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Awareness about PCOS and the Likelihood of Its Symptoms in Adolescent Girls in a Semi-Urban Set-Up: A Cross Sectional Study

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Abstract

Background: Polycystic ovary syndrome is a very common gynaecological endocrinopathy which is associated with problems like menstrual irregularities, hirsutism, obesity, insulin resistance, acne, and in later life it is associated with problems like infertility, diabetes mellitus and uterine cancer. Awareness is necessary for early intervention and to minimize the immediate and chronic consequences of PCOS.

Objective: To determine the prevalence of clinical polycystic ovary syndrome (PCOS) and also to increase the awareness about PCOS in young school going girls.

Methods: In this cross-sectional study, 100 high school girls aged between 14-17 years were included. This study was conducted in a government school of Sambalpur, Odisha. A carefully prepared questionnaire was given to all the girls aged 14-17 years. The presence of hirsutism, severe acne, androgenic alopecia, menstrual irregularities and obesity were recorded. Clinical PCOS was diagnosed if menstrual dysfunction and clinical hyperandrogenism were detected.

Results: The prevalence of clinical PCOS in the present study was 12%, hirsutism in 12(12%), severe acne in 20(20%) and menstrual irregularities in 36(36%) of the population studied.

Conclusion: The prevalence of clinical PCOS in our study was 12%. A timely diagnosis of PCOS in symptomatic adolescent girls is important for the initiation of appropriate screening and treatment.

Keywords: Polycystic Ovaries, Hirsutism, acne, obesity, menstrual irregularities.

INTRODUCTION

Polycystic ovary syndrome is the most common gynaecological endocrinopathy, affecting 5-10% of women in the reproductive age world-wide. Women with PCOS are at increased risk of

reproductive problems including infertility, endometrial cancer, late menopause and also metabolic aberrations including insulin resistance, type2 diabetes mellitus, dyslipidemia and cardiovascular diseases. In 2003 a consensus

workshop sponsored by the ESHRE/ASRM in Rotterdam¹ indicated PCOS to be present if any two of three criteria are met¹.

1. Oligo -ovulation or anovulation
2. Excess androgen activity
3. Polycystic ovaries (by USG)

However, most women and girls are still unaware about the disease. In a semi urban set up like Sambalpur, diseases or discomforts related to the reproductive tract are brushed under the carpet and often not investigated till the condition has deteriorated. It is possible to identify the early clinical manifestations of PCOS in late puberty and early adolescence. The disease is on its rise due to lifestyle and environmental changes which occurs with modernization. In the early stages, the condition is asymptomatic in young women. Later on it produces menstrual irregularities, excessive weight gain, and infertility; and in late middle age, it leads to several major health hazards. Awareness is necessary for early intervention, including behaviour modification, to minimize the immediate and chronic consequences of PCOS. In view of this and the fact that the prevalence of this syndrome in our community remains unknown and complete screening of every girl is uneconomical in our setting, we attempt to find its prevalence & awareness in a community of adolescent girls aged between 14-17 years.

AIMS AND OBJECTIVES

- The principal objective of this study is to increase awareness about PCOS in young school going girls.
- This study was aimed to assess the prevalence of PCOS in adolescent girls aged 14-17 years.
- It is also aimed at pinpointing the specific deficits that we need to address when it comes to imparting Comprehensive Sexuality Education (CSE). Often genetic disorders are ignored while teaching the students about the reproductive tract.

- Finally, since a full clinical screening of every girl is difficult due to lack of infrastructure and societal norms and beliefs, this study can help identify possible cases of PCOS and then those girls can be advised to take a medical opinion.

MATERIALS AND METHODS

The study is a cross-sectional study conducted in a government school of Sambalpur. Girls aged between 14-17 years were included in the study. A carefully prepared questionnaire was given randomly to all the girls aged 14-17. This was done in their school hours and in the presence of their teachers. The language used was English, and all questions have been written in a simple, lucid and a conversational tone. It is completely student-friendly and care has been taken not to raise panic or even intimidate any participant by any question. Before asking the participants to fill up the form, the aims and objectives of this study was made clear, and the procedure clearly explained.

The questionnaire has been prepared meticulously based on the probable indicators of PCOS and other associated problems. The questionnaire includes questions on the level of physical activity, age at menarche, regularity and length of the menstrual cycle, type of menstrual flow, presence or absence of dysmenorrhoea, hirsutism or acne. A probable case of clinical PCOS was defined as a girl with menstrual irregularity or hirsutism or both. Girls who reported a menstrual cycle longer than 35 days or who had variable cycles/irregular cycles were considered to have menstrual irregularity. Clinical hyperandrogenism was considered in adolescent girls presenting with unwanted hair growth in a male like pattern, moderate to severe inflammatory acne and /or menstrual irregularities. Hirsutism was estimated with a modified Ferriman-Gallway score assessment that was given with the questionnaire. Hirsutism was considered when the total score was > 8 according to the Ferriman-Gallway chart.

