Original Research

Cross-Sectional Analysis of Prevalence of Polycystic Ovary Syndrome (PCOS) and Risk Factors: An Institutional Based Study

Preeti Pal[1], Satyendra Pal[2]

[1]MBBS, DGO, MS (OBG), Assistant Professor, Department of Obstetrics & Gynecology, Maharshree Vishwamitra Autonomous State Medical College (MVASMC), Ghazipur, Uttar Pradesh, India.
[2]MBBS,MD(SPM), Assistant Professor, Department of Community Medicine, Baba Keenaram Autonomous State Medical College (BKASMC), Chandauli, Uttar Pradesh, India.

Corresponding Author:
Dr. Preeti Pal
MBBS, DGO, MS (OBG), Assistant Professor, Department of Obstetrics & Gynecology, Maharshree Vishwamitra Autonomous State Medical College (MVASMC), Ghazipur, Uttar Pradesh, India.
Email: drpreetipal84@gmail.Com

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Abstract
Background: Polycystic ovary syndrome (PCOS)is one of the most common endocrine disorders affecting women of reproductive age.Hence; the present study was conducted as cross-sectional analysis of prevalence of polycystic ovary syndrome (PCOS) and risk factors.
Materials &Methods: A total of 500 women within the reproductive age range were recruited for the study. Comprehensive demographic and clinical information for each participant was collected. A structured form was developed to document the complete details of the women visiting the gynecology outpatient department. Additionally, a questionnaire was designed to gather extensive medical histories, anthropometric measurements, and menstrual histories of all participants. Radiographic assessments were conducted for each subject. The presence of polycystic ovary syndrome (PCOS) was evaluated, along with an analysis of various risk factors associated with its occurrence. All findings were recorded in a microsoft excel spreadsheet and subsequently analyzed statistically using SPSS software.
Results: A total of 500 subjects were evaluated. Among them, PCOS was seen in 17.2 percent of the subjects. No correlation was seen while correlating the occurrence of PCOS with age, marital status, educational qualification and lower socio-economic status. Lack of physical activity, past history of irregular menstrual cycle, obesity and presence of dyslipidemia were found to be significant risk factors for occurrence of PCOS.
Conclusion: PCOS is a multifaceted disorder that can lead to long-term health issues and is increasingly common among women of reproductive age. The prompt adoption of tailored therapeutic strategies is essential for improving the management of PCOS, minimizing associated health conditions, and enhancing overall quality of life.
Key words: Polycystic ovarian syndrome, prevalence, risk.

Introduction

Polycystic ovary syndrome (PCOS), also referred to as hyperandrogenic anovulation (ha) or stein–leventhal syndrome, is one of the most common endocrine disorders affecting women of reproductive age.[1]This chronic and diverse condition is characterized by symptoms such as menstrual irregularities, infertility, hirsutism, acne, and obesity.[2]It is defined by the presence of at least one ovary exhibiting an ovarian volume exceeding 10 ml, along with the formation of at least ten small cysts in one ovary, each measuring between 2 to 9 mm in diameter. Diagnosis typically occurs only when complications arise that significantly impair the patient's quality of life, including issues like hair loss, alopecia, acne, and infertility-related challenges.[3, 4]

The defining biochemical characteristic of PCOS is hyperandrogenemia, which clinically presents as hirsutism, acne, and hair loss. Elevated androgen levels are found in 75–90% of PCOS patients experiencing

oligomenorrhea, and these levels often rise in correlation with the severity of the condition. The overproduction of androgens by both the ovaries and adrenal glands plays a significant role in the development of hyperandrogenism.[5]Hence; the present study was conducted as cross-sectional analysis of prevalence of polycystic ovary syndrome (PCOS) and risk factors.

MATERIALS & METHODS

A total of 500 women of reproductive age group were enrolled. Complete demographic and clinical details of all the subjects were obtained. Menopausal women or women with gynecological malignancies were excluded from the present study. A performa was made and complete details of the subjects of the reproductive age group visiting the gynecology OPD were recorded. A questionnaire was made and detailed medical history, anthropometric variables and menstrual history of all the subjects was recorded. Radiographic examination of all the subjects was done. Diagnostic criteria described previously by Christ JP et al[5] was used for identifying PCOS. Various risk factors associated with the occurrence of PCOS were evaluated. All the results were recorded in microsoft excel sheet and were subjected to statistical analysis using SPSS software. Pearson's correlation and univariate analysis was done for evaluation of level of significance.

RESULTS

A total of 500 subjects were evaluated. Among them, PCOS was seen in 17.2 percent of the subjects. No correlation was seen while correlating the occurrence of PCOS with age, marital status, educational qualification and lower socio-economic status. Lack of physical activity, past history of irregular menstrual cycle, obesity and presence of dyslipidemia were found to be significant risk factors for occurrence of PCOS.

