



FUNCTIONAL ANALYSIS OF CLINICAL, BIOCHEMICAL AND ULTRASOUND PARAMETERS IN WOMEN WITH PCOD.

Gynaecology

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ABSTRACT

Polycystic ovary syndrome is the most common female endocrinopathy affecting the reproductive age group. It is a heterogeneous disorder. To analyse various clinical presentation of PCOS in population in North Chennai. To establish the role of hormonal assay in diagnosing PCOS. To understand the correlation between clinical and endocrine changes with PCOS. Criteria: oligomenorrhea / anovulation, lab. Findings/clinical findings suggestive of hyper androgenism. Direct inspection of polycystic ovaries by ultrasound. Other etiologies for hyper androgenism ruled out. This study was carried from December 2015 to December 2016 in Stanley medical college hospital. 50 patients were studied in age groups between 18-35 years. Written informed consent were obtained. Phenotype A is the most common presenting type of PCOS. Menstrual irregularities is most presenting symptom in PCOS. There was no correlation between serum prolactin and PCOs. TVS is the most important diagnostic tool. Obesity and overweight is a most important modifiable risk factor which will prevent this disorder.

KEYWORDS:

PCOS, LH, obesity

Introduction

Most common female endocrinopathy affecting the reproductive age group is polycystic ovary syndrome. It is a heterogeneous disorder. It is associated with menstrual disorder, infertility, obesity, hirsutism and insulin resistance. It may vary from mild to severe disturbance of endocrine, reproductive and metabolic function.

It may lead to infertility, endocrine disorder and long term health environmental factors. The molecular biology and bioinformatics have helped better understanding of PCOS. PCOS is usually diagnosed by clinical history or physical findings. Laboratory findings are important to differentiate other conditions resembling of PCOS.

Normal healthy women have classic ultrasound appearance of polycystic ovaries without symptoms. We have to differentiate between PCOS with symptoms and PCOS without symptoms.

AIMS AND OBJECTIVES

- To analyse various clinical presentation of PCOS in population in North Chennai
- To establish the role of hormonal assay in diagnosing PCOS.
- To understand the correlation between clinical and endocrine changes with PCOS.

MATERIALS METHODS

Selection criteria: This study was carried from December 2015 to December 2016 on patient attending gynaecology outpatient department at Stanley Medical College and Hospital.

Inclusion criteria:

50 patients were studied in between ages of 18-35 years attending gynaecology op with PCOD in ultrasound and clinical features. Written informed consent was obtained.

Exclusion criteria: patients who were on treatment for infertility and hormonal therapy.

Method of study:

A complete History and clinical examination was done. Proforma was filled. History was taken in detailed manner regarding oligomenorrhoea, amenorrhoea and infertility. Clinical finding was recorded including hirsutism, acne, alopecia, acanthosis nigricans and obesity. Height and weight measured in OP, with help of it BMI was calculated. Blood test were done in early follicular phase on day

3 for serum LH, FSH, total testosterone, AMH, HOMA IR Index. It is done electro hemiluminiscence immune assay in Stanley Medical College.

Transvaginal scan was done. If difficult arises, ovary is traced in relation to iliac vessels. Following parameters were located. 1. Patients with PCOD having at least 12 or more follicles. Follicles should measure 2-9 mm in diameter. 2. Ovarian volume is measured with prolate ellipsoid method = $0.5 \times \text{length} \times \text{breadth} \times \text{thickness} > 10 \text{ cms}^3$

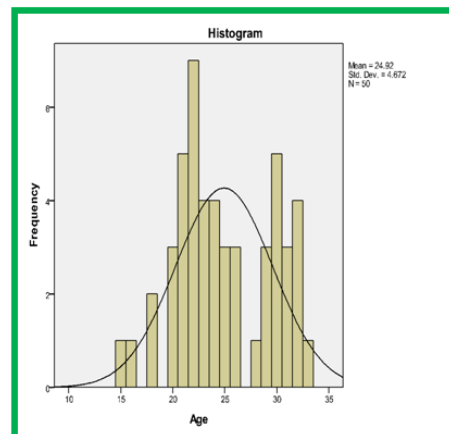
Hirsutism was examined and graded by modified ferriman - gallwey score. Patient with score > 8 was hirsutism.

Statistical Analysis

The data is entered and calculated using SPSS version and software. The statistical significance will be tested. Mean and standard deviation were expressed using continuous variables as BMI, LH, FSH, LH/FSH, AMH, Home IR Index, sum LH, / FSH, menstrual irregularity, hirsutism, acne, Ovarian volume, pearson correlation and coefficient calculated.

Relationship between LH level, LH/FSH ratio, serum testosterone, Oligomenorrhea / Amenorrhea, hirsutism, acne using Bi-serial correlation coefficient.

