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# Ultrasonographic Prevalence of Polycystic Ovarian Disease – A Cross-Sectional Study in a Rural Medical College of West Bengal

Monojit Chakrabarti[1], Md Abdur Rahaman[2], Swadha Priyo Basu[3]
[1](Assistant Professor, Dept. of Radiology, Malda Medical College & Hospital, West Bengal, India)
[2](R.M.O. cum Clinical Tutor, Dept. of Radiology, Malda Medical College & Hospital, West Bengal, India )
[3](Professor & HOD, Dept. of Radiology, Malda Medical College & Hospital, West Bengal, India )

***Abstract :***
***Introduction:*** *Polycystic ovary disease (PCOD) is the most common and complex endocrinal disorder of females in their early child bearing age group. It may complicated to Infertility.*

***Methodology:*** *Trans Abdominal Ultrasonography was carried out over 157 women in a rural medical college of West Bengal and 51 females were diagnosed of PCOD using Rotterdam's criteria.*

***Results:*** *Maximum prevalence of PCOD was seen between 15 to 24 years age group. Dominantly oligomenorrhea was seen among PCOD (75%) patients. 33.4% obese patients were diagnosed PCOD.*

***Conclusion:*** *It is commonly observed in early child bearing age group, especially those females having oligomenorrhea. Lifestyle management is now considered one of the principal way to deal with PCOS.*

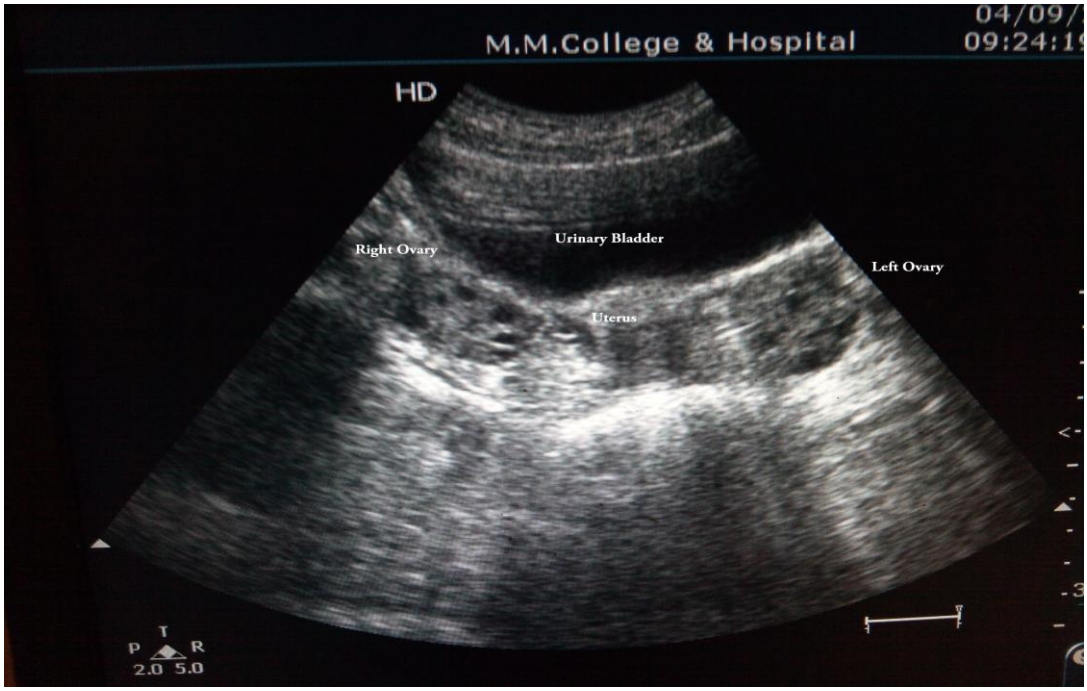
***Keywords:*** *Anovulation, B.M.I. (Body Mass Index), Oligomenorrhea, Polycystic Ovarian Disease (PCOD), Trans Abdominal Ultrasound (TAS).*

## I. Introduction

Polycystic ovarian disease (PCOD) is the most common and complex endocrinal disorder affecting females of child bearing age[1]. It is also known as Hyperandrogenic Anovulation and Stein-Leventhal Syndrome[2,3]. Now a days PCOS is recognized to be a metabolic syndrome[4]. Patient of PCOD has strong familial history and associated with more than one gene[5,6]. In 2012, 116 million women were suffering from PCOD throughout the world[7]. The major features of PCOD are androgen excess, ovarian dysfunction, amenorrhea, oligomenorrhea, dysfunctional uterine bleeding, acne, hirsutism, obesity and last but not the least is infertility[8,9]. As per studies 6-15% Infertility is because of PCOD[10,11]. Although associated with obesity, the syndrome is also often seen in women with normal body mass index (BMI)[12]. The prevalence of PCOS can be as high as 30% in women with secondary amenorrhea, 75% in women with oligomenorrhea and 90% in women with hirsutism[13]. The main objective of our study is to know the pattern of Trans Abdominal Ultrasonographic prevalence of PCOD/PCOS among menstruating women in relation to their age and BMI.

