

Original Article

Prevalence of Polycystic Ovary Syndrome in Infertile patients of Janakpur, Nepal

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ABSTRACT

Background and Objectives: The overall prevalence of PCOS varies in different population and is influenced by multiple factors like genetic predisposition, ethnicity, associated metabolic disorders environmental factors, unhealthy diet and so on. This study is planned to assess the prevalence of polycystic ovary syndrome among infertile women of Janakpur seeking treatment for infertility.

Material and Methods: This study is a cross sectional study conducted in Janakpur among women who attended outpatient department for infertility treatment over a period of one year.

Results: Polycystic Ovarian Syndrome (PCOS) as per Rotterdam criteria was found among 7.30% infertile women of Janakpur. Prevalence of Oligo/anovulation was 13.95%. Hirsutism was found in 6.47% women and polycystic ovaries were found in 17.94% women in transabdominal scan.

Conclusions: In this study prevalence of PCOS was found lower than that of other similar studies. There is a need of studying a larger population to establish the prevalence rate of PCOS in Nepalese women.

Key Words: Hirsutism, infertility, oligo/anovulation, polycystic ovary syndrome, Rotterdam criteria

INTRODUCTION

Infertility is a disease of the male or female reproductive system defined by the failure to achieve a pregnancy after 12 months or more of regular unprotected sexual intercourse [1]. Infertility is further classified as "Primary Infertility," in which there is no history of previous pregnancies, and "Secondary Infertility," in which a prior pregnancy, although not necessarily a live birth has occurred. Worldwide, male factor accounts for 51.2% of infertility and subfertility

(conception after attempting for one year) and female factors are responsible for 48.8% of such cases [2-4]. There are many female factors for infertility: decreased ovarian reserve, ovulatory, tubal, uterine and pelvic factor.

The most common cause of oligo ovulation and anovulation among women presenting with infertility is Polycystic Ovary Syndrome (PCOS) [5]. Polycystic ovary syndrome is a complex endocrine disorder of uncertain etiology with a complicated pathophysiology. It is considered to be a multifactorial, partly

genetic disease. According to the World Health Organization (WHO), the worldwide incidence of PCOS is 3.4% [6]. Revised criteria for PCOS established by the "Rotterdam ESHRE/ASRM-Sponsored PCOS Consensus Workshop Group 2004" is that the presence of two of three of the following criteria are sufficient to diagnose PCOS: 1) oligo-or anovulation, 2) clinical and/or biochemical signs of hyper androgenism and 3) polycystic ovary (PCO) in scan. Documentation of elevated LH: FSH ratio and hyperinsulinemia are not required for either diagnosis or treatment of PCOS [7]. Broekmans et al. found in their study that the Rotterdam criteria detects PCOS 1.5 times more than the National Institute of Health criteria [8].

PCOS is associated with reproductive morbidity, including infertility, irregular menstruation and increased pregnancy loss. Other long term health consequences of PCOS includes developing type 2 diabetes, insulin resistance, obesity, dyslipidemia and hypertension. There is an increased risk of developing endometrial carcinoma in chronic anovulatory patients with PCOS [9, 10].

The present study was conducted with the aim of finding prevalence rate of PCOS according to Rotterdam criteria among the women of Janakpur seeking treatment for infertility.

MATERIALS AND METHODS

This study was conducted over a period of one year from January 2019 to December 2019 at the Department of Obstetrics and Gynecology of Janaki Medical College and Teaching Hospital (JMCTH), Janakpur. Approval was obtained from JMCTH Research Ethics Committee before starting the project. A total of 602 women seeking treatment for

infertility were enrolled in the study. Women with other endocrinal disorders like hypothyroidism, hyperprolactinaemia, Cushing's syndrome and with androgenic tumor were excluded from the study. All couples were investigated using the established clinical protocol. Detail history, weight and height were taken. Hirsutism was noted and scored according to Ferriman-Gallwey system [11]. Other investigations as per infertility treatment protocol were performed. An ultrasound scan was performed. Women of this region of Nepal are reluctant to get a TVS performed by a male radiologist and considering this cultural barrier a transabdominal (TA) ultrasound was performed instead of TVS. PCOS was diagnosed using Rotterdam criteria.

Ethical approval was obtained from the Institutional Review Board of Janaki Medical College. Informed consent was taken from the participant and confidentiality was maintained.

RESULTS

Majority of the women were of age group 19-23 years (39.20%). About half of the women had no schooling education (71.43%) and 71.43% were housewife by occupation. Normal BMI was present in 77.08% and 20.6% women were overweight or obese.

