

HYPERTENSION: PATHOPHYSIOLOGY, NURSING INTERVENTIONS, AND PATIENT EDUCATION

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DOI: <http://doi.org/10.47211/idcij.2023.v10i01.019>**ABSTRACT**

Hypertension, or high blood pressure, is a global health concern and a major risk factor for cardiovascular diseases, renal impairment, and stroke. It often remains asymptomatic, hence termed as the "silent killer." This article aims to explore the pathophysiology of hypertension, its various types, complications, diagnostic methods, and management strategies, with emphasis on nursing interventions and patient education. The study identified multiple types of hypertension, ranging from primary to pregnancy-induced forms, each requiring specific management approaches. Effective nursing care involves continuous assessment, medication administration, lifestyle counselling, and patient education. Preventive strategies, such as dietary modifications, stress management, and regular monitoring, play main role in long-term control. Nurses play an important role in the holistic management of hypertensive patients. Educating patients on lifestyle changes, adherence to treatment, and self-monitoring is important in preventing complications and promoting better health outcomes.

Key Words: Hypertension, Blood Pressure, Lifestyle Modifications, Risk Factors, Health Promotion, Chronic Illness.

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INTRODUCTION

High blood pressure is a frequent condition that affects the body's arteries. It's also referred to as hypertension. If you have excessive blood pressure, the pressure of the blood pushing towards the artery walls is constantly too high. The heart has to work harder to pump blood. Blood stress is measured in millimetres of mercury (mm Hg). In general, hypertension is a blood pressure analysing of 130/80 mm Hg or higher. The American College of Cardiology and the American Heart Association divide blood pressure into four regular categories. Ideal blood strain is labelled as normal.)

Types of hypertension:

There are several types of hypertension, each with distinct characteristics and causes. Here are some of the main types:

Primary Hypertension

Primary hypertension, also known as essential hypertension, is the most common type of hypertension. It has no identifiable cause and develops gradually over time.

Secondary Hypertension

Secondary hypertension is caused by an underlying medical condition or medication. Some common causes include:

1. *Kidney Disease*: Kidney disease can cause hypertension by reducing the kidneys' ability to filter waste and excess fluids.
2. *Adrenal Gland Tumours*: Tumours on the adrenal gland can cause an overproduction of hormones that lead to hypertension.
3. *Sleep Apnoea*: Sleep apnoea can cause hypertension by reducing oxygen levels in the blood and increasing stress on the body.
4. *Medications*: Certain medications, such as birth control pills, cold medicines, and decongestants, can cause hypertension as a side effect.

Resistant Hypertension

Resistant hypertension is a type of hypertension that does not respond to treatment with standard doses of antihypertensive medications.

Malignant Hypertension

Malignant hypertension is a rare but life-threatening type of hypertension characterized by severely high blood pressure (often above 180/120 mmHg) and damage to organs such as the kidneys, heart, and brain.

White Coat Hypertension

White coat hypertension is a type of hypertension that occurs only in a clinical setting, such as a doctor's office, and is not present in other settings.

Masked Hypertension

Masked hypertension is a type of hypertension that is not present in a clinical setting but is present in other settings, such as at home or work.

Pregnancy-Induced Hypertension

Pregnancy-induced hypertension is a type of hypertension that develops during pregnancy and can increase the risk of complications for both the mother and the baby.

Normal blood pressure. Blood pressure is 120/80 mm Hg or lower.

Elevated blood pressure. The pinnacle number levels from one hundred twenty to 129 mm Hg and the bottom range is below, now not above, 80 mm Hg.

Stage 1 hypertension. The top quantity levels from one hundred thirty to 139 mm Hg or the bottom quantity is between eighty and 89 mm Hg.

Stage 2 hypertension. The top quantity is 140 mm Hg or higher or the backside wide variety is 90 mm Hg or higher.

Blood strain higher than 180/120 mm Hg is considered a hypertensive emergency or crisis. Seek emergency medical help for all of us with these blood stress numbers.

Untreated, high blood stress will increase the danger of coronary heart attack, stroke and other serious health problems. It's vital to have your blood pressure checked at least each and every two years starting at age 18. Some human beings need more-frequent checks.

Healthy lifestyle habits such as not smoking, exercising and eating well can assist prevent and treat high blood pressure. Some people need medication to treat high blood pressure.

Hypertension is always disturbed variable in population. W.H.O survey showed that in India the incidence was once 59.9 and 69.9 per 1000 in males and ladies in urban region and 35.5 and 35.9 per 1000 in males and ladies in rural area.

Complications of Hypertension

There are a variety of complications taking place in hypertension like heart disease, renal disease, arrhythmias and coronary artery disease. Complications of Hypertension are scientific outcomes that end result from chronic elevation of blood pressure. Hypertension is a risk issue for all scientific manifestation of atherosclerosis. It is an impartial predisposing aspect for heart failure, coronary artery disease, stroke, kidney disorder and peripheral artery disease.

Hypertension reason serious harm to the heart. Excessive stress can harden arteries, decreasing the waft of blood and oxygen to the heart. This expanded blood strain and reduced blood drift can cause: chest pain, additionally known as angina Heart attack Heart failure Irregular heartbeat Diagnostic assessment.

Family records

Physical examination

Blood strain monitoring

Complete blood rely

Lab. Investigation

Electrocardiogram

Blood urea nitrogen

Urine evaluation

Management of Hypertension**Lifestyle Modifications**

Weight Management: Keep your BMI in check

Activity: Around 30 mins of aerobics (walking, swimming, etc.)/day

Diet: Follow the DASH diet, which is high in fruits, vegetables and low-fat dairy

Limit biomarker sodium to <2,300 mg/day

Potassium: More bananas, leafy greens, sweet potatoes

Stress Management: Meditate and practice yoga

Sleep: Get 7–8 hours of sleep a day

Pharmacological Management

Diuretics (e.g., furosemide)

Beta-blockers (eg, atenolol)

ACE inhibitors (e.g., captopril)

Calcium channel blockers (eg, diltiazem)

Vasodilators (e.g., nitroglycerin)

Monitoring and Follow-Up

Using blood pressure cuff on time

Regular follow-up with the healthcare providers

Change treatment plans when needed

Nursing Management**Nursing Assessment**

Must Evaluate patient's medical history

Monitor general condition of patient

Regular measurement of blood pressure and vital signs

Nursing Diagnoses

Ineffective health maintenance related to lack of knowledge

Ineffective tissue perfusion related to elevated BP

Acute pain related to altered sensory pathways

Impaired breathing related to disease condition

Knowledge deficit regarding hypertension

Nursing Goals

Needs to maintain blood pressure within normal range, Improve breathing patterns, Enhance nutritional status, Promote overall health and awareness.

Nursing Interventions

Provide a comfortable environment

Maintain intake-output records

Administer prescribed medications

Monitor lab values

Provide emotional and psychological support

Educate about follow-up care

Patient Education

Personal Hygiene

Patient must be encouraged to regular bathing and grooming also maintain nail hygiene

Diet

Patient should be given the DASH diet, increase intake of fruits, leafy greens, and low-fat food and Avoid fatty and high-sodium foods

Stress Management

To manage stress medication must be given and also use relaxation techniques

Recommend lifestyle modifications

Weight Management

Patient must be educated on BMI monitoring and promote regular aerobic exercise

Physical Activity

Recommend morning walks and daily workouts

Avoid:

Must stop excessive sodium and alcohol intake. Also avoid Sedentary lifestyle

Medication Adherence

Educate on the importance of not skipping doses

Review prescriptions before taking medications

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