## II. Methodology

This is an observational type of cross-sectional study conducted during September'2015 to January'2016 in a rural Medical College of West Bengal over 200 phenotypic female subjects above the age of 15 years, who were referred from OPD clinic. They had been made understood on their language about the objectives and methodology of this study. Their formal informed consent were also taken before we stepped to next. About 157 subjects had been selected & divided into the following groups: Regular mensturation, Oligomenorrhea & Amenorrhea on the basis of their menstrual history. These 157 female were undergone TAS (Trans Abdominal Ultrasound) using 3-5 MHz curvilinear probe (Philips HD 7). The USG findings of both ovaries were categorized as per Rotterdam's[14] Ovarian criteria in PCOD (Polycystic Ovarian Disease) & Non-PCOD. Their weight in Kg & height in meter were recorded and B.M.I. (Body Mass Index) was calculated for each subject using the formula B.M.I. = [Weight (Kg)/ Height (meter$^2$)]. These data were processed and tabulated using Microsoft Excel software.




Rotterdam's criteria for PCOD

I. Ovarian volume >10cc
II. Size of follicle = 2-9mm
III. Total no of follicle >12

## III. Results

Table 1: Distribution of study subjects according to following USG findings (n=157).

| USG finding | Frequency | Percentage (%) |
|---|---|---|
| PCOD | 51 | 32.5 |
| Non-PCOD | 106 | 67.5 |

Figure 1:

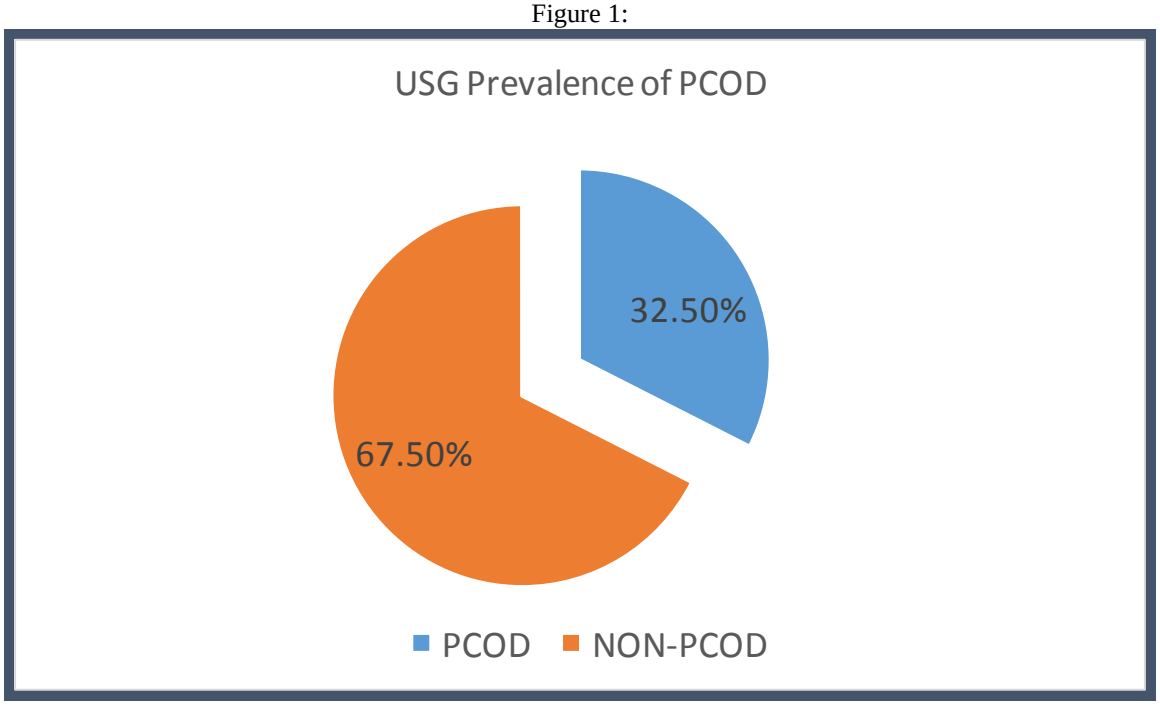



Figure 1

Table 2: Distribution of PCOD as per following age groups (n=51).

