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ORIGINAL ARTICLES

Serum Total Adiponectin Is Associated with Impaired Glucose Tolerance in Asian Indian Females but Not in Males

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Abstract

Objective:

Adiponectin may play a role in the development of type 2 diabetes and cardiovascular disease (CVD). However, little is known about the relationship between adiponectin and impaired glucose tolerance (IGT). We investigated the association between adiponectin and IGT and between adiponectin and cardiovascular risk factors among subjects with IGT.

Research Design and Methods:

Subjects with normal glucose tolerance (NGT)(n = 571) and impaired glucose tolerance (n = 167) were recruited from the Chennai Urban Rural Epidemiology Study in south India. Serum total adiponectin levels were measured using a radioimmunoassay (Linco Research, St. Charles, MO). High sensitivity C-reactive protein (hsCRP) was estimated by nephelometry.

Results:

In sex-stratified analyses, adiponectin was significantly associated with IGT in females [odds ratio (OR): 0.93, 95% confidence interval (CI): 0.872–0.991, p = 0.026] after controlling for age, waist circumference, blood pressure, alcohol consumption, smoking, lipid profile, and glycemic indices; in males there was no significant association (OR = 0.90, 95% CI: 0.798–1.012, p = 0.078). In prediabetic females, adiponectin was not associated with any CVD risk factors (age, waist circumference, blood pressure, cholesterol, triglyceride, high-density lipoprotein, low-density lipoprotein, fasting glucose, fasting insulin, and insulin resistance level), but was associated negatively with 2-hour postplasma glucose levels (r = –0.243, $p < 0.05$) and hsCRP (r = –0.219, $p < 0.05$) after adjusting for demographic and biomedical indices. No associations with CVD risk factors were observed in males with IGT.

Conclusion:

Serum total adiponectin levels are associated with IGT, 2-hour postplasma glucose, and hsCRP in Asian Indian females but not in males.

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Abbreviations: (BMI) body mass index, (CI) confidence interval, (CURES) Chennai Urban Rural Epidemiology Study, (CVD) cardiovascular disease, (HbA1c) glycated hemoglobin, (HDL) high-density lipoprotein, (HOMA-IR) homeostasis model assessment–insulin resistance, (hsCRP) high sensitivity C-reactive protein, (IGT) impaired glucose tolerance, (LDL) low-density lipoprotein, (NGT) normal glucose tolerance, (OR) odds ratio

Keywords: adiponectin, Asian Indians, female, impaired glucose tolerance

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