

Prevalance of Hyperprolactinemia in PCOS

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Abstract: Chronic anovulation is the most common finding in both polycystic ovary syndrome (PCOS) and hyperprolactinemia. PCOS is the most common endocrine disorder encountered among women at reproductive age group (18-35years) of age. PCOS diagnosed by Hyperandrogenesim (hirsutism and or hyperandrogenemia), Ovarian dysfunction(oligo/anovulation and polycystic ovaries) and exclusion of other androgen excess or related problems. Hyperprolactinemia is observed in about 5-10% of women with amenorrhea, which is sometimes associated with galactorrhea. Objectives of the present study were to identify the incidence of hyperprolactinemia in PCOS patients. **Material and methods:** The study was conducted at Father Muller Medical College &Hospital, June 2016 – December 2016. The subjects for the study were selected from patients attending department of Obstetrics and Gynaecology. The study was carried out on 52 women diagnosed to have PCOS using the Rotterdam criteria after an informed consent. Patients were advised to come overnight fasting and blood sample was drawn to measure the serum prolactin levels. Inclusion criteria: Age 15 to 40 years of age, Diagnosis of PCOS according to Rotterdam criteria in the presence of two of the following: oligomenorrhea/ amenorrhea/ anovulation , hyperandrogenism , ultrasound diagnosed PCOS. Exclusion criteria – any endocrine or gynaecological disorders, Informed consent was obtained from all the participants. Normal prolactin levels: 4.78 – 23.3ng/ml. The study group had no galactorrhea. **Results:** In our study the age group of the cases ranges from 18-35years of age. Mean age of the group is 24.61years . Prolactin levels compared in the study group, had mean prolactin levels of 21.51ng/ml . In the study 41 of the patients had prolactin levels <=23.3 and 11 patients had hyperprolactinemia with prolactin levels >23.3. P value of 0.509. **Conclusion:** As per this study we conclude that the incidence of hyperprolactinemia in women with PCOS is around 21%. So here by we conclude that hyperprolactinemia and PCOS are two different entities. And hence, there is need to evaluate women with hyperprolactinemia when presented with menstrual disturbances.

Keywords: PCOS, Prolactin

1. Introduction

Chronic anovulation is the most common finding in both polycystic ovary syndrome (PCOS) and hyperprolactinemia. PCOS is the most common endocrine disorder encountered among women at reproductive age group (18-35years) of age. Incidence is 5-20% of women with reproductive age group.¹ PCOS was first described by Stein and Leventhal in the year 1935. They clinically described a condition in women of reproductive age group characterized by symptoms such as irregular menstruation, hirsutism, obesity and there by confirmation on USG polycystic ovaries. Earlier wedge biopsies were taken from the ovaries for the diagnosis of PCOS. Later in the 1970's non invasive methods i.e. ultrasound was used as diagnostic tool to visualize the ovaries having cystic ovaries.²

In 2006, The conference by Androgen Excess and PCOS society (AE-PCOS) – diagnosed PCOS on following criteria

- Hyperandrogenesim (hirsutism and or hyperandrogenemia)
- Ovarian dysfunction (oligo/anovulation and polycystic ovaries)
- Exclusion of other androgen excess or related problems.³

The etiopathology of PCOS still remains unknown, but hyperinsulinemia is present in patients with PCOS. Hyperinsulinemia plays an role in the pathophysiology of PCOS , it stimulates ovarian androgen production and there by reduces sex hormone binding globulin and inhibits ovulation.⁴

2. Prolactin

Prolactin(Prl) is a single chain polypeptide hormone of pituitary origin involved in many actions, such as lactation ,

osmotic balance, reproduction , immunity, coagulation, luteal function, appetite. Its pituitary secretion is mainly controlled by the inhibitory effect of dopamine released into portal secretion.⁵

Pituitary prolactin secretion is partly inhibited both by a negative self-feedback and hypothalamic dopamine secretion. Prolactin secretion is pulsatile in nature. Hyperprolactinemia inhibits the secretion of gonadotropin releasing hormone(GnRH) from the hypothalamus, which in turn inhibits the secretion of leuteinizing hormone (LH) and follicle stimulating hormone(FSH).⁶ Causes of hyperprolactinemia are – pregnancy, lactation , sleep, hypothyroidism, stress, hypothalamic- pituitary causes like meningoma, dysgerminoma, adenomas, prolactinoma, acromegaly etc. Hyperprolactinemia is observed in about 5-10% of women with amenorrhea, which is sometimes associated with galactorrhea.⁷

Late in 1954, Forbes et al indirectly suggested an association between hyperprolactinemia and PCOS. Later in 1960s few other studies supported the relationship between hyperprolactinemia and PCOS Lavric et al, Talas et al which all led the investigators to accept a relationship between polycystic ovaries and hyperprolactinemia.⁸

Objectives of the present study were to identify the incidence of hyperprolactinemia in PCOS patients.

