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Hypertension-A Global Epidemic

Marie Tanyi

tanyi1@otterbein.edu

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Hypertension - A Global Epidemic

Marie Tanyi, BSN, RN
Otterbein University, Westerville, Ohio

Introduction: Hypertension

- Hypertension is the leading cause of cardiovascular disorders globally (Akber et al., 2021).
- Clinically, it is a disorder consistent with sustained elevation of systemic blood pressure (McCance & Huether, 2019).
- Hypertension is estimated to cause 7.5 million deaths worldwide, with about 12.8% of the total of all deaths (World Health Organization, 2022).
- A global target for non-communicable diseases is to decrease the prevalence of hypertension by 33% between 2010 and 2030 (World Health Organization, 2022).

Why Consider Hypertension?

- Hypertension is a complex multifactorial disease considered to be one of the most prevalent disorders in the modern world (Patni et al., 2022).
- Its risk factors and pathophysiological development are interrelated, and this pertains to environmental factors, age, stress, diet, sedentary behaviors, genetics, cardiac output, smoking, peripheral resistance, renin-angiotensin, aldosterone system, and insulin resistance are all contributing factors in the development of hypertension (Asiri et al., 2020).
- Hypertension is considered the silent killer because it often goes unrecognized and an estimated 46% of people are unaware that they have the condition (World Health Organization, 2022).
- Hypertension remains a landmark in clinical settings and effectively managing hypertension has proven to reduce cardiovascular diseases, associated complications, and deaths (Akber et al., 2021)
- As a healthcare professional, hypertension must be taken seriously, with all necessary interventions established to evaluate, manage and control hypertension regularly.

Pathophysiological Processes

Signs and Symptoms

- Signs and symptoms of hypertension are usually not specific thus the delay in diagnosis is very common.
- Hypertension symptoms include headache, nosebleeds, irregular heart rhythms, visual changes, and buzzing ears (World Health Organization, 2022).
- Severe symptoms of hypertension can cause fatigue, nausea, vomiting, confusion, anxiety, chest pain, and muscular tremors (World Health Organization, 2022).
- Measuring high blood pressure is quick and painless, and it is advisable to have a healthcare professional measure blood pressure.
- Evaluating high blood pressure is important for assessing risk factors and associated conditions.
- A single elevated blood pressure does not mean that a person has hypertension. The diagnosis of hypertension requires at least two separate occasions averaging two readings at least two minutes apart, with the individual seated, arm supported at heart level after five minutes rest with no smoking or caffeine intake in the past 30 minutes (McCance & Huether, 2019).

Underlying Pathophysiology

- Hypertension is a condition with interrelated pathophysiological processes. It is caused by either increase in cardiac output or total peripheral resistance or both (McCance et Huether, 2019).
- Several factors affect cardiac output and total peripheral resistance. They include insulin resistance, sustained systemic vasoconstriction, renal salt, and water retention, obesity, inflammation, dysfunction of the sympathetic nervous system (SNS), renin-angiotensin-aldosterone (RAA) system, and natriuretic hormones (McCance & Huether, 2019).
- Hypertension is classified into primary and secondary hypertension. Primary hypertension is caused by a complication of genetic and environmental factors while secondary hypertension is related to an underlying disease process that raises peripheral vascular resistance or cardiac output (McCance & Huether, 2019).

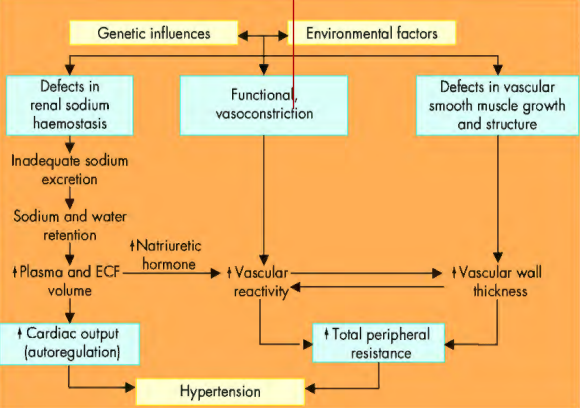


Figure 1: Pathophysiology of hypertension (McCance & Huether, 2019)

