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POLYCYSTIC OVARIES SYNDROME (PCOS) AMONG INFERTILE FEMALE IN RAMANATHAPURAM, TAMIL NADU

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Abstract:

Irregular menstrual cycle factor, PCOS are significant effect on infertility. Polycystic ovary syndrome (PCOS) is a condition in which a woman has an imbalance of female sex hormones. This may lead to changes in the menstrual cycle, cysts in the ovaries, trouble getting pregnancy and other health problems. PCOS is due to the hormonal imbalances and modern life style. There is a strong association between increased body mass index (BMI) with PCOS and PCOS with menstrual cycle. The menstrual cycle is regulated by hormones. The present study indicates a relatively high percentage (72.16) of irregular menstrual cycle and (54.31) of PCOS among the studied women while most of them between 21-25yr age group. Association of BMI with PCOS was higher (66.1%) in the age group of 21-25 yr. The present study shows high percentage (92.6) of infertile female had PCOS with irregular menstrual cycle, More percentage of (100) infertile female had PCOS with irregular menstrual cycle in the age group of 21-25 yr. At 21 -25 age group, all (126) infertile female with PCOS had irregular menstrual cycle.

Key Words: PCOS, Menstrual Cycle, Infertility, Body Mass Index & Hormonal Imbalance.

Introduction:

Recently polycystic ovaries syndrome (PCOS) is a major problem in our country. Polycystic ovary syndrome represents 80% of anovulatory infertility cases (Melo *et al.,* 2015). PCOS causes hyperandrogenism with chronic anovulation in women without underlying disease of the adrenal or pituitary glands. This syndrome is distinguished by infertility, menstrual disturbances ranging from amenorrhea to irregular vaginal bleeding, obesity and hirsutism, (Tietz, 2006). Polycystic ovarian syndrome (PCOS) is a significant risk factor related with primary infertility. Women with PCOS exhibit a clinically significant increased risk of pregnancy complications. PCOS is characterized by infertility, menstrual disturbances and obesity. Currently, nearly half of the reproductive-age women are overweight or obese. It seems to be a strong association between increased body mass index (BMI), lower pregnancy and live birth rates and increased rate of miscarriage. Coexisting factors, such as age and PCOS status have also been responsible for these adverse effects (Weis and Clapuch, 2013). PCOS is characterized by infertility, menstrual disturbances and obesity. The menstrual cycle is regulated by hormones. Most of the time, PCOS is diagnosed in women in their 20s or 30s. However, it may also affect teenage girls. The symptoms often begin when a girl's periods start. The present work has designed to study the PCOS in association with Body mass index (BMI) and menstrual cycle in Ramanathapuram.

Materials and Methods:

A cross-sectional descriptive approach was designed to meet the objectives of the current study. A random sampling method was used to collect the data related to different risk factors in infertile female between the age of 18-44years .The period of the study is from January 2015 to December 2016 in a private infertility centre at Ramanathapuram. Anthropometric measurement in this study includes weight and height. BMI was calculated to find the underweight, normal, overweight and obesity. Body mass index or Quetelet index, is a statistical measurement which compares a person's weight and height. Body mass index (BMI) is derived mathematically from the height and weight measures. BMI = weight (kg) / Height (m^2). BMI values correlate significantly with body fatness and obesity, and experts use them to help evaluate a person's health risks associated with underweight (Whitney *et al*., 2002). BMI can be categorized as follows according to the WHO (Laquatra, 2004): Underweight < 18.5 kg/m^2 Normal 18.5 – 24.9 kg/m^2 Overweight 25.0 – 29.9 kg/m^2 and Obese > 30.0 kg/m^2. A specially designed data sheet was used for collection and analysis of data among 510 infertile female.

