

Title of the paper: A Cross-Sectional Study - Prevalence of Polycystic Ovarian Syndrome in Coimbatore, Tamilnadu.

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A Cross-Sectional Study - Prevalence of Polycystic Ovarian Syndrome in Coimbatore, Tamilnadu.

Abstract:

Back ground: Polycystic ovarian syndrome (PCOD) is a hormonal problem highly prevalent in child bearing aged women. It is manifested with reproductive issues such as hirsutism, oligomenorrhea and infertility and its occurrence is rising due to changes in lifestyle and stress. The study was conducted to identify the prevalence of PCOD among young women and various factors associated with it.

Methods: The cross sectional study design was adopted. Study subjects are 900 young students from a women institution. Data was gathered by direct interview method after written informed consent.

Results : We have found that prevalence rate of PCOD is 22 % in Coimbatore, Tamilnadu according to the assessment of (2003) Rotterdam criteria. Young women with menorrhagia or oligo-menorrhea had PCOD more frequently than young women with normal duration cycles and bleeding for two to four days which was statistically significant. A strong association found with BMI ≥ 25 (P value < 0.0001) and waist hip ratio ≥ 0.85 (< 0.0001).

Conclusions: Weight loss measures and its significance in controlling the complications of PCOD should be taught to the women with BMI ≥ 25 and waist hip ratio ≥ 0.85 . Oligo-menorrhea, irregular cycles, hirsutism and other signs of PCOD among young women should be diagnosed and managed early and it will improve their quality of life.

Keywords: PCOD, Women, Prevalence, Coimbatore

Introduction

Polycystic ovarian syndrome (PCOD) is the highly prevalent hormonal problem among women of child bearing age and it is manifested with the multiple cysts in the ovaries with malfunction of the ovaries and excessive production of androgens.¹ Women with PCOD are prone to develop pregnancy losses, uterine hyperplasia, delayed menopause and in addition with insulin resistance, diabetes, atherosclerosis and cardiac abnormalities.² Worldwide, PCOD occurrence rate varies from 2.2% to 26% of this age group depending on the method of diagnosis.³ Rotterdam criteria has two of the following three criteria to diagnose the PCOD : oligo and/or anovulation, hyperandrogenism (clinical and/or biochemical) and poly-cystic ovaries identified sonographically.⁴ Many studies reports prevalence rate of PCOD in India is 9.13% to 35%. This requires expanded epidemiological studies in the

population.⁵ However, In India, yet no proper published statistical data on the prevalence of PCOD is available. So, it is essential to identify early to avoid the complications of PCOD. Early identification and management can curb the symptoms and prevent long-term problems.⁶ Risk factors include obesity, lack of physical activity, and a family history of someone with the condition during the puberty period, many characters may be in evolution and hence, more results may be transitory which settle later during adolescent period.⁷ There is no population based study that estimates the prevalence and clinical characteristics of PCOD in Coimbatore District. The objective of the current study was to elicit the rate of prevalence of PCOD using the Rotterdam criteria (2003), in a well-defined reproductive aged women, using universal assessment of ultrasonographic parameters, physical examination and clinical histories and to identify the other variables associated with PCOD among reproductive age females of Coimbatore city.

METHODS

Cross sectional study was conducted for the period of 7 months between August 2019 to February 2020. The sample size were 900 young women in the age group of 18-30 years studying in a girl's institution in Coimbatore city in Tamilnadu, India were interviewed with their consent by screening questionnaire. After screening for PCOD, all suspected young women were confirmed by clinical examination and USG.

Sampling Technique

Stratified Convenient sampling technique was used based on the availability of respondents within a specific range.

Sample Size

A total of 900 female students were participated in interview.

Inclusion Criteria

Those who are between the age of 18-30 years and willing to participate in the study are included.

Exclusion Criteria

Those who were known with history of pelvic diseases, previous pelvic surgery and hormonal replacement therapy were excluded. Female students having age more than 30 or less than 18 years and who were not willing to contribute in the study.

Data collection Procedure

Study was initiated after getting the permission from ethical committee and authorities of the institution. As there is no standardized tool for making clinical confirmation of PCOD, Data was collected by pretested structured questionnaire after obtaining written informed consent. It was developed with the help of available evidences by the researchers for data collection to fully meet the demands of this research. The tool were corrected, revised and validated by epidemiologist and clinicians. It was pretested before its use in this study. It consists of demographic profile, anthropometric measurements like body mass index (BMI), clinical history, menstrual history, hirsutism and male hormone assessment

(skin problems, and hair distribution) and polycystic ovary assessment. World Health Organization defines BMI categories as overweight as 25.0 and 29.9 and obesity as 30.0 or higher.¹⁰ Final diagnosis of PCOD was made if all three elements of Rotterdam criteria were present which included presence of oligomenorrhea or primary amenorrhea at the age of 16 years, and multicystic ovaries on ultrasound along with increased ovarian size (>10 cm) and male characteristics should be present. Hirsutism rating of more than 8 was considered positive for PCOD. The modified tool was used to length of menstrual cycle, sign of androgen excess (skin problems, hair distribution) and anthropometric.

