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Prevalence, Risk Factors, and Treatment Strategies of Polycystic Ovary Syndrome at Various Hospitals, Palakkad: A Prospective Study

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Abstract:

Aim and Objectives: *To monitor and assess the prevalence, risk factors, and treatment strategies of polycystic ovary syndrome.*

Materials and Methods: *A prospective study was conducted in various hospitals of Palakkad from November 2016- April 2017. A total of 207 cases were collected. Patients of age between 15-50years with polycystic ovary syndrome were included in the study.*

Results and Discussion: *The maximum number of patients belongs to 21-25 years. Risk factors of study population include hypothyroidism (69%), followed by cardiovascular disease, obesity, migraine etc. Medroxy progesterone (30%), Clomiphene citrate (23%), Ethinyl estradiol (16%), Metformin (15%) etc are given as treatment for PCOS.*

Conclusion: *From the study it shows that the prevalent age group is 21-25 years. Hypothyroidism is the major risk factor for PCOS. Current treatment strategies include medroxy progesterone, clomiphene citrate, followed by ethinyl estradiol and metformin.*

Keywords: ***PCOS, Risk factors, Prevalence, Treatment strategies***

Introduction

Polycystic ovary syndrome (PCOS) is a common endocrine disorder among women of reproductive age, affecting about 6.5–6.7% of women, characterized by increased androgen production and ovulatory dysfunction. The disorder originally described as cystic disease of the ovaries by Stein & Levanthal is now considered to be associated with a barrage of endocrine and metabolic disturbances such as hypertension, impaired glucose tolerance (IGT), type 2 diabetes mellitus, coronary artery disease, increased risk of endometrial and breast cancer.[1] WHO estimates that it affected 116 million women worldwide in 2012. According to Rotterdam, oligomenorrhea, hirsutism and obesity together with enlarged polycystic ovary are the diagnostic criteria of PCOS.[2] Lifestyle modification improve not only metabolic and reproductive manifestation of PCOS but also yielding benefits including improvements in anxiety, depression and psychological well-being.[3] PCOS is generally diagnosed based on medical history, physical exam, ultrasound of the ovaries and the results of blood tests. Early treatment of PCOS may prevent infertility or increase in the chance of having a healthy pregnancy. The treatment strategies include metformin, clomiphene citrate, medroxy progesterone, ethinyl estradiol etc. This study aims to monitor and assess the prevalence, risk factors, and treatment strategies in polycystic ovary disease.

Materials and Methods

This prospective study was conducted at outpatient gynaecology department of District Co-operative Hospital, Karuna medical college hospital Chittur, New life fertility centre, Palakkad, Kerala. Ethical clearance was obtained from the institutional ethics committe. A total of 207 cases were included in the study. Sample selection was based on the

Inclusion criteria:

- Female patients of age between 15-50 years with polycystic ovary syndrome.
- Out patients attended in gynecology department with polycystic ovary syndrome.

Exclusion criteria:

- Patients who were unwilling to participate in the study

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- Patients with malignancy.

Written inform consent was obtained from all participants prior to the study. Questionnaire survey was conducted to assess the prevalence and risk factors of polycystic ovary syndrome. Other relevant information on the disease, associated symptoms, diagnosis, and treatment plan were collected on a pre-designed data entry form.

Statistics: The statistical analysis was carried out using SPSS for windows.

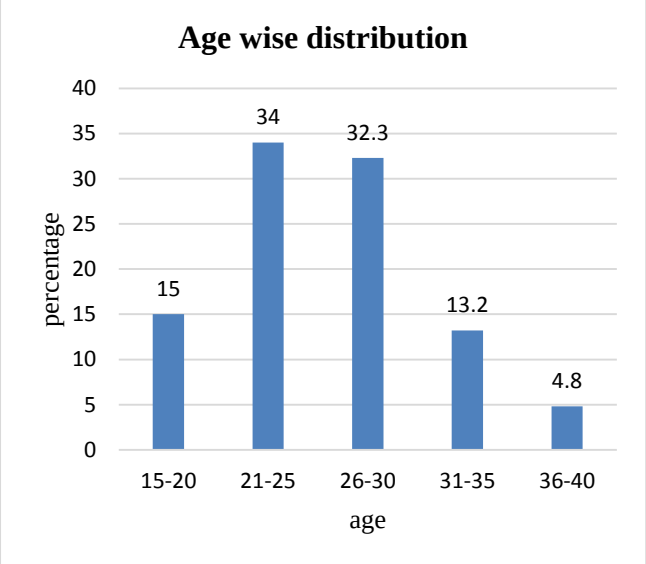
Results

Among 207 patients diagnosed with PCOS, 15% were in the age group 15-20 years, 34% were in age group 21-25years, 32.3% were in the age group 26-30years, 13.2% were in the age group 31-35years, and 4.8% were in age group 36-40years.

