



ANTHROPOMETRIC MEASUREMENTS AS INDICATORS OF DYSLIPIDEMIAS IN PCOS

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Abstract:

B PCOS is one of the important public health problem in women of reproductive age group in our country, which leads to various medical consequences. The present cross sectional study is aimed at assessing the relationship of lipid profile in PCOS women with their anthropometric indices. This study includes 60 PCOS women whose serum Triglycerides, serum Total Cholesterol, serum LDL, serum HDL were measured. BMI and WC were measured for the same patients and the relationship were studied.

Findings in the study are women with PCOS and BMI > 30 showed increased sr.TGL, sr. Total cholesterol, sr.LDL and low HDL levels .

Waist circumference was seen to have significant influence on lipid profile.

Therefore PCOS patients can be screened for dyslipidemia for actual prevention of cardiovascular accidents.

Keywords: Waist circumference, HDL, LDL, CHOL, Dyslipidemia, PCOS

INTRODUCTION:

PCOS(Polycystic ovarian syndrome) is the common endocrine and metabolic disorder in adolescent and reproductive women and is a predominant reason for infertility with the incidence of 5-10% ^{1,2}. Though the contributing factors for development of PCOS is not well known, studies have shown a close relationship of PCOS with dyslipidemias and insulin resistance ³.

More than half of women with PCOS show obesity, which is a risk factor for development of Diabetes and cardiovascular disease in later life.⁴.

MATERIALS AND METHODS:

This study is a cross-sectional type of study carried in Obstetrics and Gynaecology Department. 60 women with PCOS (as per revised Rotterdam criteria) were involved in the study, height, weight, and waist circumference were measured. BMI was calculated and categorized into group 1(18.5-24.9), group 2 (25- 29.9), and group 3 (>30) (according to WHO classification). Waist Circumference is measured according to criteria given by WHO. Waist circumference of 80 cm and below was considered normal and that of more than 80 cm was considered abnormal(WHO Criteria).

Fasting blood samples were evaluated to determine the levels of sr.TGL, sr.LDL, sr.HDL and sr. Total Cholesterol. These values were studied for their relationship with BMI and Waist Circumference.

RESULTS:

In the study population of 60 PCOS, 29 women were under group 1 (18.5-24.9), 22 women were under group 2 (25-29.9), 9 women were under group 3 (>30). It was found that as the BMI of PCOS women increases, the level of Total Cholesterol, sr.LDL, sr.TGL increases and levels of HDL decrease with statistical significance ($p<.001$).

Table 1 Lipid profile in Various groups

BMI	no	S.TGL(mg/dl)	S.HDL(mg/dl)	S.LDL(mg/dl)	S.CHOL(mg/dl)
Group I(18.5-24.9)	29	101.40±8.393	56.22±2.496	87.16±3.465	158.20±8.754
Group II(25-29.9)	22	120.43±17.275	52.23±5.186	97.23±11.894	161.28±14.38
Group III(30 and above)	9	135.11±28.446	42.26±2.704	123.41±21.316	182.20±31.10
Total	60	112.09±19.277	52.76±5.968	96.04±16.351	162.75±17.72

Table 1 shows the lipid profile data of the various groups

Figure 1 Comparison of lipid profile with various BMI groups

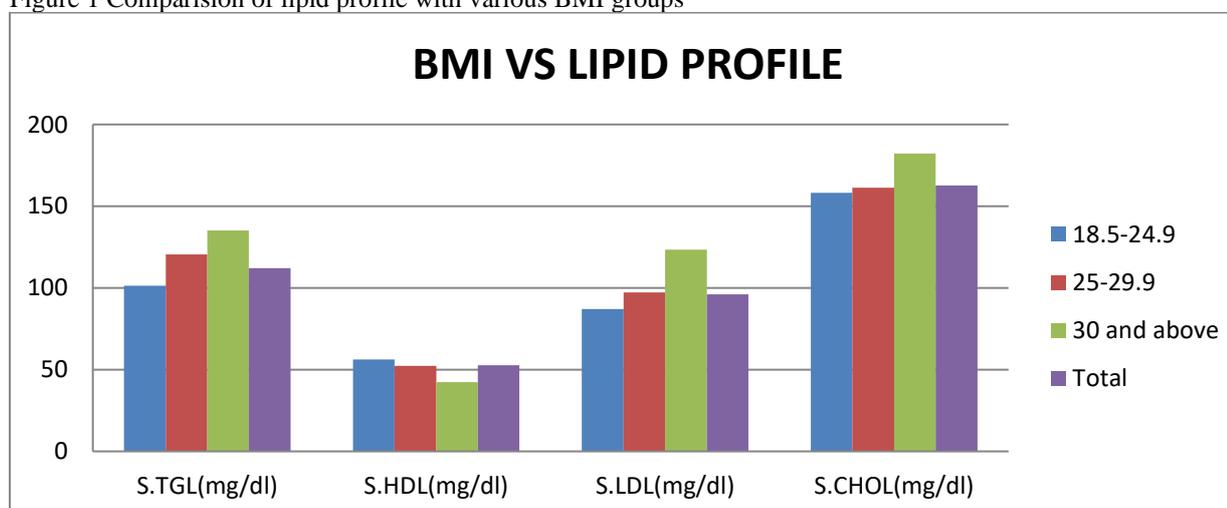


Figure 1 shows a comparative bar diagram of various parameters of the lipid profile in the 3 BMI groups

