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Beyond Blood Sugar: A Clinical Perspective on Diabetes Mellitus and Its Multisystem Complications

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Short Communication

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ABSTRACT

Diabetes mellitus is a chronic metabolic disorder characterized by persistent hyperglycemia resulting from defects in insulin secretion, insulin action, or both. It is associated with long-term complications affecting multiple organ systems. This article reviews the etiology, pathophysiology, clinical presentation, diagnosis, and management of diabetes, with a focus on improving patient outcomes[1].

Keywords

Diabetes mellitus, Hyperglycemia, Insulin resistance, Metabolic disorder, Glycemic control

INTRODUCTION

Diabetes mellitus is one of the most common non-communicable diseases worldwide. Its prevalence has increased significantly due to urbanization[2], lifestyle changes, and aging populations. The disease is classified into type 1, type 2, and gestational diabetes, with type 2 being the most prevalent.

Etiology and Risk Factors

Type 1 diabetes results from autoimmune destruction of pancreatic beta cells. Type 2 diabetes is primarily caused by insulin resistance and impaired insulin secretion.

Risk factors include obesity, physical inactivity, unhealthy diet, genetic predisposition, and advancing age. Environmental and socioeconomic factors also contribute.

Pathophysiology

In type 2 diabetes, insulin resistance leads to decreased glucose uptake in peripheral tissues, while increased hepatic glucose production contributes to hyperglycemia. Over time, pancreatic beta-cell dysfunction worsens, leading to progressive disease[3].

Clinical Manifestations

Common symptoms include polyuria, polydipsia, polyphagia, and unexplained weight loss. Fatigue and blurred vision are also frequent. Chronic complications include neuropathy, nephropathy, retinopathy, and cardiovascular disease.

Diagnosis

Diagnosis is based on laboratory criteria such as fasting plasma glucose ≥126 mg/dL, HbA1c ≥6.5%, or random glucose ≥200 mg/dL. Early screening is important in high-risk individuals[4,5].

Management

Management includes lifestyle modification and pharmacological therapy.

Lifestyle changes involve dietary control, weight management, and regular physical activity.

Pharmacological treatment includes metformin as first-line therapy, along with other oral hypoglycemic agents and insulin therapy

when required.

CONCLUSION

Diabetes mellitus requires lifelong management. Early diagnosis, patient education, and adherence to treatment are essential to prevent complications and improve quality of life

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