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THE RELATIONSHIP BETWEEN OBESITY AND DIABETES

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ARTICLE INFORMATION

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ABSTRACT:

Obesity and diabetes are among the most significant public health challenges worldwide. Numerous clinical and epidemiological studies demonstrate a strong relationship between excess body weight and the development of type 2 diabetes mellitus. Obesity, especially visceral fat accumulation, contributes to insulin resistance, impaired glucose metabolism, and chronic inflammation. These pathological mechanisms increase the risk of hyperglycemia and metabolic syndrome. Understanding the relationship between obesity and diabetes is important for prevention, early diagnosis, and effective treatment strategies. Lifestyle modification, including balanced diet, physical activity, and weight control, plays a crucial role in reducing the risk of diabetes and improving overall health outcomes.

Introduction

Obesity is defined as excessive accumulation of body fat that negatively affects health. Diabetes mellitus is a chronic metabolic disorder characterized by elevated blood glucose levels due to insufficient insulin secretion or insulin resistance. The prevalence of both obesity

and diabetes has increased significantly over recent decades, making them major global health concerns.

Research shows that obesity is one of the primary risk factors for type 2 diabetes. Excess adipose tissue influences hormonal balance and reduces insulin sensitivity, leading to impaired glucose utilization in tissues.

2. Obesity: Causes and Risk Factors

2.1. Causes of Obesity

Obesity develops as a result of imbalance between energy intake and energy expenditure.

Main causes:

Excessive consumption of high-calorie food

Low physical activity

Genetic predisposition

Hormonal imbalance

Sedentary lifestyle

Psychological factors

2.2. Body Mass Index (BMI)

Body mass index is commonly used to assess obesity.

BMI classification:

Normal weight: 18.5–24.9

Overweight: 25–29.9

Obesity: ≥30

High BMI is strongly associated with increased risk of metabolic diseases.

3. Diabetes Mellitus

Diabetes mellitus is a chronic disease characterized by hyperglycemia resulting from defects in insulin secretion or insulin action.

Types of diabetes

Type 1 diabetes (autoimmune destruction of pancreatic beta cells)

Type 2 diabetes (insulin resistance and relative insulin deficiency)

Gestational diabetes

Type 2 diabetes is strongly associated with obesity.

Symptoms of diabetes

Increased thirst (polydipsia)

Frequent urination (polyuria)

Increased hunger (polyphagia)

Fatigue
Blurred vision
Slow wound healing

4. Pathophysiological Relationship Between Obesity and Diabetes

Obesity plays a major role in development of insulin resistance. Excess adipose tissue releases inflammatory cytokines and hormones that interfere with insulin signaling pathways.

Mechanisms linking obesity to diabetes
Increased fatty acids in blood
Chronic inflammation
Hormonal imbalance (leptin, adiponectin)
Decreased insulin sensitivity
Pancreatic beta-cell dysfunction

Visceral fat accumulation is particularly dangerous because it strongly affects glucose metabolism and increases risk of type 2 diabetes.

5. Complications Associated with Obesity and Diabetes

Both conditions may lead to serious health complications:
Cardiovascular diseases
Hypertension
Dyslipidemia
Neuropathy
Nephropathy
Retinopathy
Stroke

Combination of obesity and diabetes significantly increases morbidity and mortality.

6. Prevention and Management

6.1. Healthy Diet

Corpuscular elements of blood are essential components of the circulatory system. Their structure and functions ensure oxygen delivery, immune protection, and prevention of blood loss. Any changes in number or structure of blood cells may indicate pathological conditions. Therefore, understanding the morphology and physiology of erythrocytes, leukocytes, and platelets is important for medical practice and diagnosis of hematological diseases.

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