Table 1: Prevalence of PCOS

PCOS	Number	Percentage
Present	86	17.2
Absent	414	82.8
Total	500	100

Table 2: Correlation of Socio-Demographic Variables with PCOS

Variable	r-Value	p-Value
Age of More Than 25 Years	0.082	0.338
Married Marital Status	0.017	0.169
Illiterate or Educational Qualification Less Than Primary	0.775	0.520
Lower Class of Socio-Economic Status	0.916	0.841

Table 3: Risk Factors Of PCOS

Risk Factors of PCOS	r-Value	p-Value
Lack of Physical Activity	1.235	0.001*
Past Historyof Irregular Menstrual Cycle	1.921	0.000*
Vegetarian Diet Pattern	0.272	0.721
Obesity	2.912	0.002*
Presence of Dyslipidemia	2.075	0.004*

*: Significant

Discussion

Polycystic ovary syndrome (PCOS) is a multifaceted disorder marked by increased levels of androgens, irregular menstrual cycles, and/or the presence of small cysts on one or both ovaries. This condition can manifest in two primary forms: morphological, characterized by polycystic ovaries, and biochemical, primarily indicated by hyperandrogenemia.[5]Hyperandrogenism, a key feature of PCOS, may lead to disruptions in follicular development, the formation of microcysts in the ovaries, anovulation, and alterations in menstrual patterns. PCOS is often regarded as an oligogenic disorder, where a combination of various genetic and environmental influences shapes its diverse clinical and biochemical presentations.[6,] [7]Although the precise genetic basis of PCOS is not fully understood, it is relatively common to find a family history of the condition, although the specific familial connections remain ambiguous.[8]The absence of detailed phenotypic data hinders formal segregation analysis.[9]Nevertheless, existing research indicates that the familial aggregation

of PCOS may exhibit characteristics akin to an autosomal dominant inheritance pattern.[10-12]Hence; the present study was conducted as cross-sectional analysis of prevalence of polycystic ovary syndrome (PCOS) and risk factors.

A total of 500 subjects were evaluated. Among them, PCOS was seen in 17.2 percent of the subjects. No correlation was seen while correlating the occurrence of PCOS with age, marital status, educational qualification and lower socio-economic status. Lack of physical activity, past history of irregular menstrual cycle, obesity and presence of dyslipidemia were found to be significant risk factors for occurrence of PCOS. The prevalence and awareness among adolescents and young girls belonging to south India was assessed in a previous study conducted by Jabeen et al.of the total 250 participants included, the mean age was 16.96 years, and most participants (78%) belonged to the age group of 13 to 19 years. Most (78%) of the study participants had normal BMI (18-24.9 kg/m2), 17.6% were underweight (BMI< 18), and 4.4% were overweight (BMI> 25). A PCOS prevalence rate of 6.8% was noted among the study participants. A majority (78.4%) of the study participants were unaware of PCOS, and 6.8% were being treated for PCOS. The source of knowledge of PCOS was majorly teachers (37%), followed by doctors (31.5%), the internet (11%), and friends (7.5%). Lack of information and publicity (63%) were found to be the most significant reason for low levels of awareness.[13]

Family history of PCOS is a risk factor for PCOS. Based on the clustering of cases in families, PCOSis considered to be a heritable disorder.[14,15]A high prevalence of PCOS or its features among first-degree relatives is suggestive of genetic influences.[16, 17]An increased prevalence of PCOS is associated with a number of conditions. A history of weight gain often precedes the development of the clinical features of PCOS,[18] and following a healthy lifestyle has been shown to reduce body weight, abdominal fat, reduce testosterone, improve insulin resistance, and decrease hirsutism in women with PCOS.[19]Obese women referred for assistance with weight loss had a prevalence of PCOS of 28.3%.[20]An increased frequency of reproductive disorders, including PCOS, has been reported in women with epilepsy.[21, 22]Shan B et al studied the relevant risk factors of PCOS of li people so as to provide basis for early diagnosis and treatment of PCOS. Multivariate analysis showed that the risk factors of PCOS included in menstrual cycle disorder, bad mood, family history of diabetes, family history of infertility, menstrual irregularity of mother and lack of physical exercise. They concluded that for targeting the high-risk factors of menstrual cycle disorder, family history of diabetes, family history of infertility, family history of diabetes, bad mood and lack of physical exercise of female population, implementation of early screen should be done for diagnosing and treating PCOSin order to reduce the incidence rate of PCOS and improve prognosis of PCOS.[23]

Conclusion

PCOS is a multifaceted disorder that can lead to long-term health issues and is increasingly common among women of reproductive age. The prompt adoption of tailored therapeutic strategies is essential for improving the management of PCOS, minimizing associated health conditions, and enhancing overall quality of life.

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