The BMI was calculated as the ratio of weight (kg) and height squared (m²). The responses from the participants were collected and the data analyzed. The prevalence of the indicators of PCOS was quantified. Girls showing the indicators of PCOS were counseled and advised to seek a clinical opinion.

RESULTS

There were 100 girls in the sampling frame. Their age ranged from 14-17 years. Results indicated that 12% of the girls were having clinical PCOS. 62% of the girls belonged to the age group 16-17years (table 1). The height and weight of the girls were noted and their BMI was calculated. Sixty four girls had a normal BMI; twenty eight girls were found to be overweight while eight girls were found to be obese (table 2). Almost all the girls practiced some form of physical activity. Brisk walking was the preferred form of exercise (37%), followed by outdoor games being played by twenty girls (table 1). Out of the 100 girls surveyed forty three girls had their first period when they were 13-14. Maximum number of girls had fairly normal cycles(64%) while eighteen girls had roughly 3 week cycles and yet another fifteen had 35-60 day cycle (table 3) . 76% of the girls had normal flow while 16% had scanty flow and more than 50% of the girls (56) complained of painful abdominal cramps. Other conditions like acne, alopecia, increased hair growth and hyperpigmentation were also taken into account. 20% of the girls had acne while abnormal hair growth was reported by twelve girls (table 4). Coming to the awareness of the PCOS, a mere 22% of the girls had heard about PCOS. Another 78 were unaware of the term. Out of the twenty two who had heard the term, internet was the place they had read about it while the remaining eight had heard it from family and friends(table 5).

RESULTS

TABLE 1: Age and Physical Activity

AGE DISTRIBUTION(YRS)	NO.(%)
14-15	38
16-17	62

PHYSICAL ACTIVITY	
Indoor games	15
Outdoor games	20
Yoga/Gym	15
Brisk walking	37
Other exercise	13
AGE AT MENARCHE (YRS)	
11-12	57
13-14	43

TABLE 2: Body Mass Index

BMI	Reference values	NO.(%)
Normal	18-22.9	64
Overweight	23-25	28
Obese	>25	08

TABLE – 3 Menstrual Symptoms

Duration of Menstrual Cycle	NO.(%)
25-34 days	64
<25 days	18
35-60 days	15
>60 days	01
Variable	02
TYPE OF MENSTRUAL FLOW	
Scanty	16
Normal	76
Heavy	08
INCIDENCE OF DYSMENORRHOEA	
Yes	56
No	44

TABLE 4: Hirsutism and ACNE

Chief Complaint	NO.(%)
Acne	20
Hair loss	06
Hair growth	12
Hyperpigmentation	02

TABLE 5: Awareness of PCOS

HAVE YOU EVER HEARD OF PCOS?	NO(%).
Yes	22
No	78
AGE WHEN YOU FIRST HEARD ABOUT PCOS (YRS)	
NOT HEARD AT ALL	78
15	10
16	12
WHERE DID YOU COME TO KNOW ABOUT PCOS?	
Textbooks	-
TV/Media	-
Internet	14
Friends/Family	08

TABLE 6: Clinical PCOS

CLINICAL PCOS	NO. (%)
Menstrual irregularities + acne	8

Menstrual irregularities+ acne + hirsutism	2
Menstrual hirsutism + hirsutism	2

DISCUSSION

In the present day scenario polycystic ovary syndrome (PCOS) is an extremely common endocrine disorder, which poses a health problem in adolescent females. PCOS is a chronic condition having physiological and reproductive manifestations which usually begin in adolescence, then progress to include infertility and increasing metabolic complications overtime. A timely diagnosis of PCOS leads to awareness of this condition associated with hormonal and metabolic complications and provides an opportunity for healthy lifestyle counselling, testing for co-morbidities or medications². But over diagnosis of PCOS can have an impact on Adolescent's quality of life and can create early and unwarranted anxiety about future fertility for the young girl and her family³. The Rotterdam criteria state that two out of the following three criteria should be present in the diagnosis of PCOS: oligo-anovulation, clinical and /or biochemical hyperandrogenism and ultrasound diagnosis of PCOS¹. The newest diagnostic guideline was made by the androgen excess and PCOS society in 2006; they claim the presence of hyperandrogenism and ovarian dysfunction (oligo/anovulation and /or polycystic ovaries⁴. The prevalence and the factors associated with PCOS were quantified in a cross-sectional study by giving a questionnaire among the adolescent girls in a government school of Sambalpur. The prevalence of clinical PCOS in our study was 12%. These young girls are at a future risk of developing delayed periods followed by heavy bleeding and anaemia, infertility, diabetes, obesity, hypertension leading to increased risk of cardiac problems and uterine cancer. Nidhi et al⁵ in their study found that prevalence of PCOS in Indian adolescents to be 9.13%. The prevalence of PCOS among different communities varies. These variations are due to difficulties in hormonal evaluations and lack of consensus on diagnostic criteria⁶. Transvaginal ultrasonography and blood tests have to be done for a diagnosis of PCOS,

