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Screening of Polycystic Ovary Syndrome in Collegiate Females

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ABSTRACT Polycystic Ovarian Syndrome (PCOS) is the most common cause of menstrual dysfunction and hyperandrogenism. PCOS is recognized as a heterogeneous disorder that results in overproduction of androgens, primarily from the ovaries and leads to anovulation, hirsutism, and insulin resistance. The prevalence rise to 18–20% when used the Rotterdam criteria PCOS diagnosis is challenging for providers because of the varying diagnostic criteria and inconsistency of the patient's complaints.

Aim: The aim of this study is to create increased awareness among the students for early and accurate diagnosis, which is the primary step in managing PCOS.

Objective: To determine the prevalence of polycystic ovarian syndrome in collegiate females, indicating females at high risk of having PCOS.

Study Design: A Questionnaire based Cross-sectional study.

Material and methodology: A Google form was conducted on 70 subject, collegiate females between 17-25 years of age are included in the study. Receiving Google form from the subject in which they were given a questionnaire Clinical tool for diagnosis of Polycystic ovary syndrome by Sue. D. Pederson. They were asked to choose the symptoms and the responses are documented.

Keywords: PCOS, Anovulation, Hirsutism, Insulinresistance.

I INTRODUCTION

Polycystic Ovarian Syndrome (PCOS) is the most common cause of menstrual dysfunction and hyperandrogenism. PCOS is recognized as a heterogeneous disorder that results in overproduction of androgens, primarily from the ovaries and leads to anovulation, hirsutism, and insulin resistance. It is estimated that approximately every 1 in 10 women face PCOS before menopause and struggle with its complications.

Also, the controversy concerning a PCOS diagnosis and treatment contributes to the overall current complexities of the syndrome. I.F. Stein and M.L. Leventhal were the first researchers to distinguish the reproductive phenomena of what was to become known as PCOS (1935). A co-relational effect of the presence of irregular menses and polycystic ovaries was the core of Stein and Leventhal's original study (1935). A polycystic ovary is defined as having 12 or more follicles (or cysts) within the 2-9 mm range under ultrasound (Balen et al. 2009).

Polycystic ovary syndrome presents a diagnostic challenge4 to family physicians because of the controversy that has surrounded the diagnostic criteria and because the presenting complaints in PCOS are variable. Most often, patients present with menstrual dysfunction, oligo menorrhea, or infertility; they can also present with a pregnancy-related complication, such as gestational diabetes, or spontaneous abortion. Hirsutism or acne could be the patient's primary concern, which can result in profound psychological distress. Polycystic ovary syndrome is associated with several comorbid conditions, including type 2 diabetes dyslipidaemia, hypertension, hepatic steatosis, obstructive sleep apnoea, endometrial carcinoma, and potentially breast and ovarian cancer. It is important to diagnose

II Literature Review

PCOS as early as possible in the course of disease sothat screening, education, and appropriate preventive action and treatment of these patients can be initiated.[5]

This population of women may have a plethora of symptoms and findings related to their condition.[8] Metrorrhagia or amenorrhea, acne, irregular menses, hirsutism, alopecia. Additional symptoms included metabolic syndrome, obesity, insulin resistance, acanthosis nigricans, Type 2 diabetes, dyslipidemias, hypertension, non-alcoholic liver disease, and obstructive sleep apnoea.[6] It has been estimated that around 6–10% of women in the reproductive period are affected by this endocrinological disease considering the classical definition of the syndrome and the prevalence rise to 18–20% when used the Rotterdam criteria PCOS diagnosis is challenging for providers because of the varying diagnostic criteria and inconsistency of the patients' complaints[2,3], whereas the prevalence of PCOS in India 2021 is about 22.5%.The exact cause of PCOS remains unknown.[4] Abnormalities of the hypothalamic pituitary axis and the ovarian or adrenal steroidogenic pathway, perhaps caused by genetic changes, have been suggested as possible explanations.[9]Pituitary and hypothalamus. At the level of the hypothalamic-pituitary axis, increases in the frequency and amplitude of LH pulses have been recorded.[2] A ratio of serum LH: FSH >2 is observed in PCOS patients.

AIM/OBJECTIVE OF THE STUDY

The aim of this study is to create increased awareness among the students for early and accurate diagnosis, which is the primary step in managing PCOS.

III METHODOLOGY

Study Design: A Questionnaire based Cross-sectional study

A Google form was prepared and share to 70 subject, collegiate females between 17-25 years of age are included in the study. Receiving Google form from the subject in which they were given a questionnaire Clinical tool for diagnosis of Polycystic ovary syndrome by Sue. D. Pederson. They were asked to choose the symptoms and the responses are documented.

Clinical tool for diagnosis of Polycystic ovary syndrome by Sue. D. Pederson Sensitivity of 85%, specificity of 85%.