Results:

According to the results of the present study, frequencies and percentage of the clinical characteristics menstrual cycle and PCOS according to age group (yr) of the infertile female were tabulated (Table 1). It shows

a relatively high percentage (72.16) of irregular menstrual cycle and (58.24) of PCOS among the studied women while most of them between 21-25 age group (yr). Table 2 explains the association of BMI with PCOS at different age group (Yr) of infertile female. PCOS was higher (66.1%) in the age group of 21-25 yr. Association of PCOS with menstrual cycle at different age group (yr) of infertile female in the study area were given in Table 3. It shows high percentage (92.6) of infertile female had PCOS with irregular menstrual cycle, More percentage of (100) infertile female had PCOS with irregular menstrual cycle in the age group of 21-25 yr. Figure 1 depicts the association of PCOS with menstrual cycle at different age group (yr) of infertile female. It reveals 368 infertile female had irregular menstrual cycle and 297 infertile female had PCOS, More number of female had irregular menstrual cycle (150) and PCOS (126) in the age group of 21-25 yr.

Table 1: Observed frequencies and percentage of the clinical characteristics Menstrual Cycle and PCOS at different age group (yr) of studied infertile female in the study area.

Parameters	Group	Age Group (Yr) (Total 510)						Frequency	Percentage (%)
		≤ 20	21 - 25	26 - 30	31 - 35	36 - 40	Above 40		
Menstrual Cycle	Regular	11	39	46	22	20	4	142	27.84
	Irregular	33	150	124	43	17	1	368	72.16
PCOS	Present	28	126	103	30	10	0	297	58.2
	Absent	16	64	67	35	27	4	213	41.8

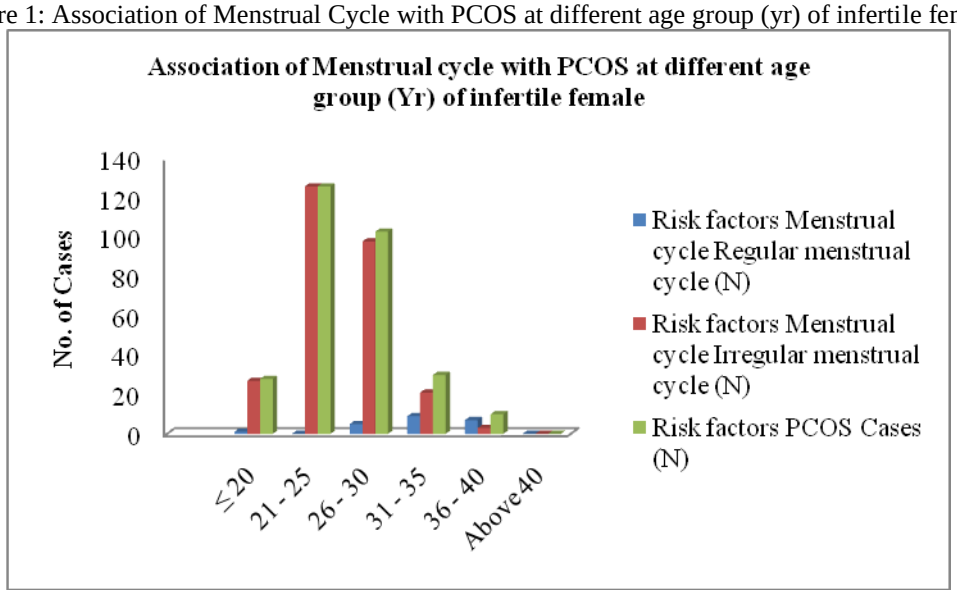
Table 2: Association of BMI with PCOS at different age group (yr) of studied infertile female in the study area

Age Group (yr)	BMI														
	≤ 18.5 Below normal		% of PCOS	18.6 - 24.9 Normal		% of PCOS	25 - 29.9 Over weight		% of PCOS	≥ 30 Obesity		% of PCOS	Total		
	Total No. of Cases (N)	PCOS Cases (N)		Total No. of Cases (N)	PCOS Cases (N)		Total No. of Cases (N)	PCOS Cases (N)		Total No. of Cases (N)	PCOS Cases (N)		Total No of Cases (N)	Total PCOS Cases (N)	PCOS %
≤ 20	4	2	50	27	18	66.7	12	7	58.3	1	1	100	44	28	63.6
21 - 25	10	9	90	116	72	62.07	57	41	71.9	6	4	66.7	189	126	66.7
26 - 30	6	2	33.3	99	61	61.62	56	35	62.5	9	5	55.6	170	103	60.6
31 - 35	1	1	100	32	14	43.8	26	13	50	6	2	33.3	65	30	46.2
36 - 40	0	0	0	24	6	25	12	4	33.3	1	0	0	37	10	27.0
>40	0	0	0	2	0	0	3	0	0	0	0	0	5	0	0
Total	21	14	66.7	300	171	57	166	100	60.2	23	12	52.2	510	297	58.24

