

University of Baghdad

College of Nursing

Adult Nursing

Nursing Care for Patients with Hypertension

Assis. Instructor Shaymaa Mohammed Hussein



The objectives of nursing care for patients with hypertension focuses on:

1. Lowering and controlling the blood pressure without adverse effects and without undue cost.
2. To achieve these goals:
 - The nurse must support and teach the patient to adhere to the treatment regimen by implementing necessary lifestyle changes.
 - Taking medications as prescribed.
 - Scheduling regular follow-up appointments with the health care provider to monitor progress or identify and treat any complications of disease or therapy.

Hypertension is defined as a systolic blood pressure greater than 140 mm Hg and a diastolic pressure greater than 90 mm Hg based on the average of two or more accurate blood pressure measurements taken during two or more contacts with a health care provider (Chobanian, Bakris, Black, et al., 2003).

Classification of Blood Pressure for Adults Age 18 and Older

BP Classification	Systolic BP/ (mmHg)	Diastolic BP/ (mm Hg)
Normal	120	80
Prehypertension	120 – 139	80 – 89
Stage 1 hypertension	140 – 159	90 – 99
Stage 2 hypertension	160	100

In the total U.S. population of persons with hypertension, 90% to 95% have primary hypertension, high blood pressure from an unidentified cause (Oparil, Zaman & Calhoun, 2003). The remaining 5% to 10% of this group have secondary hypertension, high blood pressure related to identified causes. These causes include narrowing of the renal arteries, renal parenchymal disease, hyperaldosteronism (mineralocorticoid hypertension), certain medications, pregnancy, and coarctation of the aorta (Chiong, Aronow, Khan, et al., 2008).

Hypertension is sometimes called the “silent killer” because people who have it are often symptom free (Ong, Cheung, Man, et al., 2007).

Hypertension often accompanies other risk factors for atherosclerotic heart disease, such as dyslipidemia (abnormal blood fat levels), obesity, diabetes mellitus, metabolic syndrome, and a sedentary lifestyle. The prevalence is also higher in persons who have other cardiovascular conditions including heart failure, coronary artery disease, and a history of having had a stroke (Ong, et al., 2007). Cigarette smoking does not cause high blood pressure; however, if a person with hypertension smokes, his or her risk of dying from heart disease or related disorders increases significantly (Baliunas, Patra, Rehm, et al., 2007).

High blood pressure can be viewed in three ways: as a sign, a risk factor for atherosclerotic cardiovascular disease, or a disease. As a sign, nurses and other health care professionals use blood pressure to monitor a patient's clinical status. Elevated pressure may indicate an excessive dose of vasoconstrictive medication or other problems. As a risk factor, hypertension contributes to the rate at which atherosclerotic plaque accumulates within arterial walls. As a disease, hypertension is a major contributor to death from cardiac, cerebrovascular, renal, and peripheral vascular disease.

Hypertension = cardiac output (CO) x peripheral resistance (PR) (Lieberman, E. & Neal, W. (2006). Kaplan's clinical hypertension (9th ed.). Philadelphia: Lippincott Autoregulation Williams & Wilkins).

Major Risk Factors

- Smoking
- Dyslipidemia (elevated LDL [or total] cholesterol and/or low HDL cholesterol)
- Diabetes mellitus
- Impaired renal function (GFR) (60 mL/min and/or micro albuminuria)
- 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

Clinical Manifestations

By physical examination may reveal:

- ▶ Elevated blood pressure.
- ▶ Occasionally, retinal changes such as hemorrhages, exudates (fluid accumulation).
- ▶ Arteriolar narrowing, and cotton-wool spots (small infarctions) occur.
- ▶ In severe hypertension, papilledema (swelling of the optic disk) may be seen.
- ▶ Coronary artery disease with angina and myocardial infarction are common consequences of hypertension.
- ▶ Left ventricular hypertrophy occurs in response to the increased workload placed on the ventricle as it contracts against higher systemic pressure.
- ▶ When heart damage is extensive, heart failure follows.
- ▶ Pathologic changes in the kidneys (indicated by increased blood urea nitrogen [BUN] and serum creatinine levels) may manifest as nocturia.
- ▶ Cerebrovascular involvement may lead to a stroke or transient ischemic attack (TIA), manifested by alterations in vision or speech, dizziness, weakness, a sudden fall, or transient or permanent paralysis on one side (hemiplegia).
- ▶ Cerebral infarctions account for most of the strokes and TIAs in patients with hypertension.