| AGE (Years) | PCOD | |
|---|---|---|
| | Frequency | Percentage (%) |
| 15-24 | 26 | 51 |
| 25-34 | 22 | 43.1 |
| > 35 | 3 | 5.9 |

Table 3: PCOD among following menstrual groups. (n=51)

| MENSTURATION | PCOD | |
|---|---|---|
| | Frequency | Percentage (%) |
| Regular | 7 | 13.7 |
| Oligomenorrhea | 38 | 74.5 |
| Amenorrhea | 6 | 11.8 |

Figure 2:

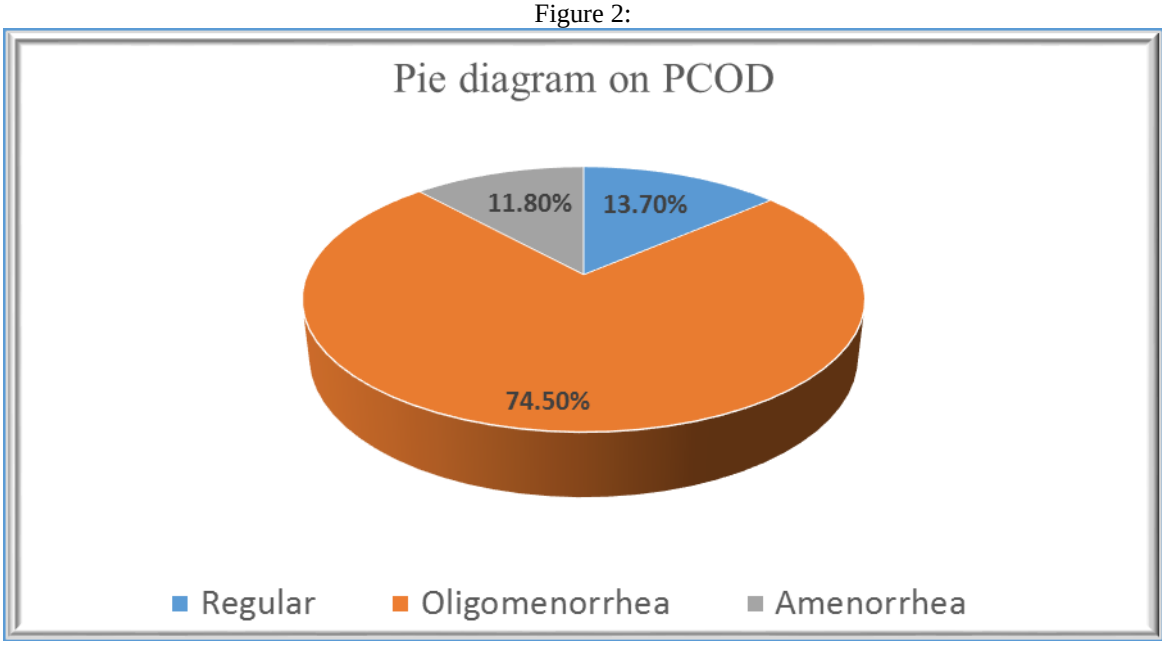
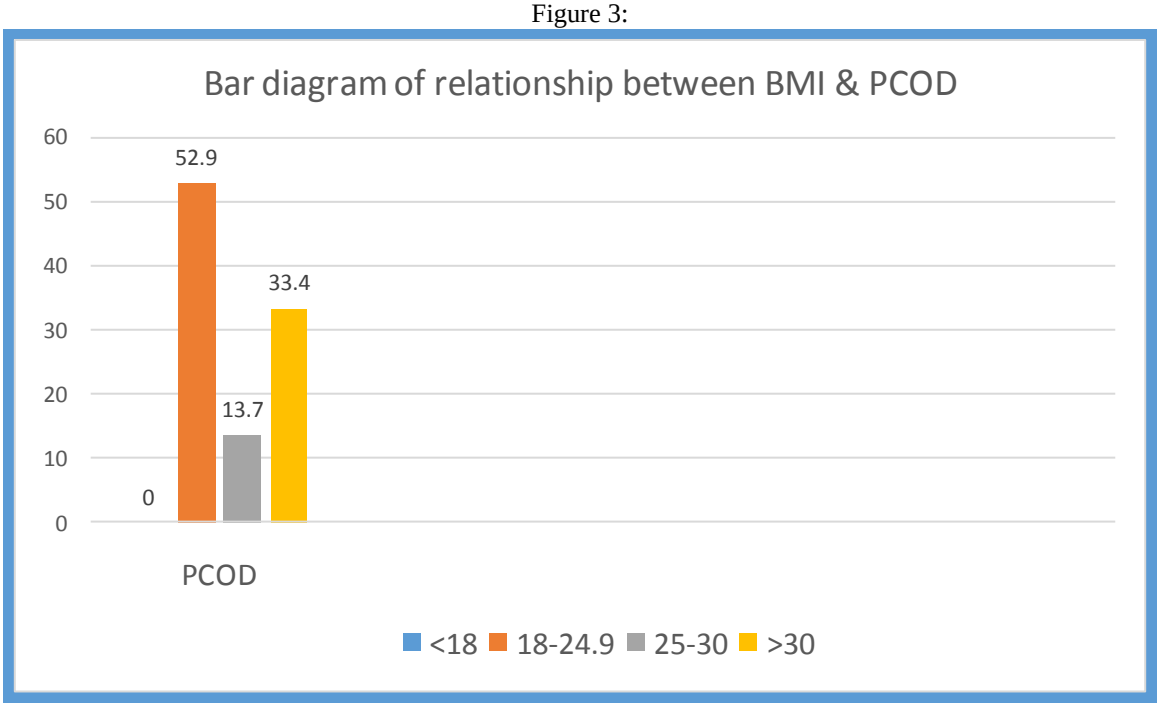



