

INDIRANI COLLEGE OF NURSING

B. SC II YEAR

HYPERTENSION & HYPOTENSION

HYPERTENSION

INTRODUCTION:

Hypertension is a major health problem throughout the world because of its high prevalence and its association with increased risk of cardiovascular disease. Advances in the diagnosis and treatment of hypertension have played a major role in recent dramatic declines in coronary heart disease and stroke mortality in industrialized countries.

DEFINITION:

Hypertension also known as high blood pressure (HBP), is a long term medical condition in which the blood pressure in the arteries is persistently elevated. The SBP will be more than or equal of 140 mmHg and DBP will be more than or equal of 90 mmHg

--- **Joint National Committee**

Types of Hypertension:

- **Primary Hypertension.**
- **Secondary Hypertension.**
- **Malignant Hypertension.**
- **Resistant Hypertension.**

1. Primary Hypertension: (also known as Essential Hypertension) – It is almost 90% of the patients, the cause of this Hypertension is unknown. physician will diagnose this Hypertension type after analyzing your blood pressure after three or four visits. People who suffer from this Hypertension type show no significant symptoms. However, a few patients do show the below signs:

- Frequent headaches,
- Fatigue,
- Dizziness,
- Nose bleeds.

2. Secondary Hypertension: This Hypertension type occurs when there is an abnormality in the arteries that supply blood to the kidneys.

Some common causes of this Hypertension include:

- Abnormalities or tumors of the adrenal glands
- Thyroid

- Hormonal imbalances
 - Excessive salt or alcohol intake
3. **Malignant Hypertension:** Here the blood pressure rises rather quickly and causes a medical emergency where the patient needs to be rushed to the hospital. It is typically observed in small fractions of society such as young African-American men and women with pregnancy toxemia, to name a few.

Some common symptoms include:

- Numbness in arms and legs
 - A headache
 - Chest pain
 - Blurry vision.
4. **Resistant Hypertension:** This type of Hypertension is usually observed in people who are aged, obese or are suffering from diabetes or kidney ailments.

Risk Factors for Hypertension:

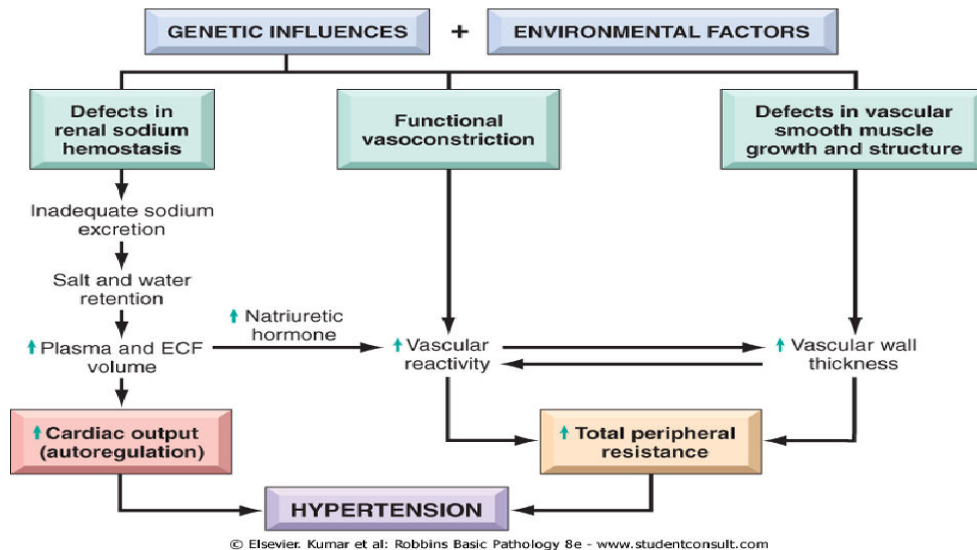
Major Risk Factors (in Addition to Hypertension)

- Smoking
- Dyslipidemia (elevated LDL [or total] cholesterol and/or low HDL cholesterol)
- Diabetes mellitus
- Impaired renal function (GFR 60 mL/min and/or microalbuminuria)
- Obesity (BMI >30 kg/m²)
- Physical inactivity
- Age (older than 55 years for men, 65 years for women)
- Family history of cardiovascular disease (in female relative younger than 65 years or male relative younger than 55 years).

Target Organ Damage or Clinical Cardiovascular Disease

- Heart disease (left ventricular hypertrophy, angina or previous myocardial infarction, previous coronary revascularization, heart failure)
- Stroke (cerebrovascular accident, brain attack) or TIA
- Chronic kidney disease • Peripheral arterial disease
- Retinopathy

PATHOPHYSIOLOGY:



CLINICAL MANIFESTATION:

1. Some times the high blood pressure does not causes any symptoms, so that it is known as silent killer disease.
2. In some patients the symptoms will develop like:
 - Severe head ache
 - Blurred vision
 - Dizziness
 - Nausea
 - Vomiting

- Fatigue
- Confusion epistaxis
- Chest pain
- Shortness of breath
- Irregular heart beat
- Papilledema

DIAGNOSTIC EVALUATION:

