

The correlation between serum omentin-1 levels and insulin resistance in type 2 diabetic women

Nehal Hamdy El-Said[1], Noha Adly Sadik[1], Sherry Elisha Mata[1], Nagwa Abd El- Ghaffar Mohamed[2]

1 Department of Internal Medicine, Faculty of Medicine, Cairo University, Egypt

2 Department of Clinical and Chemical Pathology, National Research Center, Cairo, Egypt

Abstract

Adipose tissue has been known as a source of a variety of bioactive peptides called adipokines. Recently, a new protein omentin-1 (also named intelectin-1, endothelial lectin and intestinal lactoferrin receptor) has been identified as a major visceral (omental) fat secretory adipokine. Omentin is highly and selectively expressed in visceral adipose tissue relative to subcutaneous adipose tissue and together with visceral obesity play important roles in carbohydrate and lipid metabolism, homeostasis, insulin resistance, diabetes and cardiovascular function. Insulin resistance links nutrition, glucose, insulin and adipokines in various metabolic important tissues. While omentin is highly expressed in human visceral fat tissue, circulating omentin levels are reduced in obese subjects. Omentin is also down-regulated in association with obesity- linked metabolic disorders including insulin resistance, glucose intolerance and type 2 diabetes. The aim from our study was to increase our knowledge about omentin-1 and its relationship with type 2 diabetes mellitus, insulin resistance and obesity. The study included 60 female patients with type 2 diabetes mellitus with their age group (40-60). 30 aged matched female subjects formed the control group. All subjects were subjected to full clinical

examination, body weight, height, BMI, waist and hip circumference**,** fasting plasma glucose, fasting insulin, fasting serum lipid profile, HbA1c and fasting omentin-1 levels. Insulin resistance was calculated as HOMA-IR. We found the serum Omentin-1 significantly lower in cases as compared to control group (**p value <0.001)**. We also found that plasma omentin-1 is inversely related to obesity (negatively correlated to BMI, weight, waist and hip circumference). A statistically significant positive correlation between weight, BMI, waist, hip circumference, fasting glucose, HbA1c, insulin and insulin resistance within cases were detected in our study. In our study, the ROC curve analysis showed that the cutoff value of serum omentin-1 levels was 22.2 pg/mL (yielding sensitivity and specificity values of 100.0% for both). These results emphasize the usefulness of the discriminant ability of plasma omentin -1 to differentiate between cases (who were obese and having high insulin resistance) & controls. Our study showed that omentin-1 levels are low in type 2 diabetic and insulin resistant females. We also found that plasma omentin-1 is inversely related to obesity (BMI, weight, waist and hip circumference).

Keywords: Omentin-1, Insulin resistance, type 2 diabetes, obesity, female.

Sherry Elisha Mata has completed her master degree in internal medicine at the age of 28 years from Cairo University, Egypt. Currently studying her PHD at faculty of medicine, Cairo University, Egypt. She is distant learner studying her postgraduate diabetes diploma from Cardiff University, England. She finished her residency program in internal medicine in Cairo University. She is an assistant lecturer in Cairo University since 2012 till present.

Full name: Sherry Elisha Fayez Mata Wasaf
Contact number: 01222907210
Linked in account: Sherry Elisha Fayez Mata Wasaf
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