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## **Validity of glycaemic tests over Insulin resistance indices in detecting peripheral Insulin resistance in Polycystic Ovary Syndrome–Sri Lankan Study**

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Polycystic ovarian syndrome (PCOS) is a heterogeneous disease characterized with abnormal menstruation, and reproductive impairment with impaired metabolism. Insulin resistance (IR) had been identified as a hall mark of many diseases and specially linked to an ovulation. Although the hyperinsulinemic euglycemic clamp method is the gold standard for measuring insulin resistance it is not feasible in hospital set up. Therefore, other standard indirect IR indices such as QUICKI, HOMA and fasting insulin (FI) have been used by many medical scientists to assess IR in hospitals. We planned to investigate the degree of IR, severity of glycaemic control and the validity of using the glycaemic test in diagnosing IR in PCOS patients due to lack of data in our country. Oral glucose tolerance test (OGTT), fasting blood glucose (FBS) and indirect IR indices were calculated in Sri Lankan women suspected with PCOS. Reports of FBS, insulin and OGTT which were done from same laboratory were collected from the patients. Calculation of IR was done using FI, HOMA and QUICKI. Spermann's correlation was used to test the correlation between age at menarche with other dependent parameters tested. Data on 82 patients were analyzed and the majority had IR by all three indices (93% 89% 87% QUICKI, HOMA and FI. In IR group, 7% of patient showed abnormal FBS while 22% of them showed abnormal OGTT. In abnormal FBS, one had type-2 diabetes and the rest of them showed impaired fasting glucose. With abnormal OGTT one was diabetic and 21% of them showed only impaired glucose tolerance. 75% of IR patients showed normal glycaemic control. We could not relate the age at menarche with any other parameter in our study group. According to the khans kappa test, there was no significant agreement between two tests (kappa 0.01, 13.4% CI 0.002-0.022) and the sensitivity is very low with both FBS (6%) and OGTT (22%) but specificity is 100% QUICKI was used as the standard for this analysis. Most of the PCOS patients were insulin resistant by all three indices. Majority of insulin resistant patients were normal in glycaemic control. We conclude that identification of IR in PCOS can be early detected by indirect these IR indices than biochemical tests for glucose imbalance. We further noted that screening for IR in asymptomatic patients with PCOS using these indices would help them in preventing progression of DM and other IR associated diseases and there is potential to use this sensitive test to screen drug targets for reversal of IR in future in PCOS.

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