PCOS (Polycystic Ovary Syndrome) and its Correlation with Waist Circumference, Glucose Metabolism and Lipid Profile

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Abstract

Background: Polycystic ovarian syndrome (PCOS) is a multisystem endocrinopathy in women of childbearing age with ovarian expression of various metabolism disorder and a host of other clinical features such as infertility, obesity, irregular menstruation and hyperandrogenism

Objective: The objectives of this study found the association of PCOS with WHR (Waist hip ratio), Lipid profile and status of diabetic patients.

Methods: This study conducted at Department of General Biochemistry, Department of General Medicine and the Department of Gynecology Sardar Patel Medical College and P.B.M. Hospitals, Bikaner. The sample size of this study is 100.

Results: 42.00% of patients with FBS was less than 90 mg / dl and 17.00% of patients with fasting blood sugar levels were above 110 mg / dl. The average BMI for patients was 26.44 ± 5.44 kg / mt^2. The mean triglyceride level for patients was 113.68 ± 19.25 mg / dl, which means that LDL for patients was 95.24 ± 14.94 mg / dl, the cholesterol level for patients was 159.98 ± 18.26 mg / dl and the HDL level for patients was 56 ± 1. mg / dl. The relationship between waist circumference and fasting blood sugar and random blood sugar has been found to statistically significant.

Conclusion: PCOS, which is a common condition in older women, is the cause of the problem in one in four patients who go to a gynecologist. Despite the treatment of infertility and the complaints of menstruation of PCOS patients, it is the physician's job to take it as an opportunity to diagnose metabolic syndrome and healthy eating habits, exercise and weight loss. Changes in a healthy lifestyle not only improve their menstrual and ovulatory symptoms, but also prevent the future of cardiovascular and other diseases.

Keywords: PCOS, LDL, FBS, HDL,IDF

Introduction

Polycystic ovarian syndrome (PCOS) is a multisystem endocrinopathy in women of childbearing age with ovarian expression of various metabolism disorder and a host of other clinical features such as infertility, obesity, menstrual irregularities and hyperandrogenism. This condition is relatively common and affects about 20 percent of women of childbearing age.

Various manifestations of PCOS begin at an early age when a girl grows into a girl. [1]

PCOS is one of the major risk factors for metabolic syndrome and the prevalence of metabolic syndrome in PCOS is 40-50%. [2] Since insulin resistance has its metabolic effects in both adolescents and adults, PCOS forms the key to finding metabolic syndrome.3

The aim of our study was to find the prevalence of metabolic syndrome using the International Diabetes Federation method for women of childbearing age PCOS so that appropriate lifestyle changes, medical and non-medical interventions will help fight and prevent major heart disease, stroke. etc. Due to the high risk of metabolic syndrome in our country the strict criteria for metabolic syndrome defined by the International Diabetes Federation are used in our study. [3-6]

These varied data indicate the need for metabolic syndrome testing in a wide range of individuals, as it may help to develop testing strategies to prevent long-term outcomes.

We have a lack of information about the association of PCOS with WHR (Waist hip ratio), Lipid profile and status of diabetic patients, so current research is an attempt to establish a link between these conditions and the possible development and progression of PCOS if any. .

Methodology

- Study Type- A study based on Cross Hospital.
- Place of Study: Department of General Medicine, Department of Gynecology, S.P. Medical College and PBM Associate Group of Hospitals, Bikaner.
- Study People: All patients diagnosed by PCOS go to General Medicine OPD, Gynecology OPD.
- Sampling Methods Consecutive sampling.
- Study Population: All eligible patients attending General Medicine & Gynecology OPD are included in the study.

Inclusion Criteria:

i) Women who are willing to participate,

ii) Women of childbearing age (15-45 years) and presenting Rotterdam conditions.

Rotterdam conditions

The following two methods are required:

a) Oligo / abortion

b) Hyperandrogenism

i. Clinical (hirsutism or alopecia of abnormal male pattern) or

ii. Biochemical (free Androgen index or free testosterone)

c) Polycystic ovaries on ultrasound.

Exclusion Criteria:

i) Women who are unwilling to participate,

ii) Women under 15 OR> 45 years old,

iii) Women after menopause,

iv) Cushing syndrome,

v) hyperprolactinoma,

vi) Congenital adrenal hyperplasia,

vii) Women who are pregnant or breastfeeding,

viii) A woman with diabetes,

ix) Hypothyroidism,

x) Women using OCP ORany Lipid reducing agent.

