

GTT Levels in Normal and PCOS Patients

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Abstract: *One of the most frequent causes of infertility in women is PCOS. This chronic illness persists long after a person reaches childbearing age. Insulin resistance, or the inability of the body to utilise insulin that is produced, is common in women with PCOS and raises the risk of type 2 diabetes. Comparing women with and without PCOS, there is a significant increase in the risk of type 2 diabetes mellitus in the former group. Women with PCOS and those with type 2 diabetes mellitus during pregnancy can both be diagnosed with OGTT. The study emphasizes the GTT level in PCOS patients and normal individuals in relation to BMI. This article aims to summarize how women with PCOS have a markedly higher incidence of type 2 diabetes. Compared to females who do not have PCOS On the other hand, OGTT offers helpful details regarding glucose tolerance.*

Keywords: Insulin resistance, oral glucose tolerance , polycystic ovarian syndrome, Type 2 diabetes mellitus

1. Introduction

PCOS is a prevalent endocrine condition that affecting teenage female. It is typified by persistent an ovulation and hyperandrogenism. Number of investigations have indicated that insulin resistance is a significant factor in the syndrome's etiology. Women with PCOS frequently have abnormalities in their lipid profiles and glucose metabolism as a result of insulin resistance [1].The pancreas secretes the hormone insulin, which aids the body in using the sugar in food as fuel. The body needs more insulin when cells are unable to utilise it as intended. In response, the pancreas produces more insulin. The ovaries produce more male hormones when there is an excess of insulin. One of the main causes of insulin resistance is obesity [2]. Type 2 diabetes risk can be raised by insulin resistance. It has been shown that some of these women also have changes in beta-cell function in addition to insulin resistance [3].

PCOS is linked to a higher risk of type 2 diabetes mellitus [T2D], impaired glucose tolerance [IGT], and impaired fasting glucose. Insulin resistance [IR] raises the risk of type 2 diabetes mellitus and IGT [4].PCOS is characterized by an excess of testosterone produced by the ovaries, In addition, they have higher amounts of androgens, which are male hormones that are also present in females. These hormones can cause irregular periods, acne, thinning hair on the scalp, and excessive facial and body hair growth in addition to stopping the release of eggs during ovulation [5].High insulin levels in many young women with PCOS can cause the ovaries to produce more testosterone. .

Pregnant PCOS Women had a markedly higher incidence of gestational diabetes mellitus [6].The glycemic status of non-pregnant women with PCOS can be evaluated using the HbA1C, fasting plasma glucose, or oral glucose tolerance test (OGTT). Apart from PCOS, OGTT is rarely used for diagnostic purposes in other non-pregnant individuals at high risk of type 2 diabetes mellitus, despite being acknowledged as the gold standard test for diagnosing T2D [7].

It has been noted that pharmacological intervention, lifestyle modifications, and early detection can postpone the onset of type 2 diabetes. Consequently, identifying IGT has received a lot of attention. The purpose of this study is to evaluate GTT levels and suggest screening for glucose intolerance in women with PCOS

2. Method

This study was conducted in Department of Biochemistry School of Medical Education Kottayam , Total of fifty (50) samples were used in this study. Blood samples were taken from 25 PCOS women and 25 healthy, normal women, and the results were analyzed. Participants in this study were not permitted to have conditions such as hypothyroidism, hypopituitarism, or type 1 diabetes mellitus that could impact blood sugar levels.

A sample of blood was drawn while fasting. A 75g glucose with 200 ml water was provided to drink. During the test, the patient was not allowed to eat, drink, or smoke (water was allowed). Samples of blood and urine had collected at 30-, 60-, and 90-minute intervals. Samples was centrifuged to obtain plasma for the determination of fasting blood sugar and 30 mts, 60 mts, 90 mts blood sugar. The urine sugar was determined by dipstick method.

For Calculating BMI Measurements of height (m) and body weight (kg) were taken while wearing only one layer of clothes, without shoes, and with empty pockets. The formula for BMI was weight/height.

3. Result

3.1 Blood GTT level of normal and PCOS patients

Group	Number	Mean FBS (mg/dl)	Mean Glucose 30 mts	Mean Glucose 60 mts	Mean glucose 90 mts
Normal group	25	76.6	94	106	80
PCOS group	25	90.8	118.8	143.6	92

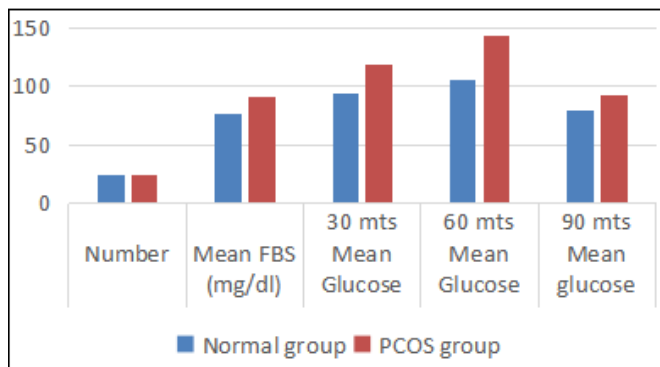


Figure 1: GTT Level of Glucose of normal and PCOS patients

3.2 Relationship between BMI and PCOS

Group	Number	Mean BMI
Normal	25	21.8
PCOS	25	25.6

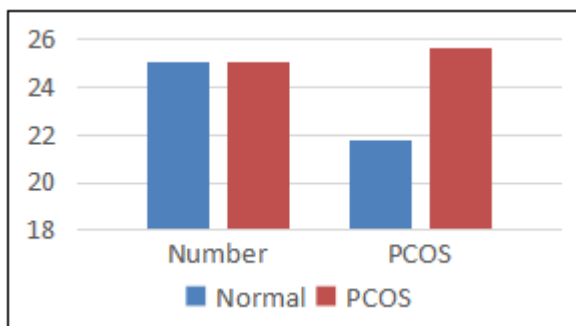


Figure 2: Relation between BMI and PCOS

4. Conclusion

The target of this study was to examine the glucose tolerance in normal and PCOS patients. In individuals with PCOS and those without it, the mean fasting blood glucose values are 76.6 and 90.8, the mean 30-minute blood glucose values are 94 and 118.8, the mean 60-minute blood glucose levels are 106 and 143.6, and the mean 90-minute blood glucose levels are 80 and 92. Patients with PCOS have mean BMI values of 25.6 and 21.8, respectively. According to the current study, PCOS women's glucose levels were significantly higher than those of normal women. Abnormal glucose tolerance in women with PCOS and obesity: Compared to women with PCOS who are normal weight (BMI <25 kg/m²), obese women (BMI ≥ 30 kg/m²) and overweight women (BMI 25-30 kg/m²) are more likely to experience abnormal glucose tolerance.

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