Table 1: Prevalence

Age (years)	Number of patients	Percentage (%)
15-20	31	15
21-25	70	34
26-30	67	32.3
31-35	27	13.2
36-40	10	4.8

Figure1



Out of 207 patients 69% of study population shows hypothyroidism and followed by cardiovascular disease (3%), obesity (6%), others (22%). The results are shown in table 2.

Table 2: Risk factors

Risk factor	Number of patients	Percentage (%)
Hypothyroidism	22	69
Cardiovascular disease	1	3
Obesity	2	6
Others	**7**	22

Figure 2

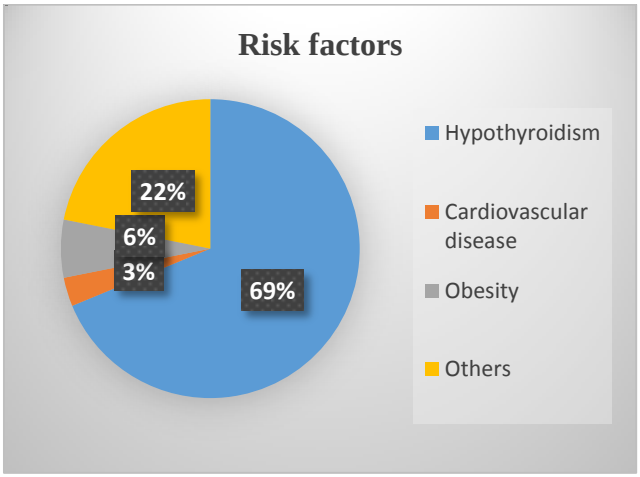


Table 3: Distribution of body mass index

BMI(Kg/m^2)	Number of patients	Percentage (%)
<18.5(normal)	15	7
18.5-24.9(healthy)	70	34
25-29.9(overweight)	83	40
>30(obese)	39	19

Figure 3

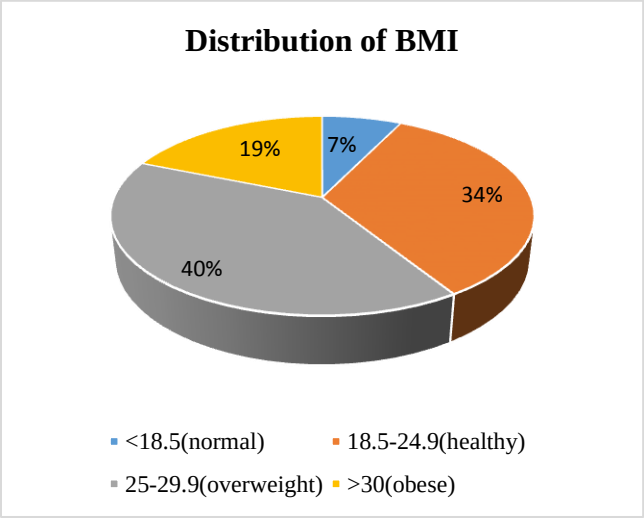


Table 3 shows that 7% of the PCOS patients have normal body mass index, 34% of study population are healthy, 40% of the PCOS patients are overweight, and 19% are obese.

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Table 4: Distribution based on marital status

Marital status	Number of patients	Percentage (%)
Married	162	78
Unmarried	45	22

Figure 4

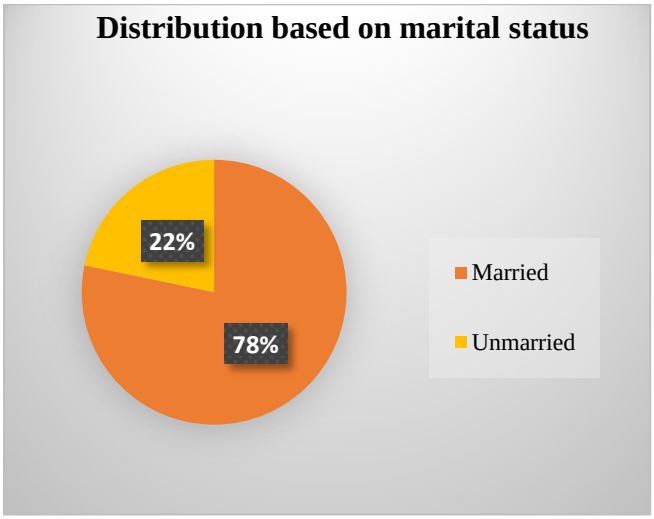

Table 4 shows results based on marital status of study population. Out of 207 PCOS patients 78% were married, and remaining 22% were unmarried.

