Original Article

The Most Common Phenotype of Polycystic Ovary Syndrome in Women Attending Outpatient Department of Tertiary Care Hospital

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Abstract

Objective: To determine the phenotype of polycystic ovary syndrome in women attending the outpatient department of tertiary Care Hospital Settings: Outpatient Department of Civil Hospital Karachi.

Methodology: This descriptive case series study was conducted at the Outpatient Department of Civil Hospital Karachi from 1/1/2017 to 30/6/1218. All reproductive age women between 14 and 45 years of age who complained of hirsutism, acne, hair loss, infertility, menstrual irregularity & weight gain were included. Each subject was asked to provide a detailed menstrual history, and data were collected for each subject on body, weight, height were measured and BMI was calculated. The patient venous blood was drawn for serum prolactin, progesterone, serum Testosterone dehydroepiandrosterone sulfate, sex hormone binding globulin was sent. All the information was evaluated by enclosed proforma by the researcher. The collected data was analyzed by using SPSS Version 26.

Results: The average age of the women was 26.16±6.33 years. Most of the women were nulliparous 54.0%, followed by 41.14% were multiparous and 24.86% were primiparous. One hundred and sixty-six (47.43%) were obese. As per the phenotype of polycystic ovary syndrome in women as oligomenorrhea, amenorrhea, anovulation, weight Loss, clinical hyperandrogenism, hirsutism acne, androgenic alopecia (Hair Loss) and biochemical Hyperandrogenism among patients of 52.6% 60.3%, 52.0%, 58.9%, 74.3%, 58.6%, 45.1%, 43.4% and 66.0% respectively. Phenotype of polycystic ovary syndrome was observed to be statistically significant with respect to age and obesity (p-<0.05).

Conclusion: Oligomenorrhea, amenorrhea, anovulation, weight loss, clinical hyperandrogenism, hirsutism acne, androgenic alopecia (Hair loss) and biochemical hyperandrogenism observed to be the commonest phenotypes of polycystic ovarian syndrome. Polycystic ovarian syndrome, a common problem of women of the reproductive age group is affecting their life physically, mentally and socially.

Keywords: Polycystic Ovarian syndrome, oligomenorrhea, amenorrhea, anovulation, hyperandrogenism

Introduction

Polycystic ovarian syndrome (PCOS) is the most common endocrine metabolic condition, affecting 6–10% of women of reproductive age worldwide.[1] PCOS is related with more than 40% of the women's infertility, is well documented, and females with PCOS are also more likely to develop endometrial cancer.[2] Physiological changes have been linked to a variety of psychological presentation in cases, including low self-esteem, sadness, negative body image, and a lower quality of life, according to several research.[2,3] PCOS is defined by the presence of long-term hormonal and metabolic problems, as well as systemic inflammation, which can occur throughout a woman's life, even during and after menopause.[4] High risk for diabetes mellitus and glucose intolerance, Insulin resistance, cardiovascular disorders, cerebrovascular disorders, dyslipidemia as well as psychosexual and mood disorders, are all symptoms of this complicated condition.[4] PCOS is the

commonest infertility problem that affects a large percentage of the world's population. It is the most common endocrinopathy affecting females during their reproductive years, with an incidence ranging from 8–13 percent depending on the criteria used and demographics studied5. Most, but not all, women with PCOS exhibit clinical and biochemical signs of hyperandrogenism.[1,7] Clinical hyperandrogenism is characterized by hirsutism as the most common skin manifestation, while acne and androgenic alopecia are less common. Biochemical HA, also known as hyperandrogenemia, is defined as an increase in serum androgen concentrations.[1] Hirsutism, or the appearance of undesired terminal hair growth in a male-like pattern, is a common symptom of hyperandrogenism. Terminal hairs are longer than 5mm, medullated, and frequently have both pigment and form. PCOS patients have been reported to have irregular or unexpected menstrual cycles, unwanted hair growth, scalp hair loss, or acne, as well as unexplained weight gain or obesity. Infertility, potentially linked to repeated 1st trimester miscarriages, is another common presentation of PCOS.[7] At the period of their first consultation, 30 to 50% of patients with PCOS will complain of infertility.[7,8] Several studies have shown different frequencies of the phenotype of polycystic ovary syndrome. This study was conducted to assess the phenotype of polycystic ovary syndrome in women attending the outpatient department of a tertiary Care Hospital. Early intervention may help prevent long-term health consequences.

