



A STUDY OF ASSOCIATION OF PCOS IN ADOLESCENT GIRLS WITH COMPLAINTS OF MENSTRUAL IRREGULARITIES, ACNE AND HIRSUTISM.

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ABSTRACT

Study objective: 1. To see the association of PCOS with various presenting complaints among adolescents.

2. To correlate the presenting complaints with various investigating modalities. **Design:** Cross Sectional study. **Place Of Study-** Gynaecology OPD at Bokaro General Hospital **About This Study:** This study was a cross sectional study done to study the association of PCOS in adolescent girls with complaints of menstrual irregularities, acne and hirsutism. For this a study of 400 adolescent girls attending Gynaecology OPD at Bokaro General Hospital was done. Amongst these 150 adolescent girls in age group 15-19 years presenting with complaints of menstrual irregularities, acne and hirsutism and who gave consent for further physical examinations, workup, follow ups and investigations were included in the study. In this study it was found that majority of the study participants i.e. 36.7% were overweight. Small proportion of participants i.e. 5.3% were underweight. Majority of study participants (58.7%) presented with Oligomenorrhea followed by 19.3% presented with Secondary Amenorrhea. Small proportion of study participants i.e. 2.7% presented with Metrorrhagia. Primary amenorrhoea and Polymenorrhea was present in 9% and 10% of study participants respectively. Acne, hirsutism was present in 58% of study participants. Only small proportion of study participants i.e. 10.7% had alopecia. It was concluded that majority of the study participants in whom diagnosis of PCOS was made were Overweight/obese, had Amenorrhea/ Oligomenorrhea and mild to moderate acne. Alopecia and Hirsutism was not present in majority of the study participants with PCOS. Although highly significant association was found between BMI/Menstrual irregularities/Acne/Alopecia/Hirsutism and diagnosis of PCOS ($p < 0.05$).

KEYWORDS :

INTRODUCTION –

PCOS is now recognized as the most common endocrine disorder in females affecting 5-10% of those of reproductive age[1]. PCOS may first be seen in adolescence, but the precise prevalence of PCOS in adolescence is still not known, yet a recent study of female aged 15-19 year old estimated to be 1.14% using NIH criteria. Although polycystic ovarian morphology and features of hyperandrogenism are key factors for the diagnosis of PCOS in adults but adolescent girls during the early stages of puberty tend to have anovulatory menstrual cycles, higher androgen levels, and polycystic ovaries.[2] Thus, PCOS symptoms tend to overlap with normal pubertal changes.

Clinical manifestations includes oligomenorrhea, androgen excess, and polycystic appearing ovaries on ultrasound.[3]

Diagnostic features for adolescent girls are menstrual irregularity, clinical hyperandrogenism, and/or hyperandrogenemia.

The symptoms of PCOS usually emerge at or soon after puberty, which may, in some cases, lead to a failure of diagnosis and potentially to a delay in the initiation of treatment, which is the main challenge.

AIM-

Study of association of polycystic ovarian syndrome in adolescent girls with complaints of menstrual irregularities, acne and hirsutism attending Gynaecology opd at Bokaro General Hospital.

OBJECTIVES

1. To see the association of PCOS with various presenting complaints among adolescents.
2. To correlate the presenting complaints with various investigating modalities.

MATERIALS AND METHODS -

Study Design - Cross Sectional study

Place Of Study- Gynaecology OPD at Bokaro General Hospital

Sample Size

Out of 400 adolescent girls attending Gynaecology OPD at Bokaro General Hospital; 150 adolescent girls in age group 15-19 years presenting with complaints of menstrual irregularities, acne and hirsutism and who gave consent for further physical examinations, workup, follow ups and investigations were included in the study.

Inclusion Criteria

1. All the adolescent girls attending gynae OPD between 15-19 years age group (married/unmarried) and who had menarche atleast 2 years before the study.
2. All adolescent girls of the same age group with complains of menstrual irregularities and sign of hyperandrogenism like acne, hirsutism and alopecia.
3. Adolescent girls of the same age group with history of PCOS in mother/siblings and family history of hypothyroidism and diabetes mellitus.

Exclusion Criteria

1. Patients with clinical features of Cushing syndrome and congenital adrenal hyperplasia
2. Patients with thyroid disorders, Hyperprolactinemia and acromegaly.
3. Pregnant females
4. Patients who did not given consent.

