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THE RELATIONSHIP BETWEEN OBESITY AND DIABETES

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ABSTRACT:

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This article hightlights the principles of functioning and sturcture of tissues in the human body , the relationship between obesity and diabetes , their sturctural unity , similarities , functions , and harmful effects . in addition , the role of obesity and diabetes in supporting the activity of organs and organ systems is analyzed .

Obesity and diabetes are among the most pressing global health problems of the 21 st century. According to the World Health Organization, obesity rates are increasing every year and are a major risk factor for the development of many chronic diseases, is often closely associated with obesity, and their coexistence is also referred to as “diabesity”.

Scientific studies show that excess fat accumulation causes metabolic dissorters in the body, which leads to impaired insulin function. Today, more that 1 million people worldwide are obese. According to the World Health Organization (WHO) and the International

Diabetes Federaction (IDF), more than 90% of people with type 2 diabetes are overweight or obese. Epidemiological situation – According to the 2024 report, and estimated 589 million adults worldwide are living with diabetes. Studies show that increasing body mass index (BMI) the risk of developing diabetes increases by 7% to 70% in men and by 12% to 74 % in women. In particular, the risk of developing diabetes remains high, despite relatively low BMI levels in the Asian region.

The study examined the dietary habits, level of physical activity, lifestyle, risk factors, and obesity on the lifestyle of patiens with type 2 diabetes mellitus. The quality of nutrition was assessed through hygienic evaluation of the patients nutritional status. A total of 60 patients were included in the study, consisting of 60 patients were included in the study, consisting of 40 female and 20 male patients aged between 35 and 70 years. Additionally, patients With cancer, allergic diseases, as well as pregnant and breastfeeding women were not included in the study. A questionnaire survey was conducted among the patients to assess their anthropometric measurements, BMI, physical activiivy, and the extent of healthy eating habits. During the study, it was found that many patients suffered from a sedentary lifestyle, unhealthy diet, and excess body weigt.

Obesity is defined by the excessive accumulation of body fat exceeding healthy standarts, often measured by body mass index (BMI) over 30 kg/m². Its prevalence has increased dramatically worldwide, making it a core risk factor for multiple chronic diseases, particulary type 2 diabetes mellitus. In individualis with obesity, adipose tissue acts not only as an energy reservoir but also as an endocrine organ, secreting hormones and inflammatory mediators that alter metabolic processes.

Type 2 diabets mellitus (T2DM) is a chronic metabolic disease defined by persistent hyperglycemia resulting from the body's reduced ability to respond to insulin or inadequate insulin secretion. The pathogenesis of T2DM involves insulin resistance – especially in muscle and adipose tissue – and progressive pancreatic β - cell dysfunction. Adipose tissue dysfunction – in obesity, adipose tissue undergoes hypertrophy and functional and functional impairment, disrupting normal endocrine and metabolic activities. Dysfunctional addopocytes release increased amounts of free fatty acids, glycerol, and pro-inflammatory cytokines (TNF- α , IL-6), which interfe with insulin signaling pathways. This process contributes to systemic insulin resistance by reducing glucose uptake and altering lipid metabolism in skeletal muscle and liver tissues.

Obesity and T2DM are often accompanied by other metabolic and cardiovascular conditions, including dyslipidemia, hypertension, and non-alcoholic fatty liver

disease (NAFLD). Central (visceral) fat distribution- in contrast to peripheral subcutaneous fat - is more strongly linked to insulin resistance and cardiovascular risk, highlighting the importance of body fat patterning in disease progression. Given the tight interrelationship between obesity and insulin resistance, effective prevention and treatment strategies must target lifestyle factors (dietary modifications, increased physical activity) alongside therapeutic approaches that improve insulin sensitivity. Early detection of risk factors and public health interventions are critical to reducing the global burden of obesity-related T2DM and associated complications. Research shows that where fat is located on the body is more important than total weight . Increased waist circumference (visceral obesity) is an independent risk factor for developing diabetes, even in cases where BMI is normal.

Modern medicine relies on the principle of “ managing diabetes through weight loss”:

1. Weight loss: A reduction of just 5 – 10 % of body weight can significantly improve metabolic performance and, in some cases, lead to diabetes remission (relapse of the disease).

2. Physical activity: Regular exercise activates insulin receptors in muscles.

2. Pharmacotherapy : In recent years, drugs such as GLP – 1 receptor agonists have shown high efficacy in both weight loss and blood sugar control.

Conclusion:

Obesity and type 2 diabetes are deeply interconnected through metabolic dysfunction mechanisms – particularly adipose tissue dysfunction, inflammation, and insulin resistance. Understanding these processes is essential for prevention and treatment. Approaches combining lifestyle interventions with targeted therapeutics may offer the most effective strategy for addressing the rising global prevalence of these conditions . Obesity not only causes diabetes, but also accelerates its complications (cardiovascular disease, kidney failure). Therefore, weight control is considered the “gold standard “of diabetes prevention. There is a strong, scientifically proven link between obesity and diabetes. Obesity causes insulin resistance in the body, which is a major mechanism for the development of type 2 diabetes. Modern scientific research shows that diabetes can be prevented and controlled by reducing obesity. Therefore, developing a healthy lifestyle is the most effective way to combat obesity and diabetes.

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