Methodology

This descriptive case series study was conducted at the Outpatient Department of Civil Hospital Karachi. Non-probability, consecutive sampling technique was used. All reproductive age women between 14 and 45 years of age who complained of hirsutism, acne, hair loss, infertility, menstrual irregularity & weight gain were included. Women with thyroid disease, adrenal hyperplasia, premature ovarian failure and Cushing's syndrome were excluded. Each subject was asked to provide a detailed menstrual history, and data were collected for each subject on body, weight, height were measured and BMI was calculated. Hirsutism, androgenic alopecia and the presence of absence of clinical acne was evaluated by the scoring system in enclosed proforma. The patient venous blood was drawn for serum prolactin, progesterone, serum Testosterone dehydroepiandrosterone sulfate, sex hormone binding globulin was sent. Patient's demographic characteristics like age, parity, BMI and biochemical profile (hormone level) were evaluated in enclosed proforma by the researcher. The collected data was analyzed by using SPSS version 26.

Results

A total of 350 women who complained of hirsutism, acne, hair loss, infertility, menstrual irregularity & weight gain were included in this study. The average age of the women was 26.16±6.33 years. Similarly, average BMI, progesterone, serum testosterone, DHEAS, sex hormone binding globulin are presented in table I. Most of the women were nulliparous 154(54.0%), followed by 144(41.14%) were multiparous and 52(24.86%) were primiparous. Out of 350 women, 34.57% were Urdu speaker than Pathan and Sindhi was observed as in and 167 (47.43%) were obese, as shown in table I.

Table I: Demographic information of the study participants (n=350)

Variables		Statistics
Age (Years)		26.15±6.33
BMI (kg/m²)		26.3±3.89
Progesterone (ng/dl)		3.99±1.833
Serum Testosterone (ng/dl)		60.1±9.35
DHEAS (ugm/ml)		3.81±2.08
Sex hormone binding globulin (SHBG)		22.87±5.06
Parity	Nulliparity	154(54.0%)
	Primiparity	52(24.86%)
	Multiparty	144(41.14%)
Ethnicity	Urdu speaking	121(34.57%)
	Pathan	79(22.67%)
	Sindhi	66(18.88%)
	Punjabi	48(13.71%)
	Balochi	24(6.86%)
	Asian	6(1.71%)
	Hazara	6(1.71%)
Obesity	Yes	166(47.43%)
	No	184(52.57%)

Table II: Phenotype of polycystic ovary syndrome in women (n=350)

Phenotype	N	%
Oligomenorrhea	184	52.6%
Amenorrhea	211	60.3%
Anovulation	182	52.0%
Weight Loss	206	58.9%
Clinical Hyperandrogenism	260	74.3%
Hirsutism	205	58.6%
Acne	158	45.1%
Androgenic Alopecia (Hair Loss)	152	43.4%
Biochemical Hyperandrogenism	231	66.0%

Phenotype of polycystic ovary syndrome in women is listed in table II, as oligomenorrhea, amenorrhea, anovulation, weight Loss, clinical hyperandrogenism, hirsutism acne, androgenic alopecia (Hair Loss) and biochemical Hyperandrogenism among patients of 52.6% 60.3%, 52.0%, 58.9%, 74.3%, 58.6%, 45.1%, 43.4% and 66.0% respectively. Phenotype of polycystic ovary syndrome was observed to be statistically significant with respect to age and obesity (p-<0.05). Table III and IV.

Discussion

Polycystic ovarian syndrome (PCOS) is a common disease that affects many aspects of women's reproductive health, with long-term consequences that extend well beyond childbearing age. In this study, 350 women were studied regarding phenotype of polycystic ovary syndrome and their average age of the women was 26.16±6.33 years. Consistently Anjum S et al[9] conducted a study on 153 individuals to assess the clinical manifestations and incidence of metabolic syndrome (MetS) with an average age of 27.28.13 years among women having PCOS. In this study, average BMI was 26.3 ± 3.89kg/m^2 and Anjum S et al[9] observed average BMI was 31.68±7.37 (kg/m^2). On other hand, Sidra S et al[10] demonstrated that 440 individuals with PCOS were investigated, with 274 (62.3%) being

between the ages of 15 and 30 and 166 (38%) being between the ages of 31 and 44. Above some difference in the average age and BMI may be because of differences in age range and study selection criteria.

In this study, most of the women were nulliparous 154(54.0%), followed by 144(41.14%) were multiparous and 52(24.86%) were primiparous and overweight and obsess patients were 166(47.43%). Similarly, Memon TF et al[11] reported that 59.0% were nulliparous and females having PCOS were generally obese, with a BMI of greater than 30 kg/m2. Consistently the Hanif F et al[12] reported that the 17.0% patients with PCOS were overweight and 63.0% were obese. Although in contrast, Sidra S et al[10] et al reported that on weight assessments found that the majority of the patients (74.5%) were normal to almost obese, with around fourth (24.5%) of the cases being severely obese. Obesity has long been known to exacerbate the phenotypic of PCOS.[11] In Patients with PCOS, lifestyle changes and weight loss enhance body composition and insulin resistance.[11]