which limits large epidemiological studies. The prevalence of PCOS has been estimated at 4%-8% from several studies done in Greece, Spain and the USA⁷⁻⁹. A retrospective cohort from Australia reports a higher prevalence of 11% using Rotterdam criteria¹⁰. Even though menstrual dysfunction is the commonest complaint in the adolescents it is often overlooked. 11.16% of the girls in the present study had oligomenorrhoea and oligomenorrhoea is a good screening indicator to diagnose a probable case of PCOS. Many studies have shown that PCOS has been mostly associated with menstrual irregularities. Nair et al¹² reported the rate of detection of PCOS as high as 72.6% in women with menstrual dysfunction. The menstrual irregularity in puberty especially in the first two years after menarche may prevent early recognition of the disease in adolescence. In women with PCOS oligomenorrhoeic cycles of more than 3 months may be associated with endometrial hyperplasia. So these women should be properly investigated and treatment given. Obesity was noted in 8% of the surveyed girls, majority of the girls in this study were lean (64%). Obesity itself aggravates menstrual irregularity alone or in combination with other factors. It also increases the prevalence of PCOS. Although obesity, insulin resistance and hyperinsulinemia are common findings in adolescents with hyperandrogenism, these features should not be used to diagnose PCOS among adolescent girls³. Hoeger et al¹³ have in their study shown that lifestyle changes in both rural and urban areas have influenced the prevalence of PCOS. Lack of exercise and low physical activity play a role in the prevalence of PCOS¹⁴. Various lifestyle modifications like regular exercise and dietary modifications will be required to achieve weight reduction. Weight reduction and lifestyle modifications were advised for all the overweight and obese adolescents. Hirsutism was seen in 12% of the girls. About 10% of Caucasian females have symptoms of hirsutism¹⁵. There is an increase in 5 alpha reductase activity in hair follicles of hirsute females¹⁵. Khomani et al¹⁶ in their study found

that hirsutism had the strongest impact on the health related quality of life measures in Iranian women diagnosed with PCOS. Ekback et al¹⁷ evaluated the experiences of women with hirsutism and reported that a majority of these women had negative body image and considered themselves ugly and unattractive, which lowered their self esteem and limited their social interaction. Coming to the awareness of the PCOS, a mere 22% of the girls had heard about PCOS. Another 78 were unaware of the term. Out of the twenty two who had heard the term, internet was the place they had read about it while the remaining eight had heard it from family and friends. The school curriculum and the Adolescence Education Program (AEP) have no noteworthy mention of PCOS despite the fact that PCOS is the most common endocrinal disorder that affects young girls; both physically and emotionally. Hence there is a need for increased awareness, comprehensive screening as well as early recognition and timely intervention with frequent follow-ups in all adolescents with PCOS to prevent long-term consequences. A focus on PCOS will alert many young girls early in life, and simple solutions such as exercise, yoga and healthy eating, we will prevent unnecessary complications in their later years. There is a need for more research involving adolescent females with PCOS.

LIMITATIONS OF THE STUDY

This study has some limitations. The girls included in the study were not evaluated for biochemical hyperandrogenemia. Since the study was performed in students transvaginal ultrasonography was not done and as a result this specific and sensitive tool was not used for identifying polycystic ovaries.

CONCLUSION

The prevalence of PCOS in the present study was 12%. However the prevalence could have been higher with hormonal assessment. A timely diagnosis of PCOS in symptomatic girls is

important in order to initiate appropriate treatment. There is a need for greater efforts to promote awareness regarding symptoms of PCOS and encourage reporting of symptoms at very early stages of menstrual irregularities. Physicians also have a role to play in not missing the early signs of PCOS when reported. Health education and screening for PCOS need to be incorporated in Adolescent Education Program and an assessment of target groups by simple menstrual history could detect possible PCOS during early adolescence to facilitate early appropriate intervention.

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