

2.4 CARDIO-VASCULAR DISORDERS (PREVENTIVE CARDIOLOGY)

2.4.1 Hypertension (*Vyānabala vaiśamya*)

Introduction

Hypertension is a medical condition in which the blood pressure is chronically elevated. It is considered to be present when a person's systolic blood pressure is consistently 140 mm Hg or higher, and/or their diastolic blood pressure is consistently 90 mm Hg or higher. Various epidemiologic studies had consistently demonstrated that increasing levels of systolic BP correlate directly with the risk of developing cardiovascular events and mortality. In the elderly, systolic blood pressure becomes a stronger predictor of risk than diastolic blood pressure or other standard risk factors besides age. Based on WHO definition the incidence of hypertension in urban population is around 40% and rural around 18%. High blood pressure is dangerous because it makes the heart work harder to pump blood to the body and it contributes to hardening of the arteries or atherosclerosis¹⁶.

However, there is no doubt that this disease must have been existed in the past as well, though may not in the same form, incidence and severity. The change in social and economic conditions, life style, dietary habits and an increasing stress and strain in earning the livelihood have increased the prevalence of this disease. Though a suitable term for the disease condition hypertension is not directly mentioned in the *Ayurvedic* classics, its symptomatology can be found in the chapters of *vāta vyādhi*, *prameha*, *hṛdroga*, etc. A disease condition *vyānabala vaiśamya*, which can be correlated with hypertension, seems to be resulted from the *vaiśamya / vikṛti* of *vyānavāyu*. *Vaiśamya* is of two types i.e. *vṛddhi* or *kṣaya*. Hypertension comes under *vṛddhi* type of *vaiśamya*.

Types of Hypertension

- **Primary or essential hypertension** - The hypertension is of unknown origin.



- **Secondary hypertension** - Hypertension with an identifiable cause secondary to another disease such as renal disease or tumor.
- **Isolated systolic hypertension** - Most common in elderly patients due to reduced vascular compliance, systolic B.P > 160 mm of Hg with Diastolic pressure < 90 mm of Hg.
- **Neurogenic hypertension** - It can be caused by strong stimulation of sympathetic nervous system. (e.g. when a person becomes excited for any reason or state of anxiety).

Classification of Hypertension (Clinical Geriatrics - 3, IGNOU)

	Systolic B.P.	Diastolic B.P.
Optimal B.P.	< 120	< 80
Normal B.P.	< 130	< 85
High normal	130-139	85-89
Stage 1 Hypertension	140-159	90-99
Stage 2 Hypertension	160-179	100-109
Stage 3 Hypertension	180	≥ 110

Aetiology

1. Hereditary
2. Excess salt intake
3. Sleep apnea
4. Secondary to disease (e.g. polycystic kidney disease or chronic glomerulonephritis, adrenal disease, cushing's syndrome and coarctation of aorta etc.)
5. Certain medication (e.g. NSAIDS, steroids, throat lozenges and peptic ulcer medicines)

Pathogenesis

Hypertension is not a simple physiological feature of ageing. Blood pressure tends to be normal or even low in the aged population. Development of Hypertension more depends on environmental factors, rather than simple ageing. Pathophysiological mechanism includes an



increase in peripheral vascular resistance, secondary to arteriolar smooth muscle vasoconstriction with the lower plasma renin activity and low aldosterone levels.

Risk factors

1. Child of Hypertensive parents
2. Obese person
3. Age > 45 years
4. Gender (men and postmenopausal women)
5. Diabetes mellitus, dyslipidaemia
6. Physical inactivity
7. Smoking, alcoholism

Clinical features

Hypertension is usually found incidentally by healthcare professionals during a routine checkup, usually produces no symptoms although there may be

1. Headache
2. Fatigue
3. Dizziness
4. Transient insomnia
5. Difficulty in sleeping due to feeling of hot or flushed
6. Tinnitus

Complications

While elevated blood pressure alone is not an illness, it often requires treatment due to the following short and long term effects like:

1. Cerebrovascular accidents (CVA) or strokes
2. Myocardial infarction
3. Hypertensive cardiomyopathy (heart failure)
4. Hypertensive retinopathy, nephropathy and encephalopathy



5. Congestion in the lungs
6. Left ventricular hypertrophy
7. Epistaxis
8. Blurring of vision owing to retinal changes
9. Impotence
10. Angina pectoris