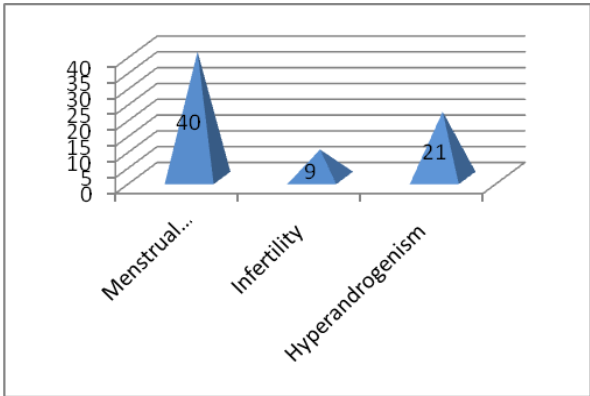
OBSERVATION & RESULTS



Age Distribution Graph 1 : Age distribution in patients with PCOD

By age distribution graph the present study have age group maximum between 20-30 years (40 cases). Small group of patients was less than <20years > 30years.

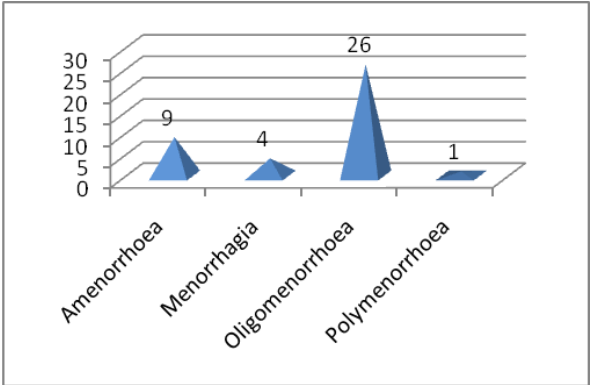
Distribution of Cases according to symptoms



Graph 2: Distribution of Cases according to symptoms

50 Patients were studied, out of this menstrual irregularity- 40 cases, Hyper androgenism- 21 cases, Infertility- 9 cases.

Menstrual Irregularities

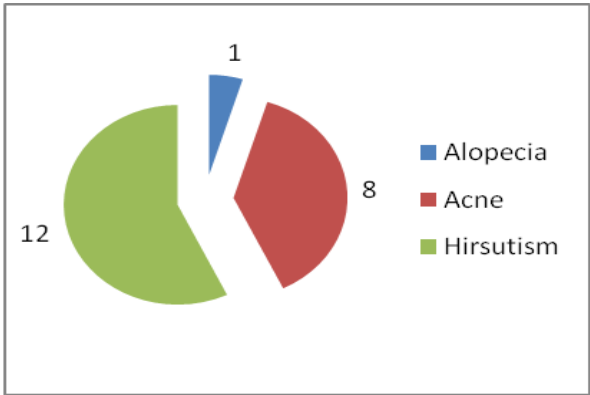


Graph 3: Menstrual Irregularities

Menstrual Irregularity ;in the present study of 50 patients 40 had menstrual irregularities .The most common symptom is oligomenorrhoea is seen in 26 patients

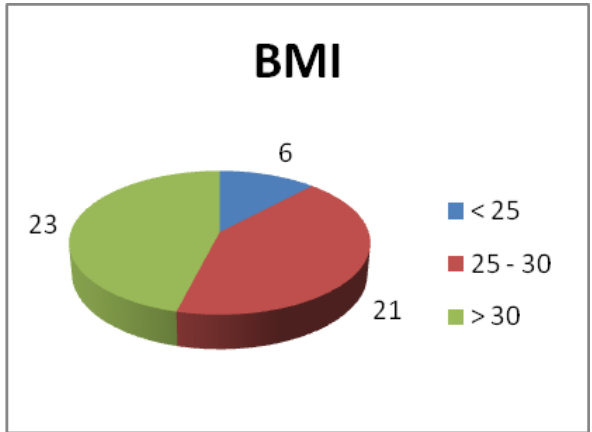
Distribution of Hyperandrogenism

In this study, 21 cases have both clinical and biochemical features of hyperandrogenism



Graph 4: Distribution of Hyperandrogenism

Of the symptoms of hyper androgenism, Hirsutism is most common presentation.



Body Mass Index Graph 5: Body Mass Index

Of the 50 patients in our study, Less than 25 body mass index in 6 cases, 25 to 30 in 21 cases, greater than 30 in 23 cases
Serum LH in mIU/ml

Serum LH in mIU/ml

In the study, many patients have high LH values. 30 cases have LH > 10mIU/ml and 20 cases <10mIU/ml. There was positive correlation between LH/ FSH and FT3 and negative correlation between LH/FSH and TSH.

LH/FSH

Table 1: pearson correlation

Pearson correlation			
LH/FSH & FT3	Value= .303 [*]	P Value = .033	Highly significant
LH/FSH & TSH	Value = -.344 [*]	P value = .015	Highly significant

PEARSON CORRELATION

Serum prolactin & TSH	Pearson correlation	Value = -.282 [*]	P value = .047	Highly Significant
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There is Negative Correlation between Serum Prolactin and TSH.

