Lower circulating levels of CTRP12 and CTRP13 in polycystic ovarian syndrome: Irrespective of obesity

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Abstract

Altered production of adipokines is suggested to play a pivotal role in the pathogenesis of polycystic ovarian syndrome (PCOS). C1q/TNF-related proteins (CTRPs) play diverse roles in regulation of metabolism in physiologic and pathologic conditions. In the present study, we assessed serum concentrations of adiponectin, CTRP12, and CTRP13 in individuals with PCOS and those without PCOS. We also evaluated the possible association of these adipokines with metabolic and hormonal variables. A total of 171 premenopausal women (86 with PCOS and 85 without PCOS) enrolled in this study. Serum levels of adiponectin, CTRP12, and CTRP13 were measured. The results showed significantly lower serum concentrations of adiponectin, CTRP12, and CTRP13 in PCOS women compared to non-PCOS women. This difference remained significant after controlling for age, body mass index (BMI), and Homeostasis Model Assessment of Insulin Resistance (HOMA-IR). However, we did not observe any significant differences in serum levels of adiponectin, CTRP12, and CTRP13 between the overweight/obese and normal weight subgroups in PCOS and non-PCOS women. Multiple linear regression analysis showed associations of CTRP12 with adiponectin and BMI with CTRP13 in both the PCOS and non-PCOS groups. CTRP12 was significantly associated with BMI and adiponectin in the non-PCOS group, and fasting blood glucose (FBG) and CTRP13 in the PCOS group. Our results indicated that decreased adiponectin, CTRP12, and CTRP13 levels, regardless of obesity, could independently predict PCOS. This finding suggested a novel link between adipokines and PCOS.