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Plasma adiponectin and insulin resistance in women with polycystic ovary syndrome.

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Abstract

OBJECTIVE:

To determine plasma adiponectin concentration in women with and without polycystic ovary syndrome (PCOS) and to assess possible correlations of adiponectin to the hormonal and metabolic parameters, including measures of insulin resistance (IR).

DESIGN:

Case-control study.

SETTING:

Tertiary-referral university hospital.

PATIENT(S):

One hundred eighty selected women were classified as follows: 45 obese (body mass index [BMI] >30 kg/m2) with PCOS; 45 lean (BMI <25 kg/m2) with PCOS; 45 obese (BMI >30 kg/m2) without PCOS, and 45 lean (BMI <25 kg/m2) without PCOS.

INTERVENTION(S):

Blood samples were collected from all women with or without PCOS between 8 and 11 am, after an overnight fast.

MAIN OUTCOME MEASURE(S):

Serum levels of luteinizing hormone (LH), follicle-stimulating hormone (FSH), thyroid-stimulating hormone (TSH), free T4, testosterone (T), 17-alpha-hydroxyprogesterone, Delta4-androstenedione (Delta4-A), dehydroepiandrosterone (DHEA), dehydroepiandrosterone sulfate (DHEAS), sex hormone-binding globulin (SHBG), insulin, and plasma levels of adiponectin and glucose. Measures of IR included fasting serum insulin, glucose-to-insulin ratio, and homeostasis model assessment (HOMA).

RESULT(S):

Adiponectin concentrations were found to be significantly decreased in women with PCOS and in obese women without PCOS as compared with lean women without PCOS. Adiponectin concentrations correlated inversely with body weight, BMI, fasting plasma glucose, serum insulin, Delta4-A, DHEA, DHEAS, and HOMA but correlated positively with serum T, SHBG, FAI, and glucose-to-insulin ratio. Multiple regression analysis showed that BMI, HOMA, Delta4-A, and insulin were independent determinants of adiponectin concentrations.

CONCLUSION(S):

Hypoadiponectinemia is evident in obese and lean women with PCOS with variable degree of IR; and it is suggested that IR per se or other metabolic abnormalities of PCOS are involved in the regulation of adiponectin concentration in women with PCOS