DISCUSSION

The study is carried out in 50 subjects with polycystic ovaries in USG. As per Rotterdam consensus study, clinical examination were used. According to Rotterdam criteria 2003 PCOS is classified in 4 types. Phenotype A : PCOs + menstrual irregularity + Hyperandrogensim. PhenotypeB : Hyperandrogenism + menstrual irregularity. Phenotype C: PCOs + Hyperandrogenism. Phenotype D: PCOs + menstrual irregularity.

Our study showed only 3 phenotypes . The commonest phenotype in our study is phenotype A.

In our study, amenorrhea was present in 10 cases, menorrhagia in 4 cases oligomenorrhoea in 23 cases . In the study by ballen. Et.al of about 1741 cases, 66 patients had menstrual irregularities. Only small number of cases have regular cycles. In study by franks et al found oligomenorrhoea in 52% cases. Gold zieheretal said that 90% of cases were menstrual irregularity among them 30 to 40% had amenorrhoea. Most women with PCOS have abnormal menstrual cycle .The most common is amenorrhoea anovulation.

Table :2 symptoms

	Balen et al n = 1741 (%)	Franks et al n = 300 (%)	Goldzieher et al n=1079 (%)	Present Study n = 50
Oligomenorrhoea	47	52	29	26
Amenorrhoea	19	28	51	10
Polymenorrhoea	12	20	33	1
Menorrhagia	10	16	22	4

Turhan No et al conducted study about 125 patients with ultrasound diagnosis of PCOS. 55.2% had menstrual disturbances, 23.2% had normal irregular cycles and 50.4% had infertility. Gulekli B et al study found Oligomenorrhoea, in 42.8%, Amenorrhoea in 20% and normal cycles in 17.4% of cases.

Balena.etal had studied infertility about 20% of cases. Franks et al said that 42% o case had infertility. In the study by Aarthi sharma ,because of Anovulation 20% of all couples with infertility.

Table :4 Hyperandrogenism in PCOs

	Balen et al n = 1741 (5)	Franks et al n = 300 (%)	Present Study N =
Hirsutism	66.2	64	12
Alopecia	6	3	1
Acne	35	27	8
Acnathosis	3	1	Nil

Balenet al study showed hirsutism in 66.2% , franks et al 64% , Goldzieher et al 69% and in our study 24 %. Small percentage of hirsutism in our study is due to Ferriman gallwey score of > 8 was taken for hirsutism. In all other studies above mention took FG score of >6 for hirsutism.

The signs of hirsutism in PCOS begins in Menarche and progress gradually and rarely accompanied by other signs of virilisation. The most important clinical indicator of Androgen excess is hirsutism . The only presence of acne and androgenic alopecia could also be taken for Androgen excess. These are poor markers of androgen excess In our study acne as found in 8% of cases. Balen et al had acne in 35% and 27% of cases, by study of franks et al. Timpatanapong p et al found in 51 patients with acne, 19 of them had PCOS.

In our study Androgen alopecia is seen one case. Balen et al said 6% of PCOS patients has androgen alopecia In our study most of the cases were BMI > 30 who were considered as Obese, so obesity is a major cause of PCOD. In Baleen et al conducted a study and found 38% were obese .Series by franks et al and Goldzieher et al obesity is found 35% & 41% respectively. Aarti Sharma said obesity was seen in 10- 65% of women.

PCOS patient have body habitus which is typical. They are usually over weight with hirsutism. Some patient do not fit within the body habitus. They were called lean PCOS.

It was found that half the women PCOS have normal weight or lean. Insulin resistance has a major role in PCOS. Lean women also have derangement of insulin level and glucose metabolism. They did not express same degree of insulin resistance Vrlíkova published an article on 2004 about Insulin sensitivity in women PCOS. He said that ovaries are sensitive to insulin in women with PCOS leading to hyperandrogenism.

Table :3 Hormonal Evaluation of PCOS

Study	Balen et al n = 1741 (%)	Franks et al n = 300 (%)	Rajkhowa	Present study n = 50
Elevated serum LH	40	51	33.6	28
Hypothyroidism	26	12	30	18
Hyper prolactinemia	10	8	8	8
Hypo prolactinemia	19	4	8	2

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In our study levated serum LH level is seen in 28 cases, Hypothyroidism 18 cases, Hyper prolactinemia in 8. In the revised 2003 criteria there is elevated LH levels in PCOS in relation to FSH. This is caused by increase amplitude of LH. PCOS women have elevated LH levels in 60% and LH / FSH ratio in 95% of women. Final said measurement of LH is not primary tool for diagnosis PCOS. But is should be used as second parameter for PCOS.

CONCLUSION

PCOS is the most common gynecological disorder of age 20 -30 years. Phenotype A is the most common presenting type of PCOS. Menstrual irregularity is the presenting symptom of 40 cases PCOS. Among the menstrual irregularity oligomenorrhoea is present in 26 cases. There are many features of hyperandrogenism among this Hirsutism is present 12 cases. There was no correlation between serum prolactin and PCOs. TVS is the most the important diagnostic tool. Serum LH/FSH ratio was secondary tool for diagnosing PCOs is 28 cases. Obesity and overweight is a most important modifiable risk factor which causes 70% of cases. weight reduction is one of the important step in preventing the disorder.

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