METHODS OF EXAMINATION

During clinical examination weight was measured on platform type machine, and its accuracy was checked each time before measuring the weight. The weight was recorded in Kg with women wearing minimal garments and no ornaments. The height was measured using a stadiometer in meters, its a quick way of accurately measuring the height. BMI was calculated in each case by following formula: $BMI = \text{Kg}/\text{m}^2$

WHO Criteria

Weight BMI
Underweight < 18.5
Normal 18.5-24.9
Over weight 25-29.9
Obese 30-34.5
Ext. obese 35 or above

The waist circumference was taken with 1 cm wide inch tape measured in a horizontal plane, midway between the inferior margin of ribs and the superior border of iliac crest. Hip circumference was measured with the measuring tape at the highest prominence of the buttocks and parallel to floor. Waist and hip circumference were recorded, after remaining clothing from the area over waist and hip.

W: H Ratio < 7.5 – Excellent, 0.75 - 0.80 – Good, 0.80 – 0.85 – Average, 0.85 – 0.90 - At risk, > 0.90 - High risk.

Evaluation Of Presenting Complaints:

1. Menstrual Irregularities-

Enquiry about menstrual pattern was done,
Oligomenorrhea-Cycle length >38 days.
Polymenorrhea-cycle length <24 days.
Hypomenorrhea-Scanty bleeding and shorter days.
Metrorrhagia-Intermenstrual bleeding.
Primary amenorrhea
Secondary amenorrhea

2. HIRsutISM

The degree of hirsutism was assessed with modified Ferriman – Galway score, the modified F.G. score evaluates hair growth in a 9 androgen sensitive body area, the upper lip, chin, chest, upper and lower back, upper and lower abdomen, upper arm and thigh. A score of 0 represents the absence of terminal hair growth and a score of 4 represents extensive growth. A total score of 8 or higher constitutes hirsutism. Other method to enquire about hirsutism is to note the frequency of hair removal (shaving, plucking and waxing).

3. ACNE

Examination of acne was done by GLOBAL ACNE GRADING system for adolescents that has told about the severity(mild, moderate, severe)and has differentiated between comedonal lesion and inflammatory lesions.

Moderate to severe inflammatory acne vulgaris unresponsive to topical medications was an indication to test for hyperandrogenemia.

- 1. Alopecia-Presence or absence of alopecia in adolescent girls was also noted as a reliable indicator of hyperandrogenemia.
- 2. USG assessment – An Abdominal USG was performed between the day 6-8 of menstrual cycle to assess ovarian morphology for the diagnosis of PCOS – criteria. Presence of 20 or more follicles 2-9 mm in diameter in either ovary and /or increased ovarian volume > 10 ml.
- 3. Hormonal Assay – Serum total testosterone levels were assessed.

Normal - 20-70 ng/dl.
> 150 ng/dl is suggestive of androgen producing tumor

Nearly all women with PCOS have a total testosterone lever < 150 ng/dl

Serum TSH and serum prolactin was done to rule out any abnormalities. Categorisation of subjects into low, middle and upper income group was done according to modified kuppuswamy classification 2020. Subjects were classified as educated if they are literate upto atleast primary level, and rest are taken as uneducated. History of PCOS in mothers and siblings and family history of hypothyroidism and diabetes mellitus was asked and noted.

Statistical Analysis

Keeping in mind research question, proposed hypothesis, aims and objectives and plan of analysis of the study was as follows:
Descriptive analysis was done to show the distribution in the form of frequency and percentage. Inferential Analysis, chi-square test and Pearson correlation coefficient analysis were used to find association between dependent and independent variables.

OBSERVATION & RESULTS

Table No.1 Distribution Of Study Participants On The Basis Of Menstrual Irregularities

	count	%
Primary amenorrhoea	14	9.3
Secondary amenorrhoea	29	19.3
Oligomenorrhoea	88	58.7
Polymenorrhoea	15	10.0
Metrorrhagia	4	2.7

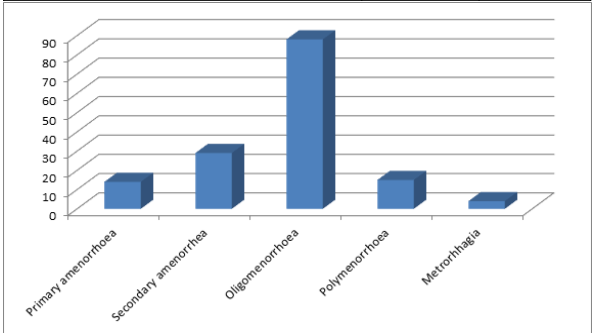


Table No.2 Distribution Of Clinical Conditions Among Study Participants

		count	%
Acne	Mild	52	34.7
	Moderate	53	35.3
	Severe	45	30.0
Alopecia	Present	16	10.7
	Absent	134	89.3
Hirsutism	Present	87	58.0
	Absent	63	42.0