Data Collection and Analysis:

After obtaining approval from the Ethics Committee and verbal consent of the study staff selected to analyze the inclusion and exclusion criteria and the help of consecutive samples, a questionnaire directed at the research study by the researcher. All important information related to social studies data, anthropometry, clinical profile, biochemical parameters including Impared Glucose Tolerance and Lipid profile will be collected and uploaded to Microsoft Excel and analyzed with the help of appropriate software and critical tests considering quality value as $p < 0.05$.

Results

In the current study the highest proportion of 77.00% of patients was 21-30 years old. The mean age of the patients was 27.20 ± 3.95. Top patients (86.00%) were under category IV socioeconomic status. PCOS was more common in the high socio-economic situation compared to the low socio-economic status. The average BMI for patients was 26.44 ± 5.44 kg / mt^2. (Table.1)

Table 1: General characteristics

Age	27.20±3.95 yrs
Height	154.51±3.54 cm
Weight	63.21±13.25 kg
Waist circumference	87.35±11.50 cm
BMI	107.84±21.75 mm of hg
SBP	91.70±20.50 mm of hg
FBS	95.82±16.55 mg/dl
RBS	134.36±18.04 mg/dl
Triglyceride	113.68±19.25 mg/dl
LDL	95.24±14.94 mg/dl
Cholesterol	159.98±18.26 mg/dl
HDL	52.16±6.32

In present study, co-relation between waist circumference and fasting blood sugar & random blood sugar was found statically significant. (Table 2)

Table 2: Co-relation between Waist Circumference and Blood Sugar

Waist circumference	R-square value	p-value
Fasting Blood Sugar	0.97	0.001
Random Blood Sugar	0.99	0.001
BMI	0.96	0.001

Discussion

In present study mean age of patients was 26.73±3.62 yrs. Joshi B et al [7] was found that the mean age of the participants was 18.15 (±2.4) years. Shahrami SH et al [8] was also included age group from 15 to 45 years in the study.

In present study mean BMI of patients was 26.13±5.41 kg/mt2. Obesity and insulin resistance occur frequently in association with this syndrome. Joshi B et al [7] was found that the mean BMI of patients was 25.32±4.14 kg/mt2. Shahrami et al [8] was found that the mean BMI of patients was 26.28±3.62 kg/mt2

Obesity and insulin resistance often occur in conjunction with this disease. Dangerous cardiovascular features appear to be common in women with PCOS compared with the normal population [9]

Insulin resistance is a key factor in both fat and weak PCOS. It occurs in 70-95% of people with obese PCOS and 30-75% of people with severe PCOS [10].

High insulin is not just a sign of PCOS — and it is a major driver of the condition. High insulin can disrupt ovulation and can cause the ovaries to produce more testosterone.

Dyslipidemia is one of the most important risk factors associated with PCOS. In our study we have seen, there is a change in the serum lipid profile. There is a significant increase in serum triglycerides, serum cholesterol, serum LDL-C, VLDL-C blood serum and a decrease in serum HDL-C levels. Increased triglycerides may be caused by an increase in triglycerides, which may be due to increased lipogenesis, decreased clearance or decreased fatty acid oxidation. Increased production of VLDL particles in the liver results in a higher concentration of plasma triglycerides. This may be due to insulin resistance, which is evident in PCOS patients. Insulin resistance also contributes significantly to the catabolism of HDL cells and the formation of LDL cells. [11]

Protein cholesterol ester can contribute to

this [10] In addition to insulin resistance, hyperandrogenism also contributes to changes in the lipid profile. Hyperandogenism is associated with an increase in hepatic lipase activity that plays a role in the formation of HDL particles. PCOS patients therefore have an atherogenic lipid profile, rather than controls. Increased levels of triglycerides may be a factor in adiposity in women with PCOS [12]

Modified lipid profile (atherogenic), adiposity, insulin resistance can contribute to cardiovascular disease. PCOS patients should therefore be monitored and monitored regularly, in order to prevent complications related to heart disease. [13]

Conclusion

PCOS, which is the most common condition in older women, is the cause of the problem in one in four patients who go to a gynecologist. PCOS is an active lifestyle and obesity. Despite the treatment of infertility and the complaints of menstruation of PCOS patients, it is the physician's job to take it as an opportunity to diagnose metabolic syndrome and healthy eating habits, exercise and weight loss. Changes in a healthy lifestyle not only improve their menstrual and ovulatory symptoms, but also prevent the future of heart disease and other diseases..

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