Table 4: Relationship between PCOD & BMI (n=51).

| BMI ($Kg/m^2$) | PCOD | |
|---|---|---|
| | Frequency | Percentage (%) |
| < 18 | 0 | 0 |
| 18-24.9 | 27 | 52.9 |
| 25-30 | 7 | 13.7 |
| > 30 | 17 | 33.4 |

Figure 3:




## IV. Analysis

In our study 32.5% study population was diagnosed as patient of PCOD. The maximum prevalence (51%) of PCOD was noticed in the age group of 15-24 years, which decreased in the older age group and only 5.9% PCOD was prevalent above the age of 35years. Table 3 shows most patient of PCOD presented with oligomenorrhea (74.5%). Females having regular mensturation may also suffer from underlying PCOD. There is little relationship between PCOD and BMI; it is proved by Table 4 & Figure 3. 52.9% PCOD patients were in the range of normal BMI. Only 33.4% PCOD patients were obese (BMI >30) in our study.

## V. Discussion

The prevalence of PCOD in our study population was 32.5% which is far more than other reference results by Nidhi et al (9.13%)[15] & Williamson et al (26%)[16]. We had excluded the females who had given history of mesnturation other than regular, oligomenorrhea and amenorrhea; So this may be the reason of high prevalence of PCOD in our study. Study results by Joyce K et al. showed the prevalence of PCOS/PCOD can be as high as 30%, 40% & 75% respectively in women with secondary amenorrhea, infertility & oligomenorrhea[17]. In our study, 74.5% PCOD cases were seen among females having oligomenorrhea. This finding is very similar to the study by Joyce et al.[13]. Ramanand SJ et al. also found nearer (66%) prevalence of PCOD among oligomenorrhic females[17]. We found PCOD most frequently (51%) between the 15-24 years and very least above the age of 35 years. Tabassum K also found highest prevalence was seen in the age group of 15-24 years and least in the age group of 35-44 years[18]. High prevalence (33.4%) of PCOD is seen in our study among obese (BMI >30) females. Hussein B et al. & Rich-Edwards JW et al. also found increased prevalence of PCOD among obese female above the age of 15 years[19,20].

This study was conducted on only 157 patients who were referred to Radiology Dept. (USG unit) for any reason. Hence we didn't select our study population by random sampling. On the other hand we have used trans abdominal ultrasound to diagnose PCOD though TVS (Trans Vaginal Ultrasound) is more sensitive for ultrasonographic pelvic organ examination. So the findings from our study can't be generalized to whole female population.

## VI. Conclusion

PCOD is commonly known as PCOS encompassing the ovarian endocrinal and clinical features. Its commonly observed in early child bearing age group, especially those females having oligomenorrhea as our study points to this. PCOS is now the leading cause of infertility in this part of sub-continent even in the remote areas of West Bengal. Different modalities of management is now in vogue in treating PCOS but none have significant impact on PCOS. Lifestyle management is now considered one of the principal way to deal with PCOS. So early early management of PCOD is crucial for both physician and patients.