Screening Questionnaire for diagnosis of Polycystic Ovary Syndrome (PCOS)

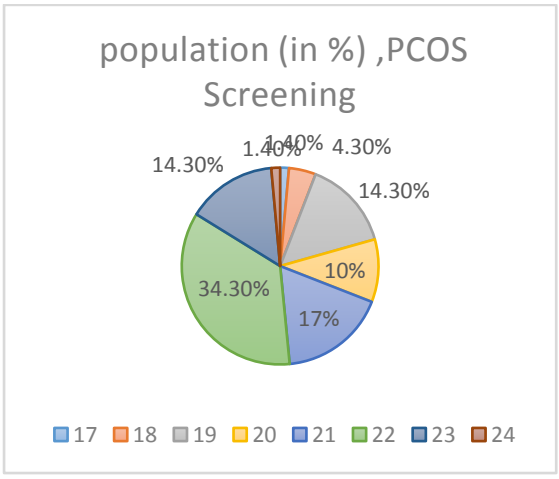
QUESTION	CRITERIA TO ATTAIN SCORE	SCORE VALUE

	VALUE	
Please answer this question, NOT INCLUDING any time spent pregnant, receiving birth control pills or injections, after menopause, or after having both ovaries or the uterus surgically removed: Between the ages of 16 and 40, about how long was your average menstrual cycle (time from first day of one period to the first day of the next period)? (Select ONE only) • <25 d • 25-34 d • 35-60 d • More than 60 d • Totally variable	Patients indicates anyone of: •35-60 d •More than 60 d • Totally variable	1
During your menstruating years (not including during pregnancy), did you have a tendency to grow dark, coarse hair on your (circle ALL that apply) • upper lip? • chin? • breasts? • chest between the breasts? • back? • belly? • upper arms? • upper thighs?	Patient indicates 3 or more sites	1
Were you ever obese or overweight between the ages of 16 and 40? (Circle ONE) • Yes • No	Patient indicates Yes Patient indicates No	**1** **0**
Between the ages of 16 and 40, have you ever noticed a milky discharge from your nipples (not including during pregnancy or recent childbirth)? (Circle ONE)	Patient indicates Yes Patient indicates No	**1** **-1** **0**

• Yes • No		
TOTAL		If ≥ 2, consistent withdiagnosis of PCOS If <2, not consistent with diagnosis of PCOS

DATA ANALYSIS

S.No.	Age (in years)	% of population	Total no. (N)
1	17	1.4%	70
2	18	4.3%	70
3	19	14.3%	70
4	20	10%	70
5	21	17%	70
6	22	34.3%	70
7	23	14.3%	70
8	24	1.4%	70



DISCUSSION

The PCOS screening questionnaire was helpful to health care professionals' in identifying and diagnosing PCOS patients. In the original study by Pederson, the 4-item questionnaire was validated as being useful in screening. The questionnaire had not been validated in a family practice setting, it was concluded that the questionnaire could be easily incorporated into a busy family practice office. This tool was found to be effective in the identification of women with PCOS.

We have constructed and validated a simple casefinding tool that can help physicians diagnose PCOS and can guide them in treating menstrual irregularity, infertility, and cosmetic concerns. This tool can also alert clinicians to screen for associated and potentially devastating comorbid conditions. A positive result must prompt a careful clinical assessment for metabolic and neoplastic complications of PCOS. A negative result does not rule out PCOS with certainty; in situations of doubt, referral to a reproductive endocrinologist is prudent.

This tool has been developed among women whose primary complaint is infertility. Many clinical symptomsamong these patients have substantial overlap. For example, women with hyperprolactinemia often present with secondary amenorrhea, as do women with PCOS. This selection bias in the referral patient population is likely also reflected in similarity of fertility ratesbetween women with PCOS and women without PCOS.

We included a history of nipple discharge in our clinical prediction tool,as a history of nipple discharge wasstrongly predictive of a diagnosis other than PCOS. This could reflect selection bias in our population; that is, patients with elevated

prolactin levels and amenorrhea are frequently referred to reproductive endocrinology clinics for further assessment. Yet previous research shows that, when pregnancy and PCOS are excluded, one third of patients presenting to family physicians with amenorrhea will have pituitary disease or dysfunction.19Consequently, it is prudent to include nipple discharge as an important negative predictor of PCOS among women with menstrual irregularity.

LIMITATIONS

Construction of this questionnaire is subject to some limitations. The sample size of 70 on which the tool was based and the limited number of categories our simplified tool uses to predict outcome restrict our ability to estimate the sensitivity for this measure and will provide a more accurate assessment of its validity.We believe thatthe simplicity of this clinical tool outweighs these limitations, and we hope that future research with this tool will provide a more accurate assessment of its validity.

IV Result

Result: According to the data collected, it was seen that prevalence of PCOS by using the validated questionnaire by Sue. D Pederson in the study was found to be 14.28%.

In this study, on Screening of Polycystic ovary syndrome in collegiate females of the age from 17-25 old, 70 subjects were taken, among which 10 responses were found to be positive.The questionnaire was validated by issuing the modified 4-item questionnaire to a second sample of 70 patients at the reproductive endocrinology clinic, 10 of whom had been diagnosed with PCOS by criterion standard.

A large number participants were of age 22 (34.3%), 17.1% were of 21 years, 14.3% were of 23 years, 14.3% were of 19 years, 10% were of 20 years, 4.3% were of 18, 2.9% were of 25, 1.4% were of 17, 1.4% were of 24 years.

The prevalence of PCOS by using the 4-item validated questionnaire by Sue. D Pederson in the study was found to be 14.28% indicating the number of females at high risk of having PCOS.

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V CONCLUSION

Conclusion: The study shows the population of high-risk collegiate females who need early medical attention for PCOS in order to lead a healthy life and managing the symptoms of PCOS.

The questionnaire was validated by issuing the modified 4-item questionnaire, sample of 70 collegiate females, 10 of whom had been diagnosed with PCOS by criterion standard. All the health care providers found the PCOS screening questionnaire to be helpful and effective in diagnosing PCOS patients and would continue to use in their practice. Also it would be helpful to detect the high risk groups (age groups) of PCOS. In addition, the providers would recommend the questionnaire to their colleagues.

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