Significance of Pathophysiology

- To understand hypertension, one must comprehend its pathophysiological processes.
- In primary hypertension, the sympathetic nervous system (SNS), renin-angiotensin-aldosterone (RAA) system, natriuretic peptides, obesity, inflammation, and insulin resistance all contribute to an increase in peripheral resistance and increase in blood volume (McCance & Huether, 2019).
- Increased vascular volume leads to a decrease in renal salt excretion, thus water retention (McCance & Huether, 2019).
- In hypertensive individuals, overactivity of SNS causes an increase in heart rate and systemic vasoconstriction, thus rising blood pressure as compared to healthy individuals whereby the SNS contributes to the maintenance of adequate blood pressure, promotes tissue perfusion and cardiac contractility (McCance & Huether, 2019).
- In heavily active individuals, the RAA system maintains tissue perfusion and adequate blood pressure through a homeostatic mechanism while in hypertensive individuals, salt and water retention from overactivity of the RAA system leads to increased vascular resistance.
- The brain angiotensin II enhances sympathetic neural outflow and alters the release of hormones that contribute to endothelial dysfunction, insulin resistance, and dyslipidemia, whereas, in people with hypertension, angiotensin II is associated with a permanent increase in peripheral resistance, end-organ effects of hypertension, atherosclerosis, renal disease, cardiac hypertrophy (McCance & Huether, 2019).



Figure 2: Effects of hypertension (Team, 2020)

Complications

- Hypertension is the major cause of cardiovascular disorders and mortality (World Health Organization, 2022).
- Complicated hypertension changes the wall of the systemic blood vessels thus reducing blood flow and lack of organ perfusions (McCance & Huether, 2019).
- Targeted organs of complicated hypertension include the kidney, brain, heart, extremities, and eyes (Akber et al., 2021).
- Other cardiovascular complications of hypertension include angina pectoris, congestive heart failure due to left ventricular hypertrophy, coronary artery disease (CAD), myocardial infarction, and sudden death (Akbar et al., 2021).

Treatments

- The management of hypertension is multifactorial, and its treatments depend on its severity (Eenu et al., 2021).
- Hypertension treatment begins with reducing or eliminating risk factors, lifestyle modifications, screenings, pharmacological interventions, behavioral counseling, and routine follow-ups (Kumar et al., 2019).
- Compliance is a significant component to slow down the disease progression and delay the onset of complications (Kumar et al., 2019).
- Increased physical activity has proven to increase stroke volume which in turn lowers heart rate and hence systolic blood pressure (McCance & Huether, 2019).

Nursing Implications

- Hypertension is considered the most common primary diagnosis in the United States and data shows that one in three adults older than 20 years of age has hypertension (McCance & Huether, 2019)
- For nurses and advanced practitioners, it is imperative to evaluate individuals at risk of hypertension by performing a complete medical history, assessment of lifestyle, and other risk factors (McCance and Huether, 2019)
- Nurses and advanced practitioners should display a high level of clinical expertise and understanding of the disease process to be able to carefully evaluate the patients (McCance & Huether, 2019)
- Eenu et al. (2021) call upon nurses and advanced practitioners to curb the spread of hypertension in the community through awareness programs, treatment compliance, and improved interactions between nursing officials and policymakers.

Conclusion

- The enormous global health burden of hypertension creates awareness to include a multi-component approach in the management and improvement of cardiovascular health (Akber et al., 2021).
- It is essential for blood pressure to be checked regularly because most people with hypertension are unaware of the problem (WHO, 2022).
- The prompt recognition and diagnosis of hypertension are vital to begin treatment and promote life-saving measures.
- It is imperative for individuals to reduce the hypertensive burden by reducing salt intake, avoiding stress, avoiding smoking, increasing exercise, eating healthy, checking blood pressure regularly, and following up with their care providers.

References

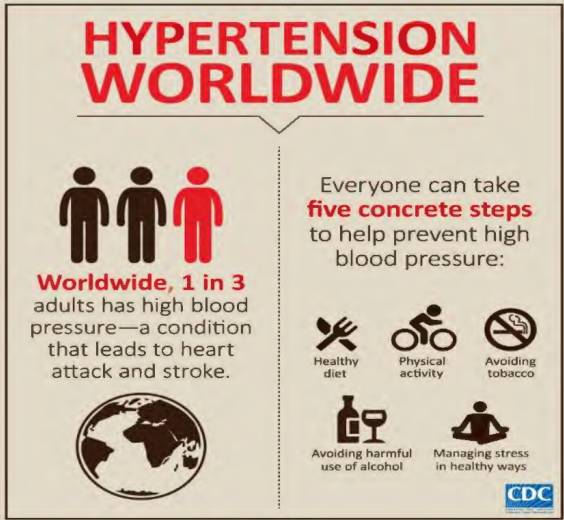


Figure 3: How to Mitigate Hypertension (Mahan, 2020)