

A Study on Serum Omentin-1 Levels in Normoglycemic First Degree Relatives of Type 2 Diabetic Patients

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Abstract

Introduction: Type 2 diabetes mellitus (T2DM) is a global metabolic disease characterized by impaired insulin secretion from pancreatic cells and insulin resistance (IR) in liver, muscle and adipose tissue, in the presence of appropriate environmental factors. Insulin is a key regulator of glucose homeostasis. IR leads to impaired glucose tolerance, and has an important role in the development of metabolic syndrome. Recently, a new protein called omentin has been identified as a novel specific adipokine in human adipose tissue, which could have a possible role in modulating insulin action. The physiological role of omentin in glucose metabolism, omentin's target tissues, receptors or relevant signal transduction pathways still not clear. The purpose of the present study is to evaluate serum omentin-1 levels in normoglycemic First Degree Relatives (FDR) of Type 2 diabetic patients compared with the controls.

Methodology: A total of 96 study participants were enrolled in the present study. Among them, 48 were FDRs of T2DM patients and remaining were age and sex matched healthy controls. Body mass index (BMI), waist circumference and biochemical parameters like, FBS, serum cholesterol, triglycerides and serum omentin-1 levels were measured in subjects and age matched controls. The subjects with endocrine disorders, cardiovascular diseases, hepatic or renal dysfunction were excluded.

Study design: Cross sectional comparative study.

Statistical Analysis: All values were expressed as mean \pm SD. The results obtained were analyzed statistically using the unpaired student t-test to evaluate the significance of differences between the mean values. In all the cases probability value of $p < 0.05$ will be considered as significant.

Results and Discussion: The present study observations were in accordance with other studies which suggest that omentin may be a positional candidate gene for type 2 diabetes susceptibility in humans. It also demonstrated that plasma omentin-1 levels were significantly decreased in obesity and diabetes and the circulating omentin-1 levels were lower in FDRs than the controls. To conclude, the current study demonstrated the significant difference in mean serum omentin-1 levels in normoglycemic first degree relatives of type 2 diabetes patients when compared with the controls.

Keywords: Diabetes, Insulin, Omentin-1.