Table 3: Association of PCOS with Menstrual cycle at different age group (yr) of studied infertile female in the study area

Age Group (yr)	Risk Factor - Menstrual Cycle		PCOS with Irregular Menstrual Cycle	
	Regular Menstrual Cycle (N)	Irregular Menstrual Cycle (N)	PCOS Cases (N)	Irregular Menstrual Cycle with PCOS (%)
≤ 20	1	27	28	96.43
21 - 25	0	126	126	100
26 - 30	5	98	103	95.15
31 - 35	9	21	30	70
36 - 40	7	3	10	30
Above 40	0	0	0	0
Total	22	275	297	92.6

Figure 1: Association of Menstrual Cycle with PCOS at different age group (yr) of infertile female.



Note: More number of female had irregular menstrual cycle with PCOS (126) in the age group of 21-25 yr

Discussion:

Roupa *et al.,* 2009 stated that infertility appears to be a multidimensional health issue. It occurs not only due to health problems, but it may also be a result of ovulation disorder - PCOS, hormonal imbalance. Women with PCOS exhibit a clinically significant increased risk of infertility. Women with PCOS have three characteristic symptoms such as irregular menstrual cycle, excess androgen and polycystic ovaries (Jennifer, 2011). According to the present study PCOS was higher (66.7%) in the age group of 21-25 and also below 20 yr (63.6%). Because modern life style is an important factor to cause the infertility. Miller (1992) stated that ovulatory dysfunction is more common in younger women than older women. Most of the infertile women with PCOS are overweight and obesity independently responsible for infertility. Ovarian dysfunction could be caused by weight loss or excessive weight gain with body mass index (BMI) greater than 27 kg/m^2 (Imani *et al.*, 1998).

The present study indicates a relatively high percentage (72.16) of irregular menstrual cycle and (54.31%) of PCOS among the studied women while most of them between 21-25 age group (yr). Rajashekar and Patil, 2008 reported that, among (2270) infertility females 46.50% (1057) were PCOS patients. Among 166 infertile women 100 were overweight mainly between 21-25 age group. Estrogen is produced by the fat cells and primary sex organs and thus, state of high body fat causes increase in estrogen production which the body interprets as birth control, limiting the chances of getting pregnant (Wasiu Eniola *et al*., 2012). The present analysis indicate that the infertility has stronger association with body size especially more number of overweight. The results show that BMI greater than 25 is equally associated with an increased risk of infertility. These findings are in good agreement with other studies that high body fat or over weight causes menstrual dysfunction and subsequent infertility, increased risk of miscarriage and decreased effectiveness of Assisted Reproductive Techniques (ART), limiting the chances of getting pregnant (Pasquali, 2006).

Many women with PCOS will have infertility associated with their irregular menses. Also, when women with PCOS do become pregnant, they have an increased rate of miscarriage (Jennifer, 2011). Association of BMI with PCOS was higher (66.1%) in the age group of 21-25. The present study shows high percentage (92.6) of infertile female had PCOS with irregular menstrual cycle, More percentage of (100) infertile female had PCOS with irregular menstrual cycle in the age group of 21-25 yr . At 21 -25 age group, all (126) infertile female with PCOS had irregular menstrual cycle. Treatments are available to cure PCOS. Diet and exercise may help to maintain the body weight to reduce the symptoms of PCOS in women who are overweight or obese. Oral contraceptive pills are given to correct the hormonal imbalances found in PCOS and regulate menstrual cycles.

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