

# **HYPERTENSION**

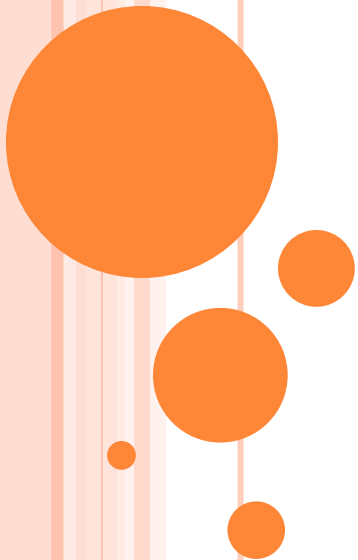
**Done By :**

**Mamdouh AL-ENEZI**

**Tarfah Al- Obaidan**

**Abdullah Altowim**

**Khaled AL-Mohaimede**



# Definition

Hypertension (HTN) or high blood pressure, sometimes called arterial hypertension, is a chronic medical condition in which the blood pressure in the arteries is elevated. This requires the heart to work harder than normal to circulate blood through the blood vessels. Blood pressure involves two measurements, systolic and diastolic, which depend on whether the heart muscle is contracting (systole) or relaxed between beats (diastole). Normal blood pressure at rest is within the range of 100-140mmHg systolic (top reading) and 60-90mmHg diastolic (bottom reading). High blood pressure is said to be present if it is persistently at or above 140/90 mmHg.



# Ø Problems & Hypotheses

## ***(1) Essential hypertension:***

**1-Reduced renal sodium excretion**

**2-Vascular changes**“ Functional vasoconstriction or changes in vascular wall”

**3-Genetic Factors** ; susceptible genes for essential hypertension in the larger population are currently unknown but may well include genes that govern responses to an increased renal sodium load, levels of pressor substances, reactivity of VSMCs to pressor agents, or SMCs growth.

**4-Environmental factors**“ Stress, obesity, smoking, physical inactivity, heavy salt consumption”

**5-Increase in sympathetic response**

# Ø Problems & Hypotheses

## *(2) Secondary hypertension:*

**1-Acute glomerulonephritis**

**2-Chronic renal disease**

**3-Polycystic disease;** cystic genetic disorder of the kidney characterized by the presence of multiple cysts in both kidneys. The disease can cause damage to the liver, pancreas, heart and brain.

**4-Renal artery stenosis**

**5-Renal artery fibromuscular dysplasia;** it causes narrowing of the arteries due to the abnormal growth of the cells in the wall of artery. As a result, the inner passage of the vessel may become narrower

**6-Renin-producing tumors**

**7-Adrenocortical hyperfunction;** condition where there is an overexpression of products of adrenal cortex

When cortisol is over produced= cushing syndrome

When aldosterone is over produced= hyperaldosteronism

# Ø Problems & Hypotheses

## ***(2) Secondary hypertension:***

**8-Renal vasculitis**

**9-Exogenous hormones** (glucocorticoids, estrogen [including pregnancy-induced and oral contraceptives] and sympathomimetics

**10-Pheochromocytoma;** neuroendocrine tumor of the medulla of adrenal gland, excretes excessive amounts of catecholamines.

**11-Acromegaly;** Syndrome that results when anterior puituitary gland produces excess growth hormone

**12-Hypothyroidism (myxedema)**

**13-Hyperthyroidism (thyrotoxicosis)**

**14-Pregnancy-induced**

**15-Coarctation of aorta;** is a congenital condition whereby the aorta narrows in the area where the ductus arteriosus inserts.

# Ø Problems & Hypotheses

## ***(2) Secondary hypertension:***

**16-Polyarteritis nodosa (or other vasculitis)**

**17-Increased intravascular volume**

**18-Increased cardiac output**

**19-Rigidity of the aorta**

**20-Psychogenic**

**21-Increased intracranial pressure**

**22-Sleep apnea; sleep disorder characterized by abnormal pauses in breathing.**

**23-Acute stress, including surgery**

# ∅ Problems & Hypotheses

## *(3) Pallor of mucous membrane*

- **Psychological Shock / stress**
- **Fatigue**
- **Insomnia**
- **Hyperlipidemia (e.g. Hypercholesterolemia)**
- **Anemia**
- **Malnutrition**
- **Kidney diseases (acute)**

# Ø Questions to ask the patient

---

- Any history of medication?
- Any history of renal disease?
- Any history of surgery?
- Any familial problem history?
- How is the course of symptoms?
- Any history of Cardiovascular diseases?
- Any history of Neurologic diseases?
- Any history of endocrine diseases?



# causes

## Primary hypertension

Primary (essential) hypertension is the most common form of hypertension, accounting for 90–95% of all cases of hypertension and the cause is unknown

## Secondary hypertension

Secondary hypertension results from an identifiable cause.

Cardiovascular, Neurologic, Renal disease, such as, Acute glomerulonephritis, Chronic renal disease, Polycystic disease.

Hypertension can also be caused by endocrine conditions, such as Pheochromocytoma, Acromegaly, Hyperthyroidism .



# Symptoms

- Headaches
- Nosebleeds
- Blurred Vision
- Dizziness
- Palpitations
- chest pain
- A strong need to urinate often  
(especially during the night)
- Fatigue - general tiredness



# Tests and Diagnosis

- **Electrocardiogram (ECG)**
- **Echocardiogram**
- **chest radiograph**
- **Serum sodium, potassium, calcium**



# Treatment

## 1- DRUG TREATMENT OF HYPERTENSION

### I- Diuretics

Hydrochlorothiazide / furosemide

### II- Drugs acting on the renin-angiotensin-aldosterone system

Captopril / enalapril / ramipril / losartan / valsartan / irbesartan

### III- Calcium channel blockers

Verapamil / diltiazem / nifedipine / amlodipine / nicardipine

### IV- Vasodilators

Hydralazine / Minoxidil / Diazoxide / Sodium nitroprusside

### V- Drugs acting on sympathetic system

Propranolol / Atenolol / prazosin / methyldopa / Clonidine



# Treatment

## 2-NON-DRUG TREATMENT OF HYPERTENSION

- dietary changes
- physical exercise
- weight loss
- stop smoking, caffeine, alcohol



# COMPLICATIONS

- ❖ ischemic heart disease
- ❖ Strokes
- ❖ heart failure
- ❖ aortic aneurysms
- ❖ chronic kidney disease
- ❖ atherosclerosis



# Prevention

- maintain normal body weight for adults.
- reduce dietary sodium intake
- consume a diet with reduced content of saturated and total fat.
- Stop smoking
- Exercise



# Risk Factors

- ✓ Being overweight or obese
- ✓ age.
- ✓ Diabetes
- ✓ Smoking
- ✓ Drinking a lot of alcohol
- ✓ Eating too much salt (sodium)
- ✓ Having higher than normal blood pressure (prehypertension)

