

## **KEYWORDS**:

## DEFINITION

The definition of "hypertension" is somewhat arbitrary, usually taken as the level of BP beyond which there is increased cardiovascular risk. Blood pressure fluctuates in the same individual as demonstrable by 24-hour ambulatory BP measurements. Office or clinic BP recordings may sometime cause so-called "white coat" hypertension. A close correlation exists between the ambulatory BP levels and the extent of target organ damage. Despite these findings, carefully obtained clinic measurements continue to be the basis to treat hypertension.

# Recommendations of Fifth Joint National Committee on Definition and Classification of Hypertension

Category	Systolic	Diastolic
Normal	< 130 mmhg	< 85 mmhg
High normal	130-139	85-89
Hypertension		
Stage 1 (mild)	140-159	90-99
Stage 2 (moderate)	160-179	100-109
Stage 3 (severe)	180-209	110-119
Stage 4 (very severe)	≥ 210	≥ 120

## COMPLICATIONS

Various epidemiological studies have identified and emphasised the importance of multiple risk factors in causation of premature cardiovascular disease over and beyond hypertension. The risks of hypertension are accentuated in patients harbouring other risk factors as well, such as hyperlipidaemia, cigarette smoking, upper body obesity, and insulin resistance. Untreated hypertension can cause premature mortality and morbidity from CAD, CHF, stroke and renal failure.

## PATHOPHYSIOLOGICAL MECHANISMS

It is suspected that heredity plays a role in the development of hypertension but a precise genetic role has not been identified. In genetically susceptible individuals, environmental factors expose the potential of hypertension. Excessive sodium retention by the kidney may play a major initial role.

## Gender and age

Hypertension is less common in pre-menopausal women than in men. Moreover, women appear to be at lower risk of suffering cardiovascular morbidity than men at any given level of hypertension. With advancing age, however, women lose this advantage as the cardiovasular sequelae in elderly men and women are similar.

## Important causes of isolated systolic hypertension

1.	Elderly person (aortic atherosclerosis)
2.	Hyperthyroidism
3.	Severe anaemia
4.	Aortic incompetence
5.	Patent ductus arteriosus
6.	Arteriovenous fistula
7.	Complete heart block

## **CLINICAL EVALUATION**

Once the diagnosis of hypertension is entertained, thorough history and physical examination should be performed. At least during the initial visit, BP should be recorded in both arms; if the pressure differs, the higher level should be used as the basis for treatment and for follow-up evaluation. Cardiac evaluation should be undertaken for evidence of LVH, Cad and CHF. The abdomen should be examined for organomegaly and vascular bruits. Peripheral arteries should be felt to detect delay or pulse deficits. A baseline ECG would be helpful although an echocardiogram is more sensitive in detecting LVH.

Unless the patient exhibits features suggestive of target organ damage or secondary hypertension, exhaustive laboratory testing is unnecessary. For most patients, routine blood chemistries, BUN, creatinine, electrolytes and urinalysis are sufficient prior to initiating antihypertensive therapy.

## Workup in a case of hypertension

Ι.	Routine workup (all cases)
•	Physical examination for blood pressure level, for target organ (heart, eyes, brain and kidney) involvement and for any obvious primary cause of hypertension
•	ECG (LVH, IHD)
•	X-ray chest (LVH, LVF, rib notching)
•	Routine urine for albuminuria, glycosuria, haematuria
•	Blood urea/serum creatinine, serum electrolytes (hypokalaemic alkalosis - to rule out hyperaldosteronism)
•	Blood sugar fasting and post lunch to rule out DM
•	Lipid profile
11	Specific workup (selected cases)
•	For renal HT - 24 hours' urinary albumin, ultrasonography of abdomen, IV urogram, renal biopsy
•	For renovascular hypertension - renal arteriography, radionuclide captopril renography, plasma renin levels
•	For coarctation of aorta or aortoarteritis - aortography
•	For Cushing's syndrome - urinary and plasma cortisol, dexamethasone suppression test
•	For Conn's syndrome - plasma aldosterone and renin levels

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•	For phaeochromocytoma - 24 hours, urinary VMA and catecholamine
•	CT scan abdomen for adrenal tumours

#### MANAGEMENT

The treatment of hypertension reduces the risk of stroke morbidity and mortality by 40 percent and coronary events by about 15 percent. It is controversial whether a diuretic-based treatment protects against coronary disease.