Investigations

1. 24 hour ambulatory blood pressure monitoring
2. Urine for protein, blood and glucose
3. Serum electrolytes
4. Serum creatinine
5. Renal function test
6. Blood sugar fasting
7. Lipid profile
8. Electro cardiogram (ECG)
9. Chest X Ray (PA view)

Management approaches

a. Prevention

1. Consume plenty of fruits and vegetables such as apple, banana, blackberrie, broccoli, cabbage, carrot, garlic, grape fruit, green leafy vegetable, onion, pea, tomato etc.
2. Consume preferably vegetarian, low fat, low calory diet rich in whole grain, high fibre and nuts
3. Use of garlic and onion in regular diet
4. Practice physical exercises such as brisk walking daily for 30 - 45 minutes
5. Weight reduction (in obese)
6. Limit use of salt (<5 gm/ day), fats and sweets



7. Avoid day sleep, anger, anxiety, hyper activity, over exertion
8. Avoid use of caffeine, alcohol and tobacco

b. Medical management

Line of treatment (Ca. Ci.28/92)

1. **Nidāna parivarjana (avoidance of aetiological factors)** -According to *Ayurveda*, avoidance of the causative factor is the first line of treatment for all diseases. Excess intakes of salt and fatty substance should be avoided and certain medicines such as NSAIDS, steroids, cough syrups etc. are also to be taken carefully.
2. **Samśōdhana cikitsā (Bio-cleansing therapies)** followed by *Śamana cikitsā* (Palliative therapy) should be advocated.
 - i. *Lekhana Vasti* 350-500 ml for 8 days.
 - ii. *Virecana karma* (Purgation) with *Eraṇḍa taila* 15 - 30 ml with half glass of milk at night
 - iii. *Śirodhārā* with medicated liquids (milk/ water/ oils (*Nārāyaṇa taila*) daily 45-90 minutes for 21 days
 - iv. *Takra dhārā* daily 45 minutes for 14 days

*It should be decided by physician according to the condition of the patient whether *sōdhana* therapy is beneficial or not.

3. Drug Therapy

SINGLE DRUGS

Drug	Dosage (per dose)	MOA ^s / Vehicle	Duration*
<i>Sarpagandhā (Rauwolfia serpentina</i> Benth ex. Kurz.) <i>cūrṇa</i>	1 -3 gm	water	15 days
<i>Aśvagandhā (Withania somnifera</i> Dunal) <i>cūrṇa</i>	3-6 gm	Milk	15 days
<i>Jaṭāmāmsī (Nardostachys jatamansi</i> DC.) <i>cūrṇa</i>	1-3 gm	Water	15 days



<i>Arjuna (Terminalia arjuna W.and A.) tvaka cūrṇa</i>	3-6 gm	Water	15 days
<i>Arjuna (Terminalia arjuna W.and A.) kṣīrapāka</i>	10 -30ml	-	15 days
<i>Rasona (Allium stivum Linn.) kṣīrapāka</i>	10-30 ml	-	15 days

COMPOUND FORMULATIONS

Drug	Dosage (per dose)	MOA/Vehicle	Duration
<i>Māṃsyādi kvātha</i>	10-20 ml	Water	15 days
<i>Sarpagandhā ghana vaṭī</i>	125-250 mg	Water	15 days
<i>Brāhmī vaṭī</i>	125-250 mg	Water	15 days
<i>Prabhākara vaṭī</i>	125-250 mg	Water/Milk	15 days
<i>Arjunāriṣṭa</i>	10-15 ml	Water	15 days
<i>Abhayāriṣṭa</i>	10-15 ml	Water	15 days
<i>Pravāla piṣṭī</i>	250-500 mg	Water	15 days
<i>Śveta parpatī</i>	125-250 mg	Water	15 days
<i>Nāgārjunābhra rasa</i>	125-250 mg	Water/Honey	15 days
<i>Hṛdayārṇava rasa</i>	125-250 mg	Honey/ <i>Triphalā kvātha</i>	15 days

^s MOA - Mode of administration

*Initially 2 times in a day after meal for 15 days followed by condition of patient and physician's direction

NOTE: Out of the drugs mentioned above any one of the drug or in the combination may be prescribed by the physician. The duration of the treatment may vary from patient to patient. Physician should decide the dosage (per dose) and duration of the therapy based on the clinical findings and response to therapy.