Table 2: Waist circumference and lipid profile

Waist circumference	S.TGL(mg/dl)	S.HDL(mg/dl)	S.LDL(mg/dl)	T.CHOL(mg/dl)
Increased > 80cm & above (26)	120.28	48.89	104.34	164.28
Normal ≤ 80cm(34)	105.91	55.76	89.74	141.58

Table 2 also showed that as waist circumference increases above 80 cm the S.TGL, S.LDL, S.CHOL increases with $p > 0.001$

Figure 2 Comparison diagram of waist circumference and lipid profile

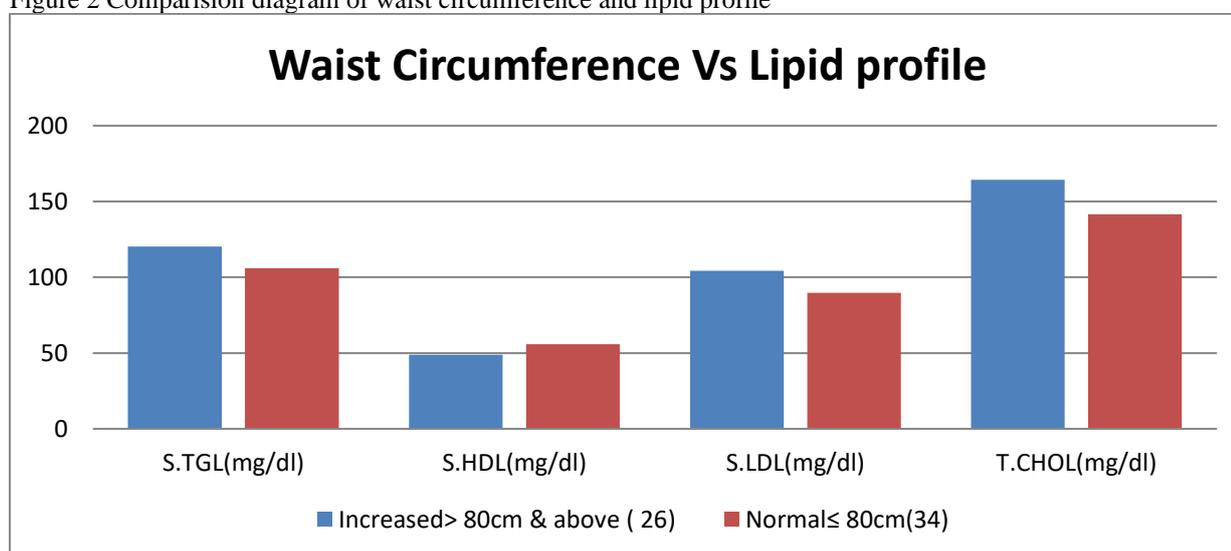


Figure 2 shows the comparative bar diagram with parameters of lipid profile and waist circumference. Women with Normal waist circumference had better lipid profile parameters

DISCUSSION:

This study was done to assess the anthropometric indices and relationship with lipid profile in PCOS women. Dyslipidemia is an important risk factor associated with PCOS. Insulin resistance and Obesity occur frequently in association with PCOS⁵. Out of 60 PCOS, 15 % were in found to be having BMI >30. This group showed increased levels of sr. TGL, sr. LDL, sr Total Cholesterol, and lower levels of sr.HDL(Table1). Among the lipid profile parameters, serum LDL was significantly increased in BMI>30.

The increase in triglycerides can be due to increased accumulation which occurs owing to the increased lipogenesis, decreased clearance, or reduced oxidation of fatty acids. Insulin resistance also contributes to the catabolism of HDL and the formation of LDL⁵. Increased hepatic lipase activity and a decrease in HDL particles is also associated with Hyperandrogenism in PCOS. After removing the effects of all other factors, serum LDL showed a stronger association with BMI ($p < .001$) and Waist Circumference ($p < .001$). Wild et al study showed decreased HDL associated with PCOS which is similar to the observation in our study⁶.

CONCLUSION:

This study of ours suggests that the anthropometric characteristics (BMI and waist circumference) are important parameters which correlated to lipid profile in PCOS patients. These can be used as indicators of the presence of dyslipidemia. Hence, lipid profile assessment should be essential for all PCOS patients and timely management of obesity is required to avoid dyslipidemia and added cardiovascular complications..

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STATEMENT OF CONFLICT: I/We (Authors) have no conflict of interest.

CONSENT: Written informed consent was obtained from all subjects.

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