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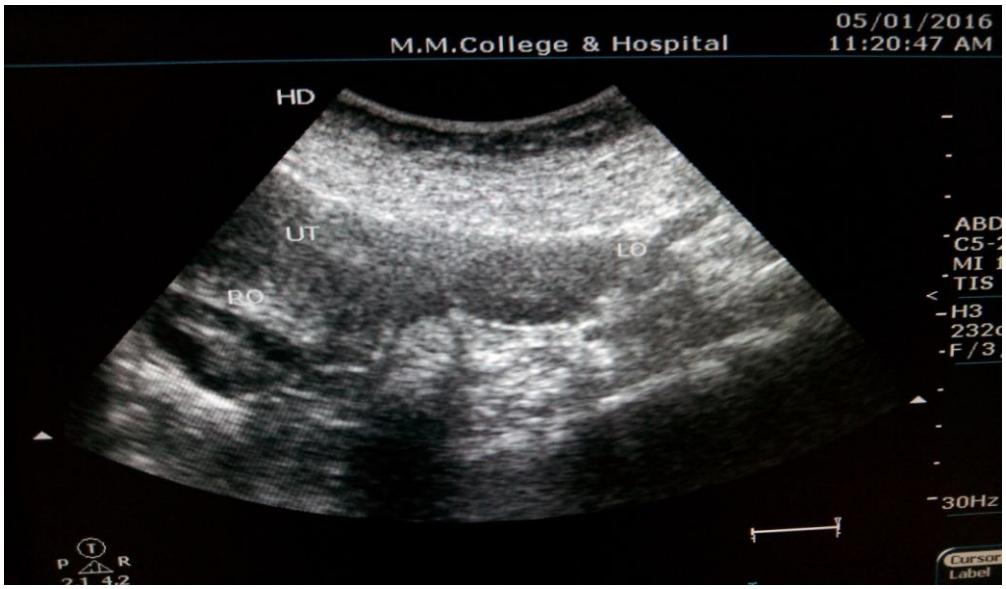
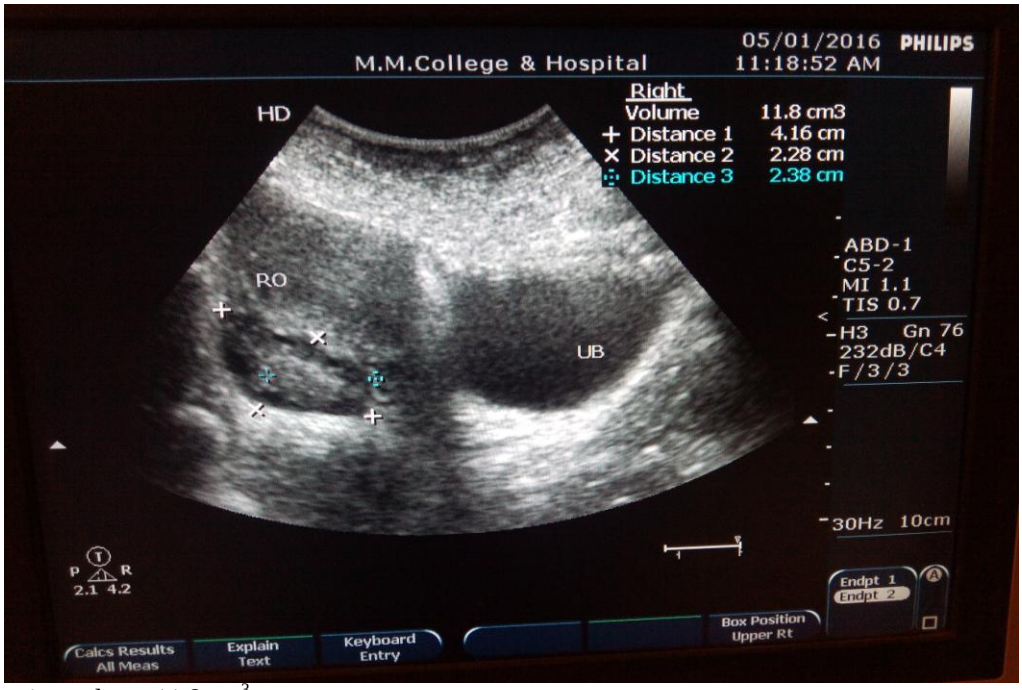



B/L enlarged Ovaries with multiple small (4-9 mm) peripheral follicles more than 12.




Right Ovarian volume 11.8 $cm^{3.}$