

Increased Adipsin is Associated with Carotid Intima Media Thickness and Metabolic Disturbances in Polycystic Ovary Syndrome

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Objectives:

Adipsin, a protein secreted mainly from the adipose tissue, is a structural homologous of complement factor D, a rate-limiting enzyme of the alternative complement system. Growing evidence suggests that the alternative complement system plays a role both in the regulation of energy homeostasis and the atherosclerotic process. Polycystic ovary syndrome (PCOS) is an inflammatory based-metabolic disease. The main objective of this study is to ascertain whether circulating adipsin levels are altered in women with PCOS, and whether there is association between adipsin and metabolic parameters or carotid intima media thickness (CIMT).

Methods:

Participants: 144 women with PCOS and 144 age- and BMI-matched controls without PCOS were recruited for this cross-sectional study.

Main Outcome Measures: Circulating adipsin levels were measured using ELISA. Metabolic, hormonal parameters and CIMT were also determined.

Results:

Circulating adipsin levels were significantly elevated in women with PCOS compared with controls (91.52 ± 14.11 vs. 60.31 ± 9.71 ng/ml, $P < 0.001$). Adipsin levels positively correlated with BMI, homeostasis model assessment of insulin resistance (HOMA-IR), total & free-testosterone, high sensitivity C-reactive protein (hs-CRP), triglycerides and CIMT. Multivariate logistic regression analyses revealed that the odds ratio for PCOS was 3.25 for patients in the highest quartile of adipsin compared with those in the lowest quartile (OR=3.25, 95% CI=2.64-4.00, $P=0.016$). Our findings further indicate that BMI, HOMA-IR, hs-CRP and free-testosterone are independent factors influencing serum adipsin levels and that adipsin is an independent predictor for CIMT..

Conclusions:

Adipsin might contribute to the development PCOS as well as the cardiovascular risks and metabolic disturbances associated with the disease.

