, Varanasi, India, 1993
49. Sharma P.V, Dravya Guna Vijnana, Chaukhambha Bharati Academy, Varanasi, India, 1993
51. Sharma P.V, Dravya Guna Vijnana, Chaukhambha Bharati Academy, Varanasi, India, 1993

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