

Prevalence and Clinical Profile of Patients with Polycystic Ovary Syndrome- A Hospital Based Study

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ABSTRACT

BACKGROUND

Polycystic ovary syndrome (PCOS) is said to be the commonest endocrine disorder of women of reproductive age with a heterogeneous presentation, which includes elevated androgen levels, menstrual irregularities, and/or small cysts on one or both ovaries.⁽¹⁾ On an average, it is affecting 4-8% of women of reproductive age.⁽²⁾ Despite being an endocrine disease, it is also influenced by obesity and sedentary lifestyle. It is greatly affecting an-ovulatory infertility status of women affected by PCOS. We wanted to study prevalence of polycystic ovarian syndrome in patients coming to OPD & to study the clinical profile of PCOS among women of reproductive age group along with the incidence of obesity & influence of sedentary lifestyle.

METHODS

This was a hospital based cross-sectional study conducted among women of reproductive age group (15-45 years) attending Gynae. OPD at PIMS, Jalandhar. Women of reproductive age group (15-45 years) attending Gynae. OPD at PIMS, Jalandhar were enrolled in the study.

RESULTS

Out of the total 1140 cases examined during the study period, PCOS was diagnosed in 107 cases, giving prevalence of PCOS as 9.38% in the present study. Most of the cases (39.25%) were in the age group of 13-20 years. Prevalence of PCOS, in the age group of 21-30 years was 27.10% and in age group of 41-50 years, it was only 11.21%. Prevalence of overweight/obesity was 45.79% in cases of PCOS. Patter of education distribution showed highest prevalence in less educated (primary education) in 36.44% with less prevalence in higher education group as 13.08% (Table 4). Most common menstrual abnormality seen among cases of PCOS was delayed menses with (34.57%) or without (27.10%) hypo-menorrhoea. Isolated hypo-menorrhoea was seen in 20.56% cases (Table 5). Out of total 107 cases, 48 (44.85%) were married (Table 6). Out of 48 married females, prevalence of infertility was 66.66% with 58.33% cases of primary infertility while 8.33% cases of secondary infertility (Table 7). History of regular intake of junk foods was given by 57.94% cases (Table 8). Sedentary lifestyle was observed in 49.53% cases (Table 9).

CONCLUSIONS

Though PCOS is a heterogeneous endocrine disease having genetic factors, environmental and nutritional factors affect its incidence a lot. Eating high calorie food with sedentary lifestyle and obesity affect the incidence and severity of PCOS. We have found in the present study that incidence of an-ovulatory infertility is also high. Since PCOS is a lifestyle disease adversely affecting fertility and physical appearance of the person, it can be prevented by modification of lifestyle, enabling girls to live a healthy life.

KEY WORDS

Polycystic Ovaries, Endocrine, Obesity, Infertility

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DOI: 10.14260/jemds/2019/560

Financial or Other Competing Interests:
None.

How to Cite This Article:

Cheema HK, Arora R. Prevalence and clinical profile of patients with polycystic ovary syndrome- a hospital based study. J. Evolution Med. Dent. Sci. 2019;8(32):2573-2576, DOI: 10.14260/jemds/2019/560

Submission 24-06-2019,
Peer Review 24-07-2019,
Acceptance 01-08-2019,
Published 12-08-2019.



BACKGROUND

Polycystic ovary syndrome (PCOS) is said to be the commonest endocrine disorder of women of reproductive age with a heterogeneous presentation, which includes elevated androgen levels, menstrual irregularities, and/or small cysts on one or both ovaries.⁽¹⁾ On an average, it is affecting 4–8% of women of reproductive age.⁽²⁾ It is the commonest cause of anovulatory infertility, and around 90–95% of women with anovulatory infertility presenting to infertility clinics are affected by the syndrome⁽³⁾ Main characteristic features include menstrual disturbances, hyperandrogenism & polycystic ovaries. Up to 70% of women with hyperandrogenism present with hirsutism, or excess body hair. Acne, though considered less specific, is also a marker of hyperandrogenism.^{(4),(5)} Environmental factors implicated in PCOS (e.g., obesity) can be exacerbated by poor dietary choices and physical inactivity; play a role.⁽⁶⁾ The principal concern that has been expressed is the inclusion of genetically determined ovarian disorder characterized by excessive androgen production and that the heterogeneity of PCOS can be explained by the interaction of this disorder with environmental factors, notably dietary.^(7,8)

The reproductive and metabolic features of PCOS are sometimes reversible with lifestyle modifications such as weight loss and exercise⁽⁹⁾ PCOS is furthermore associated with insulin resistance, accumulation of abdominal fat and obesity (BMI >30 Kg/m²), which is present in approximately 50% of women with PCOS^(10,11) The Rotterdam criteria does not require hyperandrogenism or hyperandrogenaemia alone for diagnosis, but can confirm diagnosis when these are present alongside polycystic ovaries, even in the absence of ovulatory or menstrual dysfunction.⁽¹²⁾

This study has attempted to determine the prevalence and clinical features including epidemiological and lifestyle factors associated with PCOS among women of reproductive age group (15-45 years), coming to Gynae OPD, in Punjab Institute of Medical Sciences, Jalandhar.

