

Prof.Dr. Cemşid Demiroğlu | The interrelationship between insulin secretion and action in type 2 diabetes mellitus with different degrees of obesity: evidence supporting central obesity.

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This paper investigates the relative role of the impairment of insulin secretion and action in the pathogenesis of Type 2 diabetes mellitus (T2DM). The parameters indicating insulin secretion and action were calculated from the data obtained during oral glucose tolerance test (OGTT), in 156 age- and sex-matched T2DM patients divided in 4 groups according to their body mass index (BMI, I = 20.0-24.9, II = 25.0-29.9, III = 30.0-39.9 and IV > 40.0 kg/m²). After obtaining baseline biomedical parameters (plasma glucose, serum insulin, cholesterol, HDL-cholesterol, triglycerides, BMI, and amount of fat tissue), the rates of insulin secretory capacity and insulin action were obtained from OGTT and compared between the T2DM patients with normal body weight and different grades of obesity. Beta-cell secretory capacity of the participants was found to be proportionally and significantly higher in graded obese than that of the normal body weight patients. The rates of hepatic as well as peripheral insulin resistance in obese groups proportionally and significantly rise in comparison with that of non-obese diabetics. In addition, these parameters are shown to be related to the body fat, presumably visceral in origin. In conclusion, hyperglycemia-hyperinsulinemia observed in obese and T2DM patients might be due, in part, to increased capacity of insulin secretion, and to exaggerated hepatic glucose production because of hepatic insulin resistance, respectively.

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