

HYPERTENSION



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Shaping Lives...
Empowering Communities...

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INTRODUCTION:

Blood pressure- Blood pressure is the force of blood pushing against the wall of the blood vessels.

Systolic blood pressure – Systolic blood pressure indicates how much pressure of the blood is exerting against the artery walls, when the heart beats. The normal range of systolic blood pressure is 120 mmHg.

Diastolic blood pressure- Diastolic blood pressure indicates how much pressure of the blood is exerting against the artery walls when the heart is relaxed between beats. Diastolic blood pressure is the bottom number of the blood pressure reading. The normal range of diastolic blood pressure is 80 mmHg.

Normal BP- 120/80 mmhg

Hypertension- Hypertension, also known as high blood pressure, is a medical condition characterized by blood pressure increases than the normal rang against the artery wall.

CLASSIFICATION OF HYPERTENSION:

		Systolic	Diastolic
1	Normal blood pressure	<120 mmHg	<80 mmHg
2	Pre- Hypertension	120-129 mmHg	<80 mmHg
3	High blood pressure (stage I)	130-139 mmHg	80-89 mmHg

4	High blood pressure (stage II)	>140mmHg	>90mmHg
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It is further divided in to two types

Primary Hypertension:

- It is known as stage 1 hypertension.
- 90-95% of the population is affected by primary hypertension.
- Causes of primary are unknown.

Secondary Hypertension:

- It is known as secondary hypertension.
- 5-10 % of population effected by secondary hypertension.
- Secondary hypertension was causes by different identified or known causes.

ETIOLOGY OF HYPERTENSION:

- Genetic or family history
- Unhealthy Lifestyle(Use of tobacco, Intake of alcohol, Unhealthy diet, Intake of fatty meal or junk food, Intake Cocaine)
- Inactivity or physically inactive
- Stress
- Obesity
- Excess intake of salt
- Narrowing of arteries that supply blood to your kidney.
- Renalparenchymal disease

- Adrenal gland disease
- Constriction of aorta
- Metabolic disorder
- Age (after the age of 60)
- Certain medication
- Oral contraceptive
- OTC Drugs
- Excess intake of Sleeping pills or taking pills for a long time

PATHOPHYSIOLOGY:

Due to different etiological factors, It occurs.



Decrease in blood flow towards the different organs due to some reasons also leads to increases in blood pressure.



Due to decreased blood flow, The renal artery unable to provide sufficient amount of blood to the kidney.



Then Renin-angiotensin system activated within kidney.



Simultaneously Kidney releases renin and liver releases angiotensinogen.



Renin converts angiotensinogen into angiotensinogen-I



Then Angiotensinogen-I converts into angiotensinogen-II by the help of angiotensinogen converting enzymes(ACE) which was released by the lungs.



Then, it leads to vasoconstriction. It also increases aldosterone secretion from the adrenal gland, which leads to increase in sodium and water retention, which further leads to increase in the blood volume.



When blood volume increases, it leads to increase in blood flow within the blood vessels and it further leads to increase the blood pressure that will cause hypertension.

CLINICAL MANIFESTATION/ SIGN & SYMPTOMS:

- Headache
- Blurred vision
- Nausea and vomiting
- Fatigue and confusion
- Chest pain and shortness of breath
- Irregular heart beat
- Ear noise

Complication of Hypertension:

- Heart attack and heart failure
- Stroke
- Kidney failure
- Retinopathy
- Out pouching of Aorta
- Left ventricular hypertrophy

CLINICAL EVALUATION/ DIAGNOSIS:

- Medical history & Family history
- Physical examination
- Blood test (Fasting glucose, Lipoprotein, Creatinine)
- Urine analysis

- ECG
- Angiography
- Examination of retina

PHARMACOLOGICAL MANAGEMENT:

- **Diuretic drug**

Furosemide: 40-2340mg\day

Chlorthalidone: 50mg\day

Spiroolactone: 25-100mg\day

- **Beta-blockers**

Propranolol: 40-480mg\day

Atenolol: 25-100mg\day

Reserpine: 0.05-0.25mg\day

- **Alpha blockers**

Prazosin: 20-30 mg\day

Terazosin: 1-20mg\day

- **Alpha-beta blockers**

Labetalol: 2-30mg/day

- **Vasodilator**

Hydralazine: 50-300mg/day

NON-PHARMACOLOGICAL MANAGEMENT/ PREVENTION:

- Eat healthy diet.
- Avoid saturated fats that are found primarily in red meat, bacon, sausage, and full-fat dairy products.
- Switch to low-fat or fat-free dairy.
- Use monounsaturated fats like olive and canola oil for cooking.
- Cut out the transfats. Transfats are found in fried food and processed foods, like cookies, crackers, and other snacks.
- Take Omega-3 fatty acids.
- Increase the fiber intake.
- Eat more fruits and veggies. They're high in fiber and vitamins and low in saturated fat.
- Losing weight can help to reduce LDL, total cholesterol, and triglyceride levels. It can also boost HDL, which helps remove bad cholesterol LDL from the blood.
- Regular exercise and activity help in lowering LDL, raise HDL, and encourage weight loss.
- Quit smoking.