### Life-style changes

•	Stop smoking/tobacco chewing*
•	Loose weight
•	Limit alcohol intake (<30 ml/d of ethanol)
•	Limit sodium intake (<2.3 g/d)
•	Maintain adequate intake of potassium, calcium and magnesium
•	Reduce intake of saturated fat and cholesterol
•	Exercise aerobically on a regular basis, meditation, shavasana

\*Reduces the risk of cardiovascular disease, rather than reducing blood pressure

#### Sodium restriction

Modest salt restriction may help lower the BP; rigid restriction is not a practical solution.

#### Potassium enrichment

In certain patient groups (the elderly), potassium supplementation may yield measurable therapeutic benefits.

#### **Calcium supplementation**

The best advice is to ensure proper intake of calcium in the diet.

#### **Other supplements**

Despite the curiosity provoked by the role of magnesium supplemenation, high fibre diet, omega fatty acids, etc.

#### **Reducing alcohol intake**

Excessive consumption of alcohol could elevate BP levels.

#### Physical exercise, relaxation, and stress reduction

A purely static physical exercise increases the systolic BP and therefore should be avoided. Regular dynamic exercise may lower the BP and protect against coronary events. Bio-feedback, stress reduction, relaxation, and yoga training (particularly shavasana).

#### Weight control

For obese patients with hypertension, weight loss should be vigorously pursued.

#### Some Rubric for Hypertension in Repertories A. Blood - HYPERTENSION, High blood pressure (Murphy's Repertory)

acon. adon. Adren. agar. aml-ns. aran. arg-n. ars. asar. aster. Aur. aur-i. aur-m. aur-m-n. Bar-c. bar-m. cal-ren. Calc. calc-f. calc-p. caust. chinin-s. choc. coff. con. cortiso. CRAT. cupr. cupr-act. cupr-ar. dig. fl-ac. *Glon. Grat.* ign. iod. iris kali-ar. kali-c. kali-m. kali-p. LACH. lat-m. lyc. lycps-v. mag-c. naja NAT-M. nit-ac. *Nux-v.* ph-ac. phos. pic-ac. pitu-gl. *Plb.* psor. puls. rad-br. *Rauw.* reser. rhus-t. sang. scop. *Sec.* sep. sil. squil. *Stront-c.* stroph-h. Sulph. Sumb. tab. thal. thlas. thuj. valer. vanad. VER-AT. verat-v. visc.

#### B. B - Blood pressure - high (Phatak S.R.)

aur. bar-c. bar-m. coff. con. crat. glon. iod. lycps-v. scop. stront-c. sumb. tab. uran-n. verat-v. visc.

#### Some Homoeopathic Drug's for Hypertension

#### **ADONIS VERNALIS**

A heart medicine, after rheumatism or influenza or brightest disease. Where the muscle of the heart are in stage of fatty degeneration. Pericardial pain, palpitation and dysponea. Fatty heart myocarditis, irregular cardiac action, constriction and vertigo. Rheumatic endocarditis, mitral and aortic regurgitation. Chronic aoritis. Marked venous engorgement, cardial asthma. Pulse rapid, irregular. Weak fatty heart.

#### **BARYTA CARBONICA**

Adaptability: Especially adapted to complaints of the extremes of life – infancy and old age. The psoric or tubercular diathesis.

#### Aneurism: Swelling in aorta pulsation occur.

Characteristic: Palpitation with soreness of heart, worse lying on left side, aneurism. Accelerates to the heart's action at first, blood pressure much increased, contraction of blood vessels. Palpitation worse on exertion. Slightest exertion makes him feel fined and sleepy. Cardiac symptoms after suppressed foot sweat.

Aggravation: While thinking of symptoms, from washing, lying on painful side.

Amelioration: Walking in open air.

#### BELLADONA

Constitution adaptability: Adapted to bilious, lymphatic temperament, fleshy and phlegmatic persons of plethoric habit who are subject to congestion, especially of the head.

Characteristic: Throbbing in carotid and temporal arteries. Throbbing all through the body. Violent palpitation reverberating in head, with labored breathing. Palpitation from least exertion. Heart seemed too large rapid but weakened pulse. Pulse full, hard, tense, bubbling at the region of the heart.

< Touch, jar, noise, draught of air, afternoon

> Rest, standing or sitting erect, warm room.