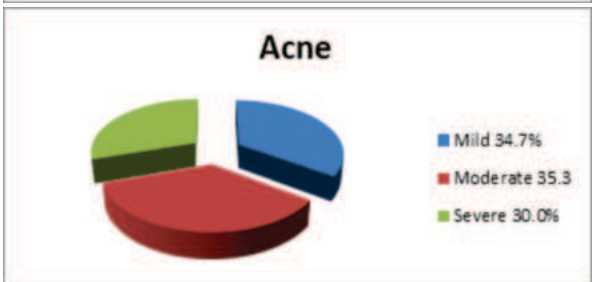
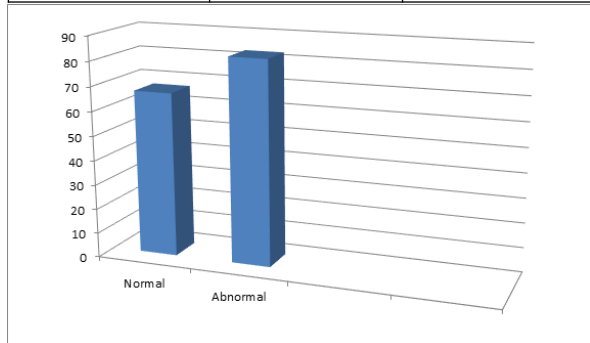


Table No.3 Distribution Of Findings Of USG Among Study Participants

	count	%
Normal	67	44.7
Abnormal	83	55.3

**Table No.4 Association Of PCOS With Clinical Conditions**

		Diagnosis of PCOS		χ^2 Value	p Value
		Present	Absent		
		Count	Count		
BMI Category	Underweight and Normal	17	42	57.268	0.00*
	Overweight and Obese	81	10		
Type of menstrual irregularity	Amenorrhea and Oligomenorrhea	96	35	28.854	0.00*
	Polymenorrhea and Metrorrhagia	2	17		
Acne	Mild to Moderate	57	48	18.861	0.00*
	Severe	41	4		
Alopecia	Present	14	2	3.886	0.04*
	Absent	84	50		
Hirsutism	Present	77	10	49.110	0.00*
	Absent	21	42		
PCOS present category included YES and Possible categories and PCOS Absent category included NO and Not possible category					

Majority of the study participants in whom diagnosis of PCOS was made were Overweight/obese, had Amenorrhea/Oligomenorrhea and mild to moderate acne. Alopecia and Hirsutism was not present in majority of the study participants with PCOS. Although highly significant association was found between BMI/Menstrual irregularities/ Acne/ Alopecia/ Hirsutism and diagnosis of PCOS ($p < 0.05$).

DISCUSSION

Present study was a cross sectional study done to study the association of PCOS in adolescent girls with complaints of menstrual irregularities, acne and hirsutism. After considering inclusion and exclusion criteria and taking informed consent 150 adolescent girls were recruited in the study and data were collected using pre tested semi structured questionnaire. Keeping in mind research question, proposed hypothesis, aims and objectives, analysis was done.

Menstrual difficulties were a typical adolescent problem that caused concern in both the sufferers and their families.

In our study Oligomenorrhea was the most common symptom among research participants (58.7%), followed by Secondary Amenorrhea (19.3%). A small percentage of the research participants, 2.7%, had Metrorrhagia. Polymenorrhea and

primary amenorrhoea were seen in 9% and 10% of study participants, respectively. Oligomenorrhea was found to be the most common menstrual irregularity as well as most common chief complain of patients with PCOS in our and most other studies. Although there was a significantly strong association between menstrual irregularities and diagnosis of PCOS ($p < 0.05$).

In a study done by Mughda L Jugari, the most common menstrual complain in PCOS was Oligomenorrhea occurring in 109 of 130 patients (83.8%). 10 (7.7%) patients did not presented any menstrual complain.