Lekhana Vasti (medicated enema)¹⁷, *Arjuna (Terminalia arjuna W. and A.)*¹⁸, *Arjunavacādi yoga*¹⁹ have shown improvement in the hypertensive patients.



c. Other practices- Complementary or alternative therapies those help to reduce stress and improve quality of life may have some effect on blood pressure.

Yoga- The following *yogic* practices are beneficial in hypertension; however, these should be performed only under the guidance of qualified *Yoga therapist*. Duration should be decided by the *Yoga therapist*.

1. Breathing exercises (hand stretch breathing, hand in and out breathing)
2. *Śavāsana, Vajrāsana, Bhujāṅgāsana, Vagrāsana, Gomukhāsana, Pavanmuktāsana, Katicakrāsana, Ardhaḥaṭi cakrāsana, Taḍāsana, etc.*
3. Practice of *Prāṇāyāma (Candra anuloma viloma, Nāḍīśodhana, Ujjai, Bhrāmarī)*

Counselling - Advice the patient to

1. Regular blood pressure monitoring
2. Maintain healthy weight
3. Practice regular aerobic exercises (e.g. brisk walk, jogging, weight lifting etc.)
4. Increase intake of potassium, calcium and magnesium in diet
5. Relax mind and body by *yoga*, meditation and other methods
6. Consume plenty of fruits and vegetables such as apple, banana, broccoli, cabbage, carrot, garlic, grape, green leafy vegetables, onion, pea, tomato etc.
7. Use anti-inflammatory medicines wisely
8. Avoid cheese, animal fat, aged / stored meat, chocolate, cream, wine and yogurt and artificial sweetner
9. Avoid the use of antihistamines except under a physician's direction
10. Restrict use of sugar and salt in diet
11. Discontinue tobacco and alcohol in any form

Indications for referral

Refer the patient in following conditions

1. Refractory hypertension - suboptimal control of blood pressure in spite of appropriate therapy
2. Target organ damage
3. Secondary hypertension not responding to medication



COSTING DETAILS

APPROX .COSTING OF HYPERTENSION MANAGEMENT

S.No.	Medicine	Requirement	Unit	Rate in Rs.	Cost in Rs.
1.	<i>Sarpagandhā cūrṇa</i>	30-90	gm	0.75	23-68
2.	<i>Aśvagandhā cūrṇa</i>	90-180	gm	0.48	43-86
3.	<i>Jaṭāmāṃsī cūrṇa</i>	30-90	gm	1.0	30-90
4.	<i>Arjuna tvaka cūrṇa</i>	90-180	gm	1.0	90-180
5.	<i>Arjuna kṣīrapāka</i>	300-900	ml	0.50	150-300
6.	<i>Rasona kṣīrapāka</i>	300-900	ml	0.50	150-300
7.	<i>Māṃsyādi kvātha</i>	300-600	ml	0.45	135-270
8.	<i>Sarpagandhā ghana vaṭī</i>	3.75-7.5	gm	5.2	20-40
9.	<i>Brāhmī vaṭī</i>	3.75-7.5	gm	4.4	17-34
10.	<i>Prabhākara vaṭī</i>	3.75-7.5	gm	4.4	17-34
11.	<i>Arjunāriṣṭa</i>	300-450	ml	0.26	78-117
12.	<i>Abhayāriṣṭa</i>	300-450	ml	0.23	69-104
13.	<i>Eraṇḍa taila</i>	50	ml	0.4	20
14.	<i>Pravāla piṣṭi</i>	7.5-15	gm	4.0	30-60
15.	<i>Śveta parpatī</i>	3.75-7.5	gm	3.0	10-20
16.	<i>Nāgārjunābhra rasa</i>	3.75-7.5	gm	5.4	21-42
17.	<i>Hṛdayārṇava rasa</i>	3.75-7.5	gm	8.0	30-60

Approx. costing of *Pañcakarma* procedure in hypertension **

S.No.	<i>Pañcakarma</i> procedure	Days	Rate in Rs./ day	Cost in Rs.
1.	<i>Lekhana Vasti</i>	8	150	1200
2.	<i>Śirodhārā</i> (with milk)	14	150	2100
3.	<i>Takra dhārā</i>	14	150	2100

