

# HYPERTENSION



**Centurion**  
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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:**

		<b>Systolic</b>	<b>Diastolic</b>
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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### TYPES AND ETIOLOGY OF HYPERTENSION:

<b>Primary Hypertension</b>	<b>Secondary Hypertension</b>
<b>Stage –I</b>	<b>Stage-II</b>
<ul style="list-style-type: none"> <li>• It is known as primary hypertension.</li> <li>• 90-95% of the population is affected by primary hypertension.</li> <li>• Causes of primary are unknown.</li> <li>• Genetic or family history <ul style="list-style-type: none"> <li>➤ Lifestyle</li> <li>➤ Inactivity</li> <li>➤ Stress</li> <li>➤ Obesity</li> <li>➤ Use of tobacco</li> <li>➤ Excess intake of salt</li> <li>➤ Intake of alcohol</li> <li>➤ Unhealthy diet</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• It is known as secondary hypertension.</li> <li>• 5-10 % of population effected secondary hypertension.</li> <li>• Secondary hypertension was causes by different identified or known causes. <ul style="list-style-type: none"> <li>➤ Narrowing of arteries that supply blood to your kidney.</li> <li>➤ Renal parenchymal disease</li> <li>➤ Adrenal gland disease</li> <li>➤ Constriction of aorta</li> </ul> </li> </ul>

<ul style="list-style-type: none"><li>➤ Age (after the age of 60)</li><li>➤ Metabolic disorder</li></ul>	<ul style="list-style-type: none"><li>➤ Certain medication</li><li>➤ Oral contraceptive</li><li>➤ OTC Drugs</li><li>➤ Intake Cocaine</li><li>➤ Sleeping pills</li><li>➤ Amphetamines</li></ul>
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### **PATHOPHYSIOLOGY:**

Due to different etiological factors



Pressure Changes in the artery wall, leads to increase in systemic vascular resistance.



Then heart rate increases leads to an increase in cardiac output.



It increases the blood pressure.



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

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



Then Renin-angiotensin system activated.



Simultaneously Kidney release renin and liver releases angiotensinogen.



Renin converts angiotensinogen into angiotensinogen-I



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 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 peripheral resistance and it further leads to increase in the blood pressure or hypertension.

## **CLINICAL MANIFESTATION/ SIGN & SYMPTOMS:**

- Several 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
- 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

Spironolactone: 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.