Assessment and Diagnostic Findings

A thorough health history and physical examination are necessary. The retinas are examined and laboratory studies are performed to assess possible target organ damage. Routine laboratory tests include:

- Urinalysis.
- Blood chemistry (ie, analysis of sodium, potassium, creatinine, fasting glucose, and total and high-density lipoprotein [HDL] cholesterol levels).
- A 12-lead electrocardiogram (ECG).
- Left ventricular hypertrophy can be assessed by echocardiography.

Renal damage may be suggested by elevations in BUN and creatinine levels or by microalbuminuria or macroalbuminuria.

Additional studies, such as creatinine clearance, renin level, urine tests, and 24-hour urine protein, may be performed.

Nursing Interventions

- ▶ Increasing knowledge through:
 - ▶ The patient needs to understand the disease process and how lifestyle changes and medications can control hypertension.
 - ▶ The nurse needs to emphasize the concept of controlling hypertension rather than curing it.
 - ▶ The nurse can encourage the patient to consult a dietitian to help develop a plan for improving nutrient intake or for weight loss.
 - ▶ The program usually consists of restricting sodium and fat intake, increasing intake of fruits and vegetables, and implementing regular physical activity.
 - ▶ Explaining that it takes 2 to 3 months for the taste buds to adapt to changes in salt intake may help the patient adjust to reduced salt intake.
 - ▶ The patient should be advised to limit alcohol intake, and tobacco should be avoided because anyone with high blood pressure is already at increased risk for heart disease, and smoking amplifies this risk.
 - ▶ Support groups for weight control, smoking cessation, and stress reduction may be beneficial for some patients; others can benefit from the support of family and friends.

- ▶ Allowed to teach each person screened what the blood pressure numbers mean. Each person should be given a written record of his or her blood pressure at the screening.
- ▶ The patients should be advised to have an adequate supply of medication. If they are traveling by airplane, they should pack the medication in their carry-on luggage.
- ▶ Both female and male patients should be informed that some medications, such as beta-blockers, may cause sexual dysfunction.
- ▶ The nurse can encourage and teach patients to measure their blood pressure at home. This practice involves patients in their own care and emphasizes that failing to take medications may result in an identifiable rise in blood pressure.
- ▶ Patients need to know that blood pressure varies continuously and that the range within which their pressure varies should be monitored.
- ▶ The nurse assists the patient to develop and adhere to an appropriate exercise regimen, because regular activity is a significant factor in weight reduction and a blood pressure-reducing intervention in the absence of any loss in weight (Chobanian, et al., 2003).

Monitoring and Managing Potential Complications

The hypertension is progressing to the extent that target organ damage is occurring must be detected early so that appropriate treatment can be initiated.

When the patient returns for follow-up care, all body systems must be assessed to detect any evidence of vascular damage.

An eye examination with an ophthalmoscope is particularly important because retinal blood vessel damage indicates similar damage elsewhere in the vascular system. The patient is questioned about blurred vision, spots in front of the eyes, and diminished visual acuity.

The heart, nervous system, and kidneys are also carefully assessed. Any significant finding are promptly reported to determine whether additional diagnostic studies are required. Based on the findings, medications may be changed to improve blood pressure control.

References

- Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7)
- Oparil, S., Zaman, M. A. & Calhoun, D. A. (2003). Pathogenesis of hypertension. *Annals of Internal Medicine*, 139(9), 761–776.
- Chiong, J. R., Aronow, W. S., Khan, I. A., et al. (2008). Secondary hypertension: Current diagnosis and treatment. *International Journal of Cardiology*, 124(1), 6–21.
- Baliunas, D., Patra, J., Rehm, J., et al. (2007). Smoking-attributable mortality and expected years of life lost in Canada 2002: Conclusions for prevention and policy. *Chronic Disease in Canada*, 27(4), 154–162.
- Kaplan's clinical hypertension (9th ed.). Philadelphia: Lippincott Auto regulation Williams & Wilkins.
- Chobanian, A. V., Bakris, G. L., Black, H. R., et al. (2003). The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: The JNC 7 Report (erratum in: *Journal of the American Medical Association*, 2003; 290(2), 197). *Journal of the American Medical Association*, 289(19), 2560–2572.
- Ong, K. L., Cheung, B. M., Man, Y. B., et al. (2007). Prevalence, awareness, treatment, and control of hypertension among United States adults 1999–2004. *Hypertension*, 49(1), 69–75.
- Pickering, T. G., Hall, J. E., Appel, L. J., et al. (2005). Recommendations for blood pressure measurement in humans and experimental animals: Part 1: Blood pressure measurement in humans: A statement for professionals from the Subcommittee of Professional and Public Education of the American Heart Association Council on High Blood Pressure Research. *Hypertension*, 45(1), 142–161.