Statistical Analysis

The collected data were analyzed using Excel and IBM SPSS version 16. Descriptive analysis was performed. Pearson's chi-square test was performed to find the association between the categorical variables. Probable value which is less than 5% was considered as statistically significant.

Table 1: Distribution of respondents according to endocrinological abnormalities.

S. No.	Endocrinological Problems	No(%)
1	Irregular /oligo menstruation/anovulation only	76 (8.40)
2	Hirsutism only	109(12.10)
3	Irregular/oligo menstruation/anovulation and hirsutism	182(20.30)
4	Acne	507(56.30)
5	Alopecia	767 (85.20)

N=900

Table 2: Prevalence of PCOD according to Rotterdam criteria.

S. No.	PCOD factors	PCOD Positive(according Rotterdam criteria) (%)
1	Irregular /oligo menstruation/anovulation and hirsutism	182(20.2)
2	Irregular oligomenstruation/anovulation and multiple cyst in ovary	17(1.80)
3	Hirsutism and multiple cyst in ovary	1 (0.1)
Total	N=900	201 (22.3)

Table 3: Association -PCOD and other Factors.

Variables	PCOD present (%)	P value
Age (in years)	<20	159 (17.6)
	>20	42 (4.7)
BMI	< 25	48(5.3)
	≥25	153 (17)
Waist/hip Ratio	<0.85	20 (2.2)
	≥0.85	181 (20.1)
Total	201	

S. No.	PCODfactors	PCOD present (as per Rotterdam criteria) (%)
1	Irregular /oligo menstruation //anovulation and hirsutism	182(20.2)
2	Irregular mensus/oligo menstruation /anovulation and multiple cyst in ovary	17(1.80)
3	Hirsutism and multiple cyst in ovary	1 (0.1)
Tot al	N=900	201 (22.3)

Total 900 young young women were included in the study. It was evident that the mean age of the study subjects who were studied was 17.95 ± 0.562 years and their age range was 18-30 years. More than 97 percent of the respondents were currently unmarried. Table 1 depicted that 76(8.40%) women had oligo menstruation and anovulation, 109(12.10%) women had hirsutism (hyperandrogenicmanifeststion), 182(20.30%) young women had both oligo menstruation and anovulation and hirsutism, in 409 (81.80%) young women had acne and 507 (56.3%) young women had reported of alopecia. A total of 217 probable PCODcases were identified. On further examination, 201 (22.3%) were confirmed with PCOD as per the Rotterdam criteria (Table2).

The PCOD classification identified in this study are as follows:

- Respondents witholigo menstruation and hirsutism, 182(20.20%)
- Respondents with oligo menstruation and polycystic ovaries, 17(1.80%)
- Respondents withhirsutism and polycystic ovaries, 1 (0.1%)

Finally, 201 (22.3%) young women confirmed withPCOD as per the Rotterdam criteria(2003). Therefore, the prevalence rate of PCOD in this study was 22.30%. BMI ≥ 25 (P value < 0.0001) and waist hip ratio ≥ 0.85 (< 0.0001) were strongly associated with the PCOD variables among all others as shown in Table 3.

DISCUSSION

This work analyzed the phenotypes and the prevalence rate of PCOD among young youngwomen in the age category of 18-30 years. These results will be discussed as follows. Through our study we found the prevalence of polycystic ovarian syndrome in the Coimbatore (Tamilnadu) to be 22.3%. Joshi et al found that worldly, prevalence rate of PCOD are highly changing, varies from 2.2% to 26%.³ Another study in Mumbai (India) identified the prevalence rate as 11.97%. By utilizing the same diagnostic criteria for the prevalence when compared with previous studies done in the American and European continents was found to be much less than Asian-Indian women incidence. In our study BMI and Waist Hip ratio were strongly associated with the PCOD variables. Results in present study displayed as over weight is the predisposing factor for PCOD which is similar with study done by Saxena et al, Blasco et al, SanchezNetal, Majumdaretalandstudyof Yildiz et, al.³⁰⁻³⁴

CONCLUSION

Prevalence rate of PCOD in current study is 22.3%. Young women who were having BMI ≥ 25 (P value < 0.0001) and waist hip ratio ≥ 0.85 (< 0.0001) should be taught about the importance of weight loss and the prognosis of PCOD. Young women who had irregularity of menstruation and signs of hyperandrogenism should be diagnosed early and must be treated accordingly. Early identification of PCOD and its specific treatment will help the young women to improve their quality of life.

Recommendations

- Similar studies should be performed to identify more PCOD cases so that complication of PCOD will be prevented.
- Health education should be incorporated in the curriculum which will enlighten the women about the disorder, lifestyle modification and dietary changes.
- There is a need for early identification and frequent monitoring in overweight women.

Limitations of the study

The cross-sectional design of this study does not provide cause and effect relations, and the interpretability of our results is limited. Other biochemical analysis to confirm (serum testosterone, Insulin, LH, FSH levels, serum prolactin) PCOD could not be performed due to financial constraints.

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