3. Material and Methods

The study was conducted at Father Muller Medical College &Hospital, June 2016 – December 2016. The subjects for the study were selected from patients attending department of Obstetrics and Gynaecology. The study was carried out on 52 women diagnosed to have PCOS using the Rotterdam criteria after an informed consent. Patients were advised to

come overnight fasting and blood sample was drawn to measure the serum prolactin levels.

a) Inclusion criteria :

- Age 15 to 40 years of age
- Diagnosis of PCOS according to Rotterdam criteria in the presence of two of the following:
 oligomenorrhea/amenorrhea/anovulation ,
 hyperandrogenism , ultrasound diagnosed PCOS.

b) Exclusion criteria – any endocrine or gynaecological disorders

Informed consent was obtained from all the participants.

- Normal prolactin levels: 4.78 – 23.3ng/ml.
- The study group had no galactorrhea.

4. Results

In our study the age group of the cases ranges from 18-35years of age. Mean age of the group is 24.61years. Prolactin levels compared in the study group, had mean prolactin levels of 21.51ng/ml . In the study 41 of the patients had prolactin levels ≤ 23.3 and 11 patients had hyperprolactinemia with prolactin levels >23.3 . P value of 0.509

Frequency distribution

Statistics		
	age	Prolactin levels
Number of Cases	52	52
	0	0
Mean	24.62	21.510577
Median	25.00	16.850000
Std. Deviation	3.805	19.3917168
Minimum	18	5.1000
Maximum	35	117.0000

PROLACTIN LEVELS

		Frequency	Percent
Valid	≤ 23.3	41	78.8
	>23.3	11	21.2
	Total	52	100.0

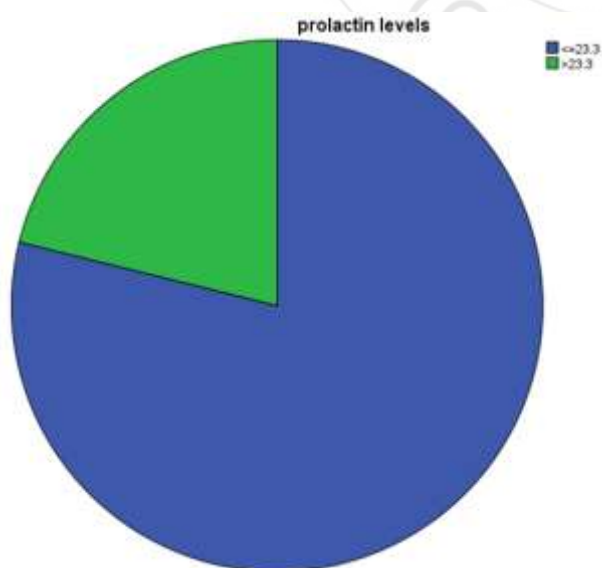


Figure 1: Prolactin level distribution among PCOS

5. Discussion

Studies have showed mild hyperprolactinemia in PCOS patients and incidence has been reported around 5-30%. B.V.Ravi et al conducted a study to assess the prolactin levels and insulin resistance in women with PCOS and they found that prolactin levels were found to be higher in the PCOS group when compared to the control group but was not statistically significant p value 0.065.⁹

Filho et al conducted a study to identify the cause of hyperprolactinemia in patients with PCOS and to compare the prolactin levels between PCOS women without hyperprolactinemia and women with insulin resistance and no PCOS and they concluded that PCOS patients with increased prolactin levels must be investigated for other causes of hyperprolactinemia, because hyperprolactinemia is not clinical manifestation of PCOS women.¹⁰

Agbaht et al conducted a study to identify the cause of hyperprolactinemia in patients with PCOS and he concluded that hyperprolactinemia is not a clinical manifestation of PCOS, but patients with increased PRL levels should be investigated for other causes of hyperprolactinemia.¹¹

Szosland K et al concluded that every woman diagnosed with PCOS and hyperprolactinemia should further be evaluated in terms of actual causes of hyperprolactinemia, because the coexistence of these two disease entities - as distinct - is also possible.¹²

6. Limitations

Sample size is limited

7. Conclusion

As per this study we conclude that the incidence of hyperprolactinemia in women with PCOS is around 21%. So here by we conclude that