Although Oligo/anovulation, hirsutism and polycystic ovaries were individually present in 13.95%, 6.47% and 17.94% women respectively (Table 2, 3 and 4), all the three criteria were present only in 20.45% of the study population. Either one or no criteria were present in 92.70% women (Table 5). Polycystic ovary was present among 108 women but only 32 of them had either oligo/anovulation or hirsutism associated with it to fulfill the Rotterdam criteria. After

applying Rotterdam criteria i.e. combination of the two of the three criteria, 44 women (7.30%) were diagnosed with Polycystic Ovary Syndrome as seen in Table 6.

Table 1: Demographic characteristics

Characteristics	Number	Percentage
Age(years)	N= 602	
≤18	52	8.64
19-23	236	39.20
24-28	194	32.22
29-33	86	14.29
34-38	22	3.65
≥ 39	12	2.00
Education level		
No schooling	310	71.43
Primary school	188	31.23
Secondary school and above	104	17.28
Occupation		
House wife	430	71.43
Farmer/laborer	86	14.29
Business	50	8.30
Service	36	5.98
BMI		
Underweight< 18.5	14	2.32
Normal(18.5-24.9)	464	77.08
Overweight (25-29.9)	102	16.94
Obese(>30)	22	3.66

Table 2: Prevalence of Oligo/anovulation

Criteria	Number	Percentage
Oligo/anovulation	N=602	
Present	84	13.95
Absent	518	86.05

Table 3: Prevalence of Hirsutism

Criteria	Number	Percentage
Hirsutism	N=602	
Present	39	6.47
Absent	563	93.53

Table 4: Prevalence of polycystic ovary in scan

Criteria	Number	Percentage
Polycystic ovary	N=602	
Present	108	17.94
Absent	484	82.06

PCOS was found among 61.35% women above normal weight as evident in Table 7.

Table 5: Prevalence of Rotterdam criteria

Criteria	Number (N=602)	Percentage
All 3 Rotterdam criteria	9	1.50
PCO + Oligo / anovulation	24	3.99
PCO+ Hirsutism	8	1.32
Oligo/ Anovulation + Hirsutism	3	0.49
One of the three/no criteria present	558	92.70

Table 6: Distribution of Rotterdam criteria among PCOS patients

Criteria	Number (N=44)	Percentage
All 3 Rotterdam criteria	9	20.45
PCO+ Oligo/ Anovulation	24	54.55
PCO + Hirsutism	8	18.18
Oligo/Anovulation + Hirsutism	3	6.81

Table 7: Association between BMI and PCOS

BMI	PCOS (N= 44)	Percentage
Obese	6	13.63
Overweight	21	47.72
Normal weight	17	38.63

DISCUSSION

The overall prevalence of PCOS varies in different population as it is a complex disease influenced by multiple factors. Although the exact etiology is not known multiple factors like genetic predisposition, ethnicity, associated metabolic disorders along with environmental factors like an unhealthy diet and lack of physical activity seem to influence the occurrence of the disease [12, 13].

In the present study prevalence of PCOS according to Rotterdam criteria was 7.30% among women of Janakpur seeking treatment for infertility. This rate is lower than 16.7% found in the study of Orijj et al conducted in a teaching hospital in Nigeria and 40.9% in the study of Baqai et al. [14, 15]. This may be due to the ethnic difference as ethnicity plays an important role in the manifestation of PCOS [16, 17]. PCOS is the most common cause of anovulatory infertility. In the present study 54.55% women suffering with PCOS had polycystic ovaries along with anovulation which is similar to the 57% rate found in the study of Adams et al. [18] but lower than the finding of Kousta et al. who found 83% PCO among the anovulatory patients [19].

Out of all the women diagnosed with polycystic ovary in scan (N= 108) only 29.62% had either hirsutism or oligo/anovulation to fit in the Rotterdam criteria for PCOS.

In the present study TA scan was used instead of TVS. Even though TVS has definitely advantage over TA, TVS was used in view of the cultural barrier present in this area of Nepal. Many studies have reported similar detection rate of PCO for TA and TVS but is dependent upon user's skill. Fraquhar et al found no statistical difference in the population of women with polycystic ovaries detected by either TA or TVS [20].

In the present study 61.36% women with PCOS were either obese or overweight showing a positive association. However, association of PCOS with obesity had not been noted uniformly in infertile women studied in various regions of the world [21, 22].

A few limitations of the present study were inability to collect blood samples on the specific days in the menstrual cycle for hormonal assessment and use of TA instead

of TVS. These factors might have affected the overall detection rate of PCOS in the studied population. This study indicates that there is a need to study a larger population to establish the prevalence rate of PCOS among Nepalese women and especially among those with infertility.

CONCLUSION

In this study prevalence of PCOS was found lower than that of other similar studies. There is a need of studying a larger population to establish the prevalence rate of PCOS in Nepalese women.

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