Table 5: Distribution based on food habit

Food habits	Number of patients	Percentage (%)
Vegetarian	13	6
Non vegetarians	38	18
Mixed food	156	76

Figure 5

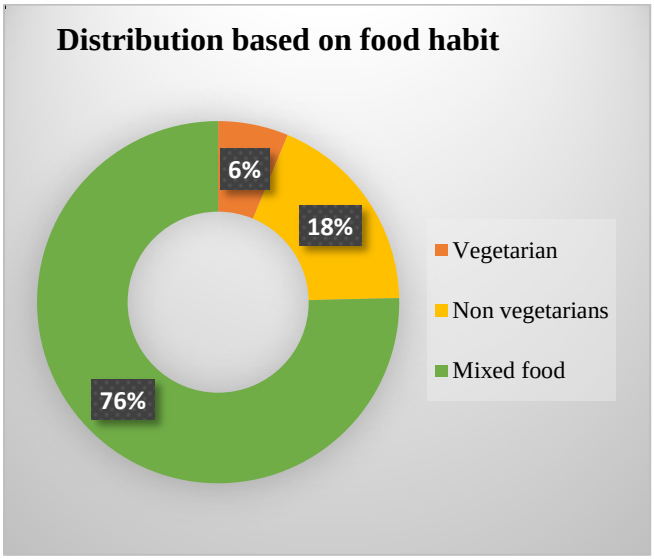

Table 5 shows that 76% of study populations are having mixed food diet, 6% of study population consume vegetarian food diet, followed by 18% of population have non-vegetarian food.

Table 6: Pattern of blood group

Blood group	Number of patients	Percentage (%)
A+	25	12.07
B+	80	38.6
O+	91	43.9
AB+	6	2.89
B-	2	0.96
O-	1	0.48
AB-	2	0.96

Figure 6

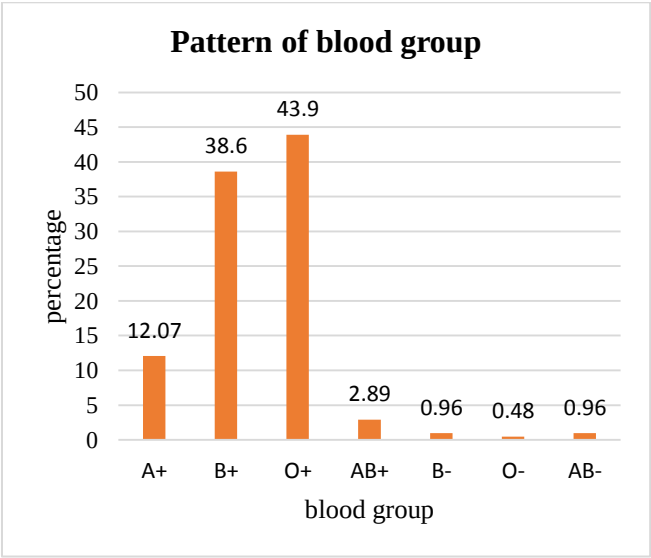

Table 6 represents that 12.07% have "A" positive blood group, 38.6% have "B "positive ,43.9% have "O" positive blood group, followed by 2.89% have "AB" positive blood group, 0.96% have "B" negative blood group, 0.48% have "O" negative blood group, 0.96% have "AB" negative blood group.

Table 7: Distribution based on clinical features

Clinical features	Number of patients	Percentage (%)
Irregular menstrual cycles	180	94
Dysmenorrhea and menorrhagia	130	68
Hirsutism	171	90
Tiredness	124	65
Depression	160	84
Acne	144	75

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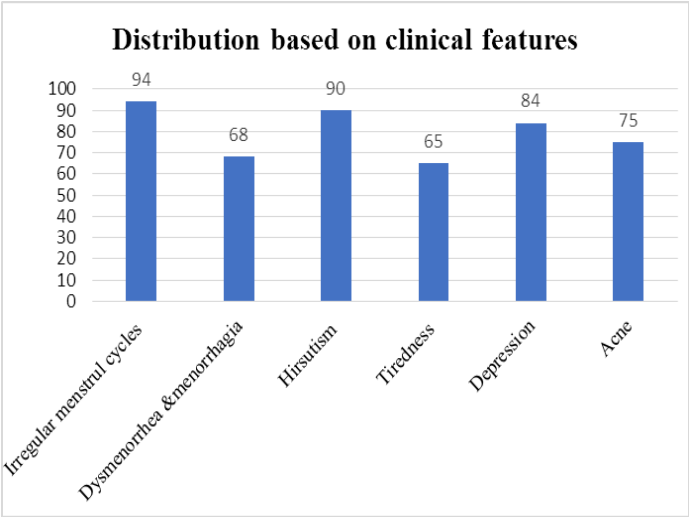
Figure 7