#### CACTUS GRANDIFLORUS

Adaptability: Especially suited to plethoric persons. Sanguineous congestion in persons often resulting haemorrhage sanguineous apoplexy.

CVS: Cactus grand. Acts on circular fibres, hence constriction everywhere, especially in the heart and arteries. It is particularly a heart remedy, most of the symptoms being outcome of cardiac disturbance, congestion and constriction run through this remedy. Haemorrhage, constriction, periodicity and spasmodic pains is key note symptoms. Whole body feels as if caged, each wire being twisted tighter and tighter.

Endocarditis with mitral insufficiency together with violent and rapid action heart weakness of arteriosclerosis, tobacco heart. Violent palpitation worse lying on left side, at approach of menses. Angina pectoris, with suffocation, cold sweat.

Heart feels as if clasped and unclasped rapidly by an iron band, as if bound had no room to beat, Pains everywhere, darting , springing like chain lighting, and with a sharp, vise like grip, only to be again renewed.

Pain in apex, shooting down left arm. Constriction very acute, pains and stitches in heart, pulse feeble irregular. Endocardial murmurs, excessive impulses increase precardial dullness, enlarged vertical low blood pressure.

#### **CRATAEGUS OXYACANTHA**

Acts on muscle of heart, and a heart tonic. No influence on the endocardium. Heart weakness with oppression, stitches and insomnias. Cardiac dyspnoea. Cardiac dropsy. Fatty degeneration. Aortic disease, extreme dyspnoea on least exertion, pain in region of heart and under left clavicle. Heart dilated, first sound weak. Pulse acceleration, irregular, feeble intermittent. Valvular murmur, angina pectoris. Myocarditis, Irregularity of heart. Insomnia of aortic suffers. Arteriosclerosis said to have a solvent power upon crustaceous and calcareous deposit in arteritis.

#### LACHESIS

ADAPTABILITY : Particularly suited to persons of melancholic disposition. Women choleric temperament and menopause.

CLINICAL FEATURES : Palpitations with fainting spells, during menopause.

All symptoms, especially the mental, worse after sleep, or the aggravation wakes him from sleep; sleeps into the aggravation; unhappy, distressed, anxious, sad < in morning on waking.

Rush of blood to head; after alcohol; mental emotions; suppressed or irregular menses; at climaxis; left-sided apoplexy.

Weight and pressure on vertex (Sep.); like lead in occiput.

#### NATRUM MURIATICUM

Adaptability: Cachectic anemia persons, anaemic persons, young people having tendency to grow fat. Psoric, scrofulous, tuberculous.

Characteric symptoms of heart: The heart's pulsation shake the body. Tachycardia. Fluttering of the heart with weak, faint feeling worse lying down. Sensation of wideness of heart. Heart and chest feel constricted, fluttering, palpitation, intermittent pulse intermits on lying down.

< Lying down, at seashore, mental exertion, consolation.

> Open air, cold bathing, going without regular meal.

#### CONVALLARIA MAJALIS

INTRODUCTION: A heart remedy. Increased energy of heart's action, render's it more regular. It uses when the ventricles are over distended and dilatation begins, and when there is an absence of compensatory hypertrophy, and when venous stasis is marked, dyspnoea, dropsy, anasarca.

Causation: Tobacco, especially when due to cigarettes.

Characteristic feature: Feeling as if heart beat throughout the chest. Endocarditis with orthopnoea sensation as if heart ceased beating, then starting very suddenly palpitation from the least exertion. Angina pectoris.

#### GELSEMIUM

Adaptability: Adapted to children and young person, especially women who are nervous and of a hysterical temperament. Old men having slow pulse.

Characteristic feature: Irregular beating, palpitation. Feeling as if heart would stop beating if she did not move about. A feeling as if it were necessary to keep in motion or else heart's action would cease, slow pulse (Digit, kalmia) palpitation; pulse soft weak, full and flowing. Pulse slowly when quiet, but generally accelerated on motion. Weak, slow pulse of old age.

< Damp weather, fog, before a thunder storm, emotion, or excitement, bad news, tobacco smoking, when thinking of his ailments.

> Open air, continued motion, stimulants.

#### RAUWOLFIA

Palpitation, pricking & irregular heart beat. Palpitations & irregularity of the heart. Hypotonia with Diarrhoea, constriction, Angina pectoris and rhythmic anomalies Bradycardia, Aoritis, Aoritic aneurism. Cardio renal oedema. Dose – Mother Tincture and lower potency.

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