

Silent Pressure: A Comprehensive Clinical Review of Hypertension and Its Systemic Impact

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Rapid Communication

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ABSTRACT

Hypertension is one of the most prevalent chronic diseases worldwide and a leading contributor to cardiovascular morbidity and mortality. Often asymptomatic, it progresses silently and results in severe complications such as stroke, myocardial infarction, and renal failure. This article provides a detailed clinical overview of hypertension, including its etiology, pathophysiology, clinical features, diagnostic strategies, and management approaches. Emphasis is placed on early detection, lifestyle modification, and pharmacological therapy to reduce long-term complications[1].

Keywords

Hypertension, Blood pressure, Cardiovascular disease, Antihypertensive therapy, Systemic Complications

INTRODUCTION

Hypertension, commonly known as high blood pressure, is a chronic condition characterized by persistently elevated arterial pressure. It is a major public health challenge affecting over one billion people globally. Despite its high prevalence, many individuals remain undiagnosed due to the absence of early symptoms. Hypertension is strongly associated with cardiovascular diseases, stroke, and kidney dysfunction, making its early identification and management crucial[2].

Etiology and Risk Factors

Hypertension is broadly classified into primary (essential) and secondary hypertension. Primary hypertension accounts for the majority of cases and develops gradually due to genetic and environmental factors. Secondary hypertension

arises due to identifiable causes such as renal disease, endocrine disorders, or medication use.

Major risk factors include obesity, sedentary lifestyle, high salt intake, smoking, alcohol consumption, and family history. Socio-economic factors and stress also contribute significantly.

Pathophysiology

The pathophysiology of hypertension involves complex interactions between the cardiovascular, renal, and endocrine systems. Increased peripheral vascular resistance plays a central role. Activation of the renin-angiotensin-aldosterone system (RAAS) leads to vasoconstriction and sodium retention, thereby increasing blood pressure. Endothelial dysfunction and inflammation further contribute to vascular changes. Over time, these mechanisms result in structural damage to blood vessels and target organs[3].

Clinical Manifestations

Hypertension is often asymptomatic in its early stages. However, when symptoms occur, they may include headache, dizziness, blurred vision, and fatigue. In severe cases, patients may experience chest pain, shortness of breath, or nosebleeds. Chronic uncontrolled hypertension leads to complications such as left ventricular hypertrophy, coronary artery disease, stroke, and chronic kidney disease.

Diagnosis

Diagnosis of hypertension requires accurate measurement of blood pressure using standardized techniques. Multiple readings over different visits are recommended. A blood pressure reading of $\geq 130/80$ mmHg is considered hypertensive. Additional investigations include blood tests, lipid profile, renal function tests, and electrocardiography to assess target organ damage.

Management

Management of hypertension involves both non-pharmacological and pharmacological approaches.

Lifestyle modifications include reducing salt intake, maintaining a healthy weight, engaging in regular physical activity, limiting alcohol consumption, and quitting smoking. Stress management techniques also play an important role.

Pharmacological treatment includes ACE inhibitors, angiotensin receptor blockers, calcium channel blockers, beta-blockers, and diuretics. The choice of medication depends on patient-specific factors and comorbid conditions[5].

CONCLUSION

Hypertension is a silent but potentially life-threatening condition. Early detection, regular monitoring, and adherence to treatment are essential to prevent complications. A combination of lifestyle changes and appropriate medication can effectively control blood pressure and improve patient outcomes.

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