In a study done by Ram Nidhi et al on adolescent girls aged 15-18 years, (0.22%) had oligo/amenorrhea with clinical hyperandrogenism, 29 (6.30%) had Oligomenorrhea with polycystic ovaries, 1 (0.22%) had polycystic ovaries with clinical hyperandrogenism and 11 (2.39%) had Oligomenorrhea with polycystic ovaries in the presence of clinical hyperandrogenism.(4)

PCOS was the most prevalent underlying aetiology in adolescents hospitalised with Abnormal uterine bleeding (AUB) and menorrhagia, accounting for 33% of hospitalizations, according to a recent study(5). The majority of the study participants had mild to moderate acne, and 58 % of the patients had hirsutism. Alopecia was found in a small proportion of study participants, 10.7%. The majority of the patients with PCOS had mild to moderate acne. The majority of PCOS research participants did not had alopecia or hirsutism. Although there was a significantly strong association between Acne/ Alopecia/ Hirsutism and PCOS diagnosis ($p < 0.05$).

In a study done by Mahesh et al, hirsutism was present in 1.60%, Acne was present in 81.80% and 20.60% of study participants had complain of hair fall(6).

In a study done by N A Desai et al, authors reported that In comparison to non PCOS girls, PCOS girls had a greater prevalence of moderate (31.93%) and severe (5.88%) acne. PCOS girls had a greater prevalence of mild and moderate acne at the ages of 17 (41.66 %) and 18 (60 %), respectively. As a result, when comparing PCOS and non-PCOS girls, acne is more common in PCOS girls ($P < 0.05$)(7)

More than half of the study participants (55.3%) reported abnormal USG findings, and more than half of the study participants (54%) had a significant family history of PCOS. Similarly In the study by Alakananda et al, 50% PCOS patients gave family history of PCOS in either mother or siblings(8)

The majority of study individuals with abnormal USG findings were overweight or obese, had amenorrhea/Oligomenorrhea, and mild to moderate acne. The majority of research subjects with abnormal USG findings did not had alopecia or hirsutism. Although there was a very significant association ($p < 0.05$) between BMI, menstrual abnormalities, acne, and hirsutism and USG investigation. On USG, the most prevalent observation was the presence of polycystic ovaries in nearly half of the patients (47.7%), followed by the presence of both polycystic ovaries and increased ovarian volume in 29.2 % of the patients, according to Mughda L Jungari et al. In 19.2 % of patients, increased ovarian volume was detected, which corresponded to PCOS diagnostic criteria.(9)

SUMMARY

In our study Majority of the study participants i.e. 32% were 15 year old. Most of the study participants were in their early adolescent. Mean age of study participants was 17 ± 2 years.

Majority of study participants (58.7%) presented with

Oligomenorrhea followed by 19.3% presented with Secondary Amenorrhea. Small proportion of study participants i.e. 2.7% presented with Metrorrhagia. Primary amenorrhoea and Polymenorrhea was present in 9% and 10% of study participants respectively. Majority of the study participants presented with mild to moderate acne, hirsutism was present in 58% of study participants. Only small proportion of study participants i.e. 10.7% had alopecia.

More than half (55.3%) of the study participants had abnormal finding in the USG.

Majority of the study participants in whom diagnosis of PCOS was made were Overweight/obese, had Amenorrhea/Oligomenorrhea and mild to moderate acne. Alopecia and Hirsutism was not present in majority of the study participants with PCOS.

Majority of the study participants who had abnormal findings in USG were Overweight/obese, had Amenorrhea/Oligomenorrhea and mild to moderate acne. Alopecia and Hirsutism was not present in majority of the study participants with abnormal USG findings.

A significant association was found between BMI/Menstrual irregularities /Acne/Hirsutism and USG investigation ($p < 0.05$).

CONCLUSION

Present study was a cross sectional study done to study the association of PCOS in adolescent girls with complaints of menstrual irregularities, acne and hirsutism. According to the findings, PCOS is an emerging illness with a variety of health repercussions, including hirsutism, acne, and menstrual abnormalities, all of which are prevalent endocrine problems.

PCOS is the most frequent endocrinopathy, with a wide range of clinical manifestations; in the current study, the most common presenting complaint was Oligomenorrhea.

Grossly overweight females should be given special attention because they have the highest risk of PCOS, which can be treated with lifestyle changes and nutritional changes, as well as weight-loss exercises and medical care.

Early diagnosis of the condition based on clinical findings (mostly oligo- or amenorrhea) allows for early intervention to avoid or mitigate dermatological and reproductive symptoms, as well as the long-term implications of metabolic abnormalities.

In order to put a comprehensive management plan in place and reduce the physical and psychological burden of the disease, a multidisciplinary approach with the involvement of a gynaecologist, dermatologist, endocrinologist, psychiatrics, and nutritionist should be used when dealing with a case of PCOS.

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