

Insulin resistance and obesity among infertile women with different polycystic ovary syndrome phenotypes

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Context: PCOS is a common problem among Arab women and it is the main cause of infertility due to ovulatory disorders marked by insulin resistance and obesity. **Objective:** To investigate the prevalence and relationship between insulin resistance and obesity in different PCOS phenotypes among infertile women. **Methods:** Cross-sectional baseline data from women with infertility and with/without PCOS. **Setting:** Out-patient private and university based clinics in Jordan. **Patient(s):** Women with infertility (n=213) of whom 159 had PCOS and 54 women were ovulatory without PCOS, as a control group. **Intervention(s):** Evaluation of clinical and hormonal parameters. **Main Outcome Measure(s):** Biometric, hormonal and clinical parameters. The Rotterdam criteria were used for diagnosing PCOS, hirsutism was evaluated by the modified Ferriman Gallwey score. Insulin sensitivity was assessed by the homeostatic model assessment insulin resistance. **Result(s):** Insulin resistance was observed in 133 (83.6%) women with PCOS and in 25 (46.3%) women in the control group ($p < 0.001$). Insulin resistance was significantly associated with PCOS only among women with central obesity ($\bar{x} \pm 2 = 35.0$, $p < 0.001$); while for the normal category, it was not significant ($\bar{x} \pm 2 = 4.04$, $p < 0.058$). LH/FSH ratio was not significantly different among the PCOS group $n=37$ (23.3%) compared to the control group $n=9$ (16.7%) ($p=0.308$). Among women with PCOS; the most common phenotype was Type I (full-blown PCOS) (50.3 %), type III (ovulatory) 29.6 %, type II (no PCO) - 14.5% and only 5.7 % had type IV. Type I had the highest values of fasting insulin (median 12.98) and homeostatic model assessment insulin resistance values (significant difference between the 4 phenotypes, p - values 0.009 and 0.006 respectively). Fasting glucose showed no difference between the groups. Only androgenic alopecia, of clinical hyperandrogenic symptoms, was associated with obesity among women with PCOS ($p < 0.001$). **Conclusion(s):** Type I PCOS is the most common phenotype. Obesity is directly associated with insulin resistance. High values of the fasting insulin are associated with the severity of the clinical phenotype.

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