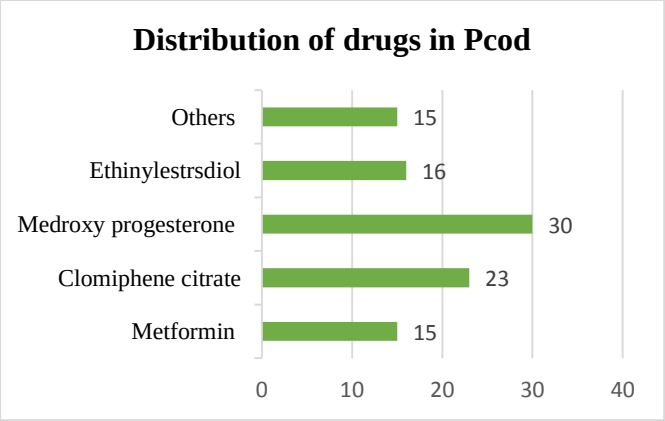


Out of 207 PCOS patients 94% were complaints of irregular menstrual cycles, 68% have dysmenorrhea and menorrhagia, followed by hirsutism (90%), tiredness (65%), depression (84%), acne (75%) etc.

Table 8: Distribution of drugs in pcod

S.No	Drug name	Number of patients	Percentage (%)
1	Metformin	46	15
2	Clomiphene citrate	73	23
3	Medroxy progesterone	93	30
4	Ethinyl estradiol	49	16
5	Others	47	15

Figure 8



From the results, it shows that out of 207 patients, metformin therapy is given for 15% of the study population. Clomiphene citrate given to 23% of patients, progesterone is given for 30% patients, ethinyl estradiol therapy is given for 16% and some other treatments are recommended in other 15% of study population like multivitamin tablets, folic acid tablets etc.

Discussion

In this prospective study it was observed that the maximum number of PCOS patients of age belongs to 21-25 years (34.2%). So the estimated prevalent age group is 21-25 years. A study is done by Tabassum et al [2] shows that prevalent age was 25 years. The present study also reveals that risk factors include hypothyroism (69%) and followed by cardiovascular disease, obesity, migrane etc. In study population 40% of patients were overweight and they have more chance to get PCOS. A study conducted by Gulay Simsek Bagir et al [5] shows that overweight and obesity appeared to be an important determinant of high cardiovascular risk in PCOS. Increase in weight will cause some physiological changes in women by increasing in cholesterol level, which will increase the androgen production, which leads to menstrual irregularity and PCOS. The proportion of marital status of pcos women in study correlates with the study of Dr.B.Vasantha Ramani et al [7]. The occurrence of PCOS was more in married women (78%) may be due to increased stress and lack of awareness about PCOS. Distribution of food habit, shows that 70.5% womens are consumes mixed food diet, and they have more chance to get PCOS. The present study shows that 43.9% of patients have “O” positive blood group and they have higher risk of developing PCOS, followed by women of “B” positive blood group. A study conducted by Rahul Pal et al [11] shows that “O” positive females are more prone to PCOS, contributing factors are mixed diet and alcohol intake. In this present study reveals that mostly presented symptoms are irregular menstrual cycles, Dysmenorrhea & menorrhagia, Hirsutism, Tiredness, Depression, acne etc. Treatment for PCOS include hormonal therapy, antiandrogen drugs, antidiabetic drugs etc. In majority of patients hormonal therapy was given, which is the first line therapy for PCOS.

Conclusion

From the study it was clear that the prevalence of PCOS belongs to age group between 21-25 years, and hypothyroidism is the major risk factor (69%) for PCOS. The current treatment strategies include clomiphene citrate, hormonal therapy and metformin etc. Life style modification should be included like diet and exercise, along with the medications. This will be increase the likelihood of ovulation, pregnancy and prevent further complications

Conflicts of interest: - None

ABBREVATIONS

PCOS: Polycystic ovary syndrome
IGT: impaired glucose tolerance
WHO: World health organization

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