In this study the phenotype of polycystic ovary syndrome in women, as Oligomenorrhea, amenorrhea, anovulation, weight Loss, clinical Hyperandrogenism, hirsutism Acne, androgenic Alopecia (Hair Loss) and biochemical Hyperandrogenism among patients of 52.6% 60.3%, 52.0%, 58.9%, 74.3%, 58.6%, 45.1%, 43.4% and 66.0% respectively. Phenotype of polycystic

Table III: Phenotype of polycystic ovary syndrome with respect to age n=350				
Phenotype	Age Groups (Years)			P-Values
	15 to 20 (n=58)	21 to 30 (n=216)	>30 (n=75)	
Oligomenorrhea	23(39%)	134(62%)	27(36%)	0.0005
Amenorrhea	35(59.3%)	115(55.1%)	57(76%)	0.006
Anovulation	21(35.6%)	116(53.7%)	45(60%)	0.014
Weight Loss	35(59.3%)	122(56.5%)	49(65.3%)	0.0005
Hyperandrogenism	51(86.4%)	158(73.1%)	51(68%)	0.04
Hirsutism	43(72.9%)	123(56.9%)	39(52%)	0.038
Acne	23(39%)	121(56%)	14(17.3%)	0.0005
Hair Loss	21(35.6%)	109(50.5%)	22(70.7%)	0.003
Hyperandrogenism	38(64.4%)	164(75.9%)	29(38.7%)	0.0005

Table IV: Phenotype of polycystic ovary syndrome with respect to obesity (n=350)			
Phenotype	Obesity		P-Values
	Yes n=166	No n=184	
Oligomenorrhea	110(66.3%)	74(40.2%)	0.0005
Amenorrhea	123(74.1%)	88(47.8%)	0.0005
Anovulation	104(62.7%)	78(42.4%)	0.0005
Weight Loss	114(68.7%)	92(50%)	0.0005
Hyperandrogenism	136(81.9%)	124(67.4%)	0.002
Hirsutism	107(64.5%)	98(53.3%)	0.034
Acne	89(53.6%)	69(37.5%)	0.002
Hair Loss	84(50.6%)	68(37%)	0.01
Hyperandrogenism	128(77.1%)	103(56%)	0.0005

ovary syndrome was observed to be statistically significant with respect to age and obesity (p-<0.05). In the comparison of this study, Hanif F et al[12] reported that most of patients with PCOS suffer oligomenorrhea (59%) hirsutism (51%), 9% had irregular menstruation and Polymenorrhea, 8% acne, 7% alopecia and amenorrhea (3%). In the study of Sidra S et al[10] et al reported that most of the cases 71.8% had menstruation irregularities, hirsutism were in 68.4% cases and 67.3% cases had acne, according to the cardinal symptoms of PCOS. Anjum S et al[9] also reported that the menstrual

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irregularities (oligomenorrhea 39.85 percent, amenorrhea 38.9 percent) were the most prevalent clinical manifestation, followed by hirsutism (52.3 percent). Ovaries with polycystic morphology were found in 33.3 percent of our research participants. MetS was found in 46.4 percent of those who took part in the study (obesity was highly frequent 82.4 percent followed by dyslipidemia at 56.2 percent).[9] Overweight and obese females were found to be prevalent in their study as 53% and 27%, respectively. Keen MA et al[13] reported that the prevalence of obesity was found to be 37.5 percent in a survey performed by Majumdar et al.[14] In a systematic review and metanalysis, Lim et al.[15] found that females having PCOS had a higher risk of heart disease. Different diets, atmospheric circumstances, socioeconomic position, and level of exercise of participants of the studies may explain differences in the frequency of oligomenorrhea, hirsutism, and acne in different studies compared to this series.[12,16] Oligomenorrhoea, hyperandrogenism, and ultrasound morphology of the ovary are all clinical features of PCOS.[17] Identification of the various forms of PCOS at different stages of life can, of course, aid in the organization of specific therapy strategies and the prevention of long-term metabolic effects. The therapeutic options will be determined by the type and severity of the diseases, as well as whether or not there is a wish to become pregnant.[17,18]

Conclusion

Oligomenorrhea, amenorrhea, anovulation, weight Loss, clinical hyperandrogenism, hirsutism acne, androgenic alopecia (Hair Loss) and biochemical Hyperandrogenism were observed to be the commonest phenotypes of polycystic ovarian syndrome. Polycystic ovarian syndrome, a common problem of women of the reproductive age group is affecting their life physically, mentally and socially. amenorrhea, hyperandrogenism and hirsutism are the most common clinical presentations of PCOS. Early intervention may help prevent long-term health consequences.

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