- HISTORICAL EXAMINATION.
- PHYSICAL EXAMINATION.
- **ROUTINE TESTS:**
 - Electrocardiogram (ECG)
 - Plasma glucose (preferably fasting)
 - Serum total cholesterol
 - Serum high-density (cholesterol) lipoprotein (HDL)
 - fasting serum triglycerides
 - Serum uric acid
 - Serum creatinine
 - Serum potassium
 - Haemoglobin and haematocrit
 - Urinalysis (dipstick test and urinary sediment examination).
- **RECOMMENDED TESTS:**
 - Echocardiogram
 - Carotid (and femoral) ultrasound
 - C-reactive protein
 - Micro albuminuria (essential in diabetics)
 - Quantitative proteinuria (if dipstick is positive)
 - Fundus copy (in severe hypertension).
- **Extended evaluation (domain of the specialist):**
 - Complicated hypertension: tests of cerebral, cardiac and renal function

- Search for secondary hypertension: measurement of renin, aldosterone,
- Corticosteroids, catecholamine, arteriography, renal and adrenal ultrasound,
- Computed tomography (CT)
- Brain magnetic resonance imaging (MRI).

MANAGEMENT OF HYPERTENSION:

- Pharmacological therapy
- Non-pharmacological therapy

Pharmacological therapy:

Thiazide Diuretics:

- Chlorthalidone
- Chlorothiazide (Diuril)
- Hydrochlorothiazide

Loop Diuretics:

- Furosemide (Lasix)
- Bumetanide (Bumex)
- Torsemide (Demadex)

Potassium-Sparing Diuretics:

- Amiloride (Midamor)
- Arianterene (Dyrenium)

Aldosterone Receptor Blockers:

- Eplerenone (Inspra)
- Spironolactone (Aldactone)

Beta-Blockers:

- Atenolol (Tenormin)

- Betaxolol (Kerlone)
- Bisoprolol (Zebeta)

Alpha1-Blockers:

- Doxazosin (Cardura)
- Prazosin hydrochloride (Minipress)
- Terazosin (Hytrin)

Sodium nitroprusside :

- (Nitropress) nitroglycerin

Calcium Channel Blockers:

Nondihydropyridines

- Diltiazem extended release (Cardizem CD, Dilacor XR, Tiazac).

Non-pharmacological therapy:

The life style modification measures mainly includes,

- Weight loss:
Maintenance of normal body weight can help prevent hypertension.
- Reduce alcohol:
Limit alcohol consumption to no more than 2 drinks per day in men and one drink for women and people who are lighter in weight.
- Exercise:
Engage in regular aerobic physical activity for 30 minutes thrice every week.
- Stress management

- **DASH diet** (dietary approaches to stop hypertension)

Food Group	Number of Servings/Day
• Grains grain products.	• 7 or 8
• Vegetables.	• 4 or 5
• Fruits	• 4 or 5
• Low-fat or fat-free dairy foods.	• 2 or 3
• Meat, fish, and poultry.	• 2 or fewer Nuts
• seeds, and dry beans	• 4 or 5 weekly

- Sodium contributes to an elevated blood pressure, so reducing the dietary intake to no more than 2.4 g sodium per day can be really helpful.

COMPLICATIONS:

Based on the assessment data, potential complications that may develop include the following:

- Left ventricular hypertrophy.
- Myocardial infarction.
- Heart failure.
- TIAs.
- Cerebrovascular accident (CVA, stroke, or brain attack).
- Renal insufficiency and failure.

- Retinal hemorrhage.

NURSING DIAGNOSIS:

Based on the assessment data, nursing diagnoses for the patient may include the following:

- Deficient knowledge regarding the relation between the treatment regimen and control of the disease process.
- Noncompliance with therapeutic regimen related to side effects of prescribed therapy.
- Risk for activity intolerance related to imbalance between oxygen supply and demand.
- Risk-prone health behavior related to condition requiring change in lifestyle.

NURSING INTERVENTIONS

The objective of nursing care focuses on lowering and controlling the blood pressure without adverse effects and without undue cost.

- Encourage the patient to consult a dietitian to help develop a plan for improving nutrient intake or for weight loss.
- Encourage restriction of sodium and fat
- Emphasize increase intake of fruits and vegetables.
- Implement regular physical activity.
- Advise patient to limit alcohol consumption and avoidance of tobacco.
- Assist the patient to develop and adhere to an appropriate exercise regimen.

HOME CARE GUIDELINES:

Following discharge, the nurse should promote self-care and independence of the patient.

- The nurse can help the patient achieve blood pressure control through education about managing blood pressure.

- Assist the patient in setting goal blood pressures.
- Provide assistance with social support.
- Encourage the involvement of family members in the education program to support the patient's efforts to control hypertension.
- Provide written information about expected effects and side effects.

Encourage and teach patients to measure their blood pressures at home.

HYPOTENSION

A blood pressure reading lower than 90 millimeters of mercury (mm Hg) for the top number (systolic) or 60 mm Hg for the bottom number (diastolic) is generally considered low blood pressure.

Causes:

Low blood pressure has many different causes including:

- Emotional stress, fear, insecurity or pain (the most common causes of fainting)
- Dehydration, which reduces blood volume
- The body's reaction to heat, which is to shunt blood into the vessels of the skin, leading to dehydration
- Blood donation
- Internal bleeding, such as a perforated stomach ulcer
- Blood loss from trauma, such as a road accident or deep cut
- Pregnancy
- Medications for high blood pressure
- Diuretics, which produce fluid loss
- Medications for depression
- Medications for certain heart conditions
- Allergic reaction to certain drugs or chemicals
- Some forms of infection, such as toxic shock syndrome
- Heart disease, which can hamper the pumping action of the heart muscle
- Some nervous system disorders, such as Parkinson's disease
- Addison's disease (where the adrenal glands fail to produce sufficient blood-pressure-maintaining hormones).

Symptoms

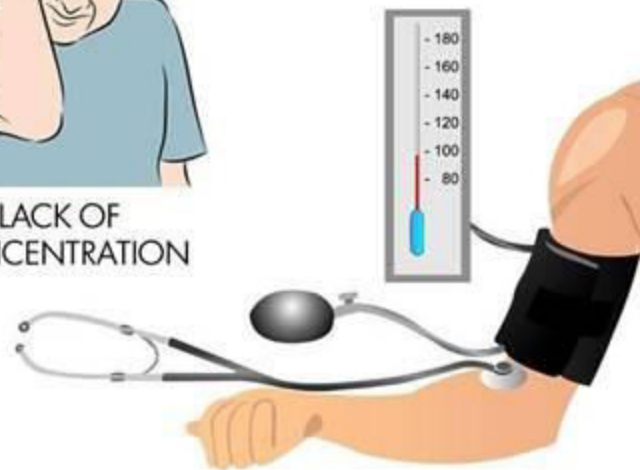
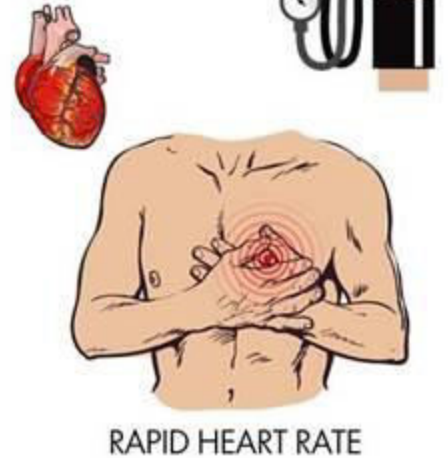
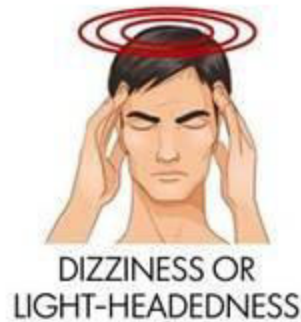
For some people, low blood pressure signals an underlying problem, especially when it drops suddenly or is accompanied by signs and symptoms such as:

- Dizziness or lightheadedness
- Fainting (syncope)
- Blurred vision
- Nausea
- Fatigue
- Lack of concentration
- Shock

Extreme hypotension can result in this life-threatening condition. Signs and symptoms include:

- Confusion, especially in older people
- Cold, clammy, pale skin
- Rapid, shallow breathing
- Weak and rapid pulse

SIGNS AND SYMPTOMS OF LOW BLOOD PRESSURE



Use more salt. Experts usually recommend limiting salt in your diet because sodium can raise blood pressure, sometimes dramatically. For people with low blood pressure, that can be a good thing.

But because excess sodium can lead to heart failure, especially in older adults, it's important to check with your doctor before increasing the salt in your diet.

Drink more water. Fluids increase blood volume and help prevent dehydration, both of which are important in treating hypotension.

Wear compression stockings. The elastic stockings commonly used to relieve the pain and swelling of varicose veins can help reduce the pooling of blood in your legs. Some people tolerate elastic abdominal binders better than they do compression stockings.

Medications. fludrocortisone, which boosts your blood volume, is often used to treat this form of low blood pressure.

Lifestyle and home remedies:

- Drink more water, less alcohol. Alcohol is dehydrating and can lower blood pressure, even if you drink in moderation. Water, on the other hand, fights dehydration and increases blood volume.
- Pay attention to your body positions. Gently move from a prone or squatting to a standing position. Don't sit with your legs crossed.
- If you begin to get symptoms while standing, cross your thighs in a scissors fashion and squeeze, or put one foot on a ledge or chair and lean as far forward as possible. These moves encourage blood flow from your legs to your heart.
- Eat small, low-carb meals. To help prevent blood pressure from dropping sharply after meals, eat small portions several times a day and limit high-carbohydrate foods such as potatoes, rice, pasta and bread.
- Your doctor also might recommend drinking one or two strong cups of caffeinated coffee or tea with breakfast. Don't drink caffeine throughout the day because you will become less sensitive to caffeine, and caffeine can cause dehydration.
- Exercise regularly. Aim for 30 to 60 minutes a day of exercise that raises your heart rate and resistance exercises two or three days a week. Avoid exercising in hot, humid conditions.