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Endocrinology

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THE RELATIONSHIP BETWEEN LEPTIN AND PCOS

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BACKGROUND: The ob gene produces a leptin hormone that regulates energy balance and works as a satiety signal to the hypothalamus. Also, leptin has important effects on the reproductive system. Insulin resistant, hyperinsulinemia, and obesity are important features of polycystic ovary syndrome. Many studies suggested that leptin may have a role in polycystic ovary syndrome (PCOS) via its role on obesity and insulin resistance. This study was done to evaluate leptin levels among Qatar university female students who were presented with clinical and hormonal features suggestive of PCOS criteria, and to investigate its relationship with PCOS among overweight and obese subjects.

METHODS: A prospective, retrospectives cross- sectional study included 78 females student aged 17-25 years. The retrospective data included clinical, anthropometric and hormonal profile such as Progesterone, Insulin, Estradiol, SHBG, Testosterone, DHEAS and Prolactin. Leptin concentration was measured by enzyme absorbent enzyme-linked immune sorbent assay by BioVendor Human Leptin ELISA. The study subjects were divided into two main groups based the cut off value of body mass index (BMI=25 Kg/m^2) into overweight/obese group and non-overweight/non-obese group.

RESULTS: Overweight/Obese female subjects had significantly higher leptin level (22.85 ng/ml) than non-overweight/non-obese subjects (2.82 ng/ml) with (p-value <0.05). OW/Ob group showed higher frequency of family history of PCOS and diabetes (8.70%) and (78.30%) respectively. Also, leptin found to be significantly higher in those women with PCOS than in women without PCOS (0.037 significant p- value). Spearman's correlation analysis, revealed that leptin is significantly correlated with insulin, testosterone, BMI, DHEAS, progesterone, FAI and PCOS.

CONCLUSIONS: PCOS subjects exhibit high leptin level. Overweight and obese subjects exhibit higher levels of androgens and leptin, which could highlight the possible implication of leptin for the pathophysiology of PCOS.