

Abstract

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Adiponectin independently predicts metabolic syndrome in overweight Latino youth.

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CONTEXT: Adiponectin may be important in the pathogenesis of insulin resistance and the metabolic syndrome in youth.

OBJECTIVE: The objective of the study was to determine the unique effect of adiponectin on the metabolic syndrome in overweight Latino youth.

PARTICIPANTS: Participants included 175 overweight children (aged 11.1 +/- 1.7 yr, body mass index percentile 97.3 +/- 2.9) with a family history of type 2 diabetes.

METHODS: Metabolic syndrome was defined according to a pediatric adaptation of the Adult Treatment Panel III report and included dyslipidemia, abdominal obesity, elevated blood pressure, and prediabetes (impaired fasting glucose or impaired glucose tolerance from a 2-h oral glucose tolerance test). Body composition was estimated via dual-energy x-ray absorptiometry, insulin sensitivity was quantified by the frequently sampled iv glucose tolerance test, visceral fat was measured using magnetic resonance imaging, and adiponectin was determined in fasting serum.

RESULTS: In simple linear regression, adiponectin was significantly and inversely related to systolic blood pressure ($P < 0.05$), waist circumference ($P < 0.001$), triglycerides ($P < 0.001$), and 2-h glucose levels ($P < 0.05$) and positively related to high-density lipoprotein-cholesterol ($P < 0.001$). In multiple linear regression, adiponectin was significantly related to triglycerides ($P < 0.01$) and high-density lipoprotein-cholesterol ($P < 0.01$) independent of age, gender, Tanner stage, body composition, and insulin sensitivity. Analyses of covariance established that adiponectin levels were approximately 25% higher in healthy overweight youth, compared with those with the metabolic syndrome (12.5 +/- 3.5 vs. 9.4 +/- 2.8 microg/ml; $P < 0.05$). In multiple logistic regression, adiponectin was a significant independent predictor of the metabolic syndrome, even after adjustment for confounders including insulin sensitivity and visceral fat.

CONCLUSIONS: Hypoadiponectinemia is an independent biomarker of the metabolic syndrome, and thus, adiponectin may play a role in the pathophysiology of the disorder in overweight youth.

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