1- **Endothelial function in young women with polycystic ovary syndrome (PCOS): Implications of body mass index (BMI) and insulin resistance**

Background: Evidence regarding endothelial function in both obese and nonobese women with PCOS is contradictory. It is unknown whether obese women with PCOS carry an increased risk related to body mass index (BMI). Aim: To identify endothelial function and investigate its relationship to body mass index and insulin resistance in young women with PCOS.

Subjects and methods: Twenty-two obese women with PCOS (BMI 35.2 ±3.2) as well as fourteen lean women (BMI 22.8 ±2.1) with PCOS were included in the study. Fasting serum insulin, blood glucose were estimated and HOMA and Quicki index were calculated. All patients were subjected to ultrasound recording of brachial artery diameter at rest and after reactive hyperemia (FMD) for assessment of endothelial function. Ten age matched healthy females with normal BMI were chosen as a control group.

Results: There were higher basal insulin levels with lower Quicki index and higher HOMA index in women with PCOS than normal group, but the differences were significant only between obese PCOS subgroup and control. On the other hand, FMD was significantly and equally decreased in both groups of women with PCOS, compared with control subjects (3.73.2±10% in the nonobese subgroup and 3.52.8±10% in the obese one vs. 10.64.1±10% in control subjects, P, 0.001). FMD was not correlated with BMI nor insulin resistance indices.

2- **Elevated Serum Polymorphonuclear elastase is related to prehypertension and airflow limitation in obese women**

Background: Elevation of neutrophil elastase (NE) levels/activity has been demonstrated in a variety of diseases such as atherosclerosis, systolic hypertension and airway obstructive pulmonary diseases. It is unknown whether obese individuals with prehypertension also have elevated NE and if so it will have a deleterious effect on pulmonary function. Objectives: To investigate serum polymorphonuclear elastase level in obese prehypertensive women and correlate that level with pulmonary function tests. Patients & Methods: Thirty obese prehypertensive women were compared with 30 obese normotensive and 30 healthy controls. The 3 studied groups were matched for age. Measurements: Body mass index (BMI), waist circumference (WC), blood pressure, lipids profile, high sensitivity C-reactive protein (hs-CRP), serum polymorphonuclear elastase (PMNE), and pulmonary function tests including forced expiratory volume in one second (FEV1), forced vital capacity (FVC) and FEV1/FVC ratio were assessed. Results: Serum PMNE concentration was significantly elevated in both prehypertensive (405.8 111.6 ±1 ng/ml) and normotensive obese women (336.5 81.5 ±1 ng/ml) than in control non obese women (243.9 23.9 ±1 ng/ml), there was significant elevation of PMNE in prehypertensive than normotensive obese women. FEV1, FVC and FEV1/FVC ratio in both prehypertensive and normotensive obese women were significantly reduced in comparison to normal control, no statistically significant difference between prehypertensive and normotensive obese women. In obese prehypertensive women, there
were significant positive correlations between PMNE and BMI, WC, systolic blood pressure, diastolic blood pressure, total cholesterol (TC), triglyceride (TG), low density lipoprotein cholesterol (LDL-c), hs-CRP and negatively correlated with high density lipoprotein cholesterol (HDL-c), FEV1, FVC and FEV1/FVC.

Conclusion: Serum PMNE concentration is elevated in obese prehypertensive women and its level is correlated with inflammatory markers (CRP), dyslipidemia and air flow dysfunction. So it can be used as an early marker for the development of prehypertension and predict the possible occurrence of lung function impairment in obese women. Therefore inhibitors of serum NE may be of benefit in those patients.