Serum Homocysteine Levels in PCOS Patients versus Healthy Women

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Abstract

Introduction: Patients with PCOS have risk factors for cardiovascular diseases, especially elevated lipoproteins, high blood pressure or hyperinsulinaemia. Clinical evidence shows that hyperhomocysteinaemia may contribute to the development of cardiovascular diseases in PCOS patients. In this study we compared serum homocysteine levels in PCOS patients with healthy Iranian women.

Materials and Methods: This case-control study was performed on 52 individuals with PCOS (Rotterdam 2003 criteria). The cases were compared to 104 healthy non-PCOS, 20 to 35-year-old female subjects with no history of diabetes or renal diseases. The cases had referred to the Gynecology and Infertility Clinic of Vali-e-Asr Hospital in Tehran. Blood samples were taken on the 2nd to the 5th day of menstrual cycle for the evaluation of homocysteine levels, folic acid, triglyceride, insulin and some other metabolic and endocrine parameters.

Results: Serum levels of insulin and folate were significantly higher in PCOS patients (16.62±7.45*μIU/ml* and 7.48±4.37*ng/ml*) compared to the controls (12.04±4.23*μIU/ml* and 5.43±3.15*ng/ml*), ($p<0.001$). Serum triglyceride concentrations were significantly higher in PCOS patients (116.62±73.02*mg/dl*) compared to the healthy subjects (88.00±50.29*mg/dl*), ($p=0.01$). The mean value for homocysteine (±SD) was 12.21 (±4.55) and 13.68 (±4.37)*μmol/L* in PCOS and healthy women, respectively but no significant statistical differences were observed ($p=0.057$). Regression analyses depicted that homocysteine level was mostly under the influence of folate and FBS concentrations.

Conclusion: There is an inverse correlation between homocysteine and serum folic acid levels in PCOS patients. Therefore, it seems that proper administration of folic acid can reduce homocysteine levels in patients with PCOS and help prevent the attributed cardiovascular risk factors associated with the disease.

Key Words: Female infertility, Folic acid, Homocysteine, Polycystic ovary syndrome (PCOS).

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