We wanted to study prevalence of polycystic ovarian syndrome in patients coming to OPD & to study the clinical profile of PCOS among women of reproductive age group along incidence of obesity & influence of sedentary lifestyle.

METHODS

Study Design

This was a hospital based cross-sectional study conducted among women of reproductive age group (15-45 years) attending Gynae OPD at PIMS, Jalandhar

Study Population

Women of reproductive age group (15-45 years) attending Gynae. OPD at PIMS, Jalandhar were enrolled in the study.

Inclusion Criteria

All patients of reproductive age group attending Gynae. OPD

Exclusion Criteria

Patients suffering from chronic diseases or already diagnosed diabetes, hypertension were excluded from the study Systematic sampling technique was employed for the study.

Since there are 1200 patients attending Gynae OPD, every six months, sampling fraction obtained was 2. List of all patients was secured, and every second participant was included in the study. 1140 patients attending Gynae. OPD in PIMS were studied.

Study Period

December 2017- November 2018

Study Strategy

The study was done by administering Pre-designed Pre-structured questionnaire. Prior to the study, informed written consent of the participant was obtained.

Study Tools

Pre-designed Pre-structured questionnaire comprising variables like age, education, occupation, marital history and type of family. History of dietary pattern was recorded using pre-structured questionnaire based on consumption pattern, frequency of meals, type of meal, vegetables and fruits consumption, daily water intake, consumption of fast food, etc. Physical activity considered in present study was intense physical activity of more than 30 minutes a day for 4- 5 days in week.

Clinical Examination and Diagnostic Criteria

History of Irregular menstrual cycles, weight gain and hirsutism were recorded. Height and weight was recorded for computing BMI (Kg/m²). Diagnosis was made in accordance to Rotterdam criteria,^(9,12) which includes history of oligomenorrhea or amenorrhea, Hyperandrogenism or Clinical hirsutism was observed. Probable cases of PCOS were subjected to Ultrasonography. Free serum Testosterone was done. PCOS on USG were noted. 2 out of these criteria was taken.

Data Analysis

The data collected during the survey was entered in MS Excel and was analyzed via SPSS (Statistical Package for the Social Sciences) version 21.

Ethics Consideration

Ethics clearance was taken for the study from Institutional Ethics committee. Informed written consent from the informant was taken before conducting the study. Strict confidentiality was maintained.

RESULTS

Total Examined Patients	PCOS Diagnosed	Percentage of PCOS
1140	107	9.38%

Table 1. Prevalence of PCOS

Years	No. of Cases	Percentage
13-20 yrs.	42	39.25 %
21-30	29	27.10 %
31-40	24	22.42 %
41-50	12	11.21 %

Table 2. Age Wise Distribution (Out of 107)

Weight	No. of Cases	Percentage
Over-weight	49	45.79 %
Normal	32	29.90 %
Under-weight	26	24.29 %

Table 3. Weight Wise Distribution

Education	No. of Cases	Percentage
Illiterate	30	28.03 %
Primary	39	36.44 %
secondary	24	22.42 %
Higher education	14	13.08 %

Table 4. Pattern of Education Distribution

Menstrual Abnormality	No. of Cases	Percentage
Delayed menses	29	27.10 %
Hypomenorrhea	22	20.56 %
D.M.+ Hypomenorrhea	37	34.57 %
Amenorrhoea	06	05.60 %
Meno-metrorrhagia	13	12.14%

Table 5. Pattern of Menstrual Abnormalities

Marital Status	No. of Cases	Percentage
unmarried	59	55.14 %
Married	48	44.85 %

Table 6. Marital Status

Status—Total infertile women out of 48 married women	32	66.66 %
Primary infertility	28	58.33 %
Secondary infertility (one child)	04	08.33 %

Table 7. Infertility Status

Habits	No. of Cases	Percentage
Normal home cooked food	45	42.05 %
Outside junk food with high calories	62	57.94 %

Table 8. Eating Habits

Lifestyle	No. of Cases	Percentage
Normal	33	30.84 %
Athlete	21	19.62 %
Sedentary	53	49.53 %

Table 9. Lifestyle Pattern

Out of the total 1140 cases examined during the study period, PCOS was diagnosed in 107 cases, giving prevalence of PCOS as 9.38% in the present study. Most of the cases (39.25%) were in the age group of 13-20 years. Prevalence of PCOS, in age group of 21-30 years was 27.10% and in age group of 41-50 years, it was only 11.21%. Prevalence of overweight/obesity was 45.79% in cases of PCOS. Pattern of education distribution showed highest prevalence in less educated (Primary education) in 36.44% with less prevalence in higher education group as 13.08% (Table 4). Most common menstrual abnormality seen among cases of PCOS was delayed menses with (34.57%) or without (27.10%) hypo-menorrhoea. Isolated hypo-menorrhoea was seen in 20.56% cases (Table 5). Out of total 107 cases, 48 (44.85%) were married. (Table 6). Out of 48 married females, prevalence of infertility was 66.66% with 58.33% cases of primary infertility while 8.33% cases of secondary infertility (Table 7). History of regular intake of junk foods was given by 57.94% cases. (Table 8). Sedentary lifestyle was observed in 49.53% cases. (Table 9)

DISCUSSION

Lifestyle changes including inclination of eating more junk food with high calories (57.94%) has been found to be having more prevalence of PCOS as it is shown in the present study. Similar results were also shown by Elise Coker et al⁽¹³⁾ These results suggest that women with PCOS have a poorer quality of life related to eating, and increased eating disorder pathology

than other non-PCOS women. Present study suggests increase in incidence of adolescent PCOS (39.25%) Franks S. has established the fact in his study⁽¹⁴⁾ that adolescent PCOS is related with not only genetic factors but association of obesity and nutritional status also has great effect. The increasing incidence of childhood obesity has resulted in an alarming increase not only in distressing symptoms but also impaired glucose tolerance and even diabetes among adolescent girls with PCOS. Present study also shows the fact that adolescent girls have high prevalence (44.93%) of PCOS. Johem et al⁽¹⁵⁾ noted that Infertility was found by 72% of 309 women reporting PCOS and Infertility was 15-fold higher in women reporting PCOS (Adjusted odds ratio 14.9, 95% CI 10.9-20.3). Here in this study, incidence was found to be 66.66%. J. Holte⁽¹⁶⁾ found that when this constitution of PCOS is exposed to unlimited food supplies and modern sedentary lifestyle a full-blown PCOS with insulin resistance and infertility is triggered, presumably via several mechanisms, which follow a logical amplification system between two basic anabolic hormones, insulin and testosterone. Several studies have demonstrated that even a 5-10% loss in bodyweight can restore menstrual cyclicity and ovulation.^(17,18) In our present study, sedentary lifestyle in PCOS women was found to be 49.53% and incidence of obesity was found to be 45.79%. It was found out that 57.94% PCOS women were eating outside junk food with high calories. The reported prevalence of obesity in women with PCOS has varied greatly depending on population and ethnicity, but it could be approximately 50%⁽¹⁹⁻²⁰⁾. Recently, it was demonstrated that the prevalence of obesity among women with PCOS in the USA had increased from 51% in 1987 to 74% in 2002, paralleling the corresponding increase of obesity in the general population.⁽²¹⁾ Exercise as the only intervention has also been demonstrated to improve fertility, insulin sensitivity and cardiopulmonary functional capacity in women with PCOS.⁽²²⁾ Glucose intolerance in normal-weight women with PCOS is uncommon, whereas approximately 40% of obese patients are affected.⁽²³⁾ Thus, obesity worsens all endocrine and metabolic features of PCOS. In fact, obesity as such, independent of PCOS, is associated with hyperandrogenism, insulin resistance, anovulation and reproductive impairments.⁽²⁴⁾

CONCLUSIONS

Though PCOS is a heterogeneous endocrine disease having genetic factors, environmental and nutritional factors affect its incidence a lot. Eating high calorie food with sedentary lifestyle and obesity affect the incidence and severity of PCOS. We have found in the present study that incidence of anovulatory infertility is also high. Since PCOS is a lifestyle disease adversely affecting fertility and physical appearance of the person, it can be prevented by modification of lifestyle, enabling girls to live a healthy life. Diet with exercise resulting in weight loss is the most successful strategy to improve reproductive and metabolic parameters of PCOS. Encouragement of lifestyle changes with low calorie diet and active lifestyle helps to improve menstrual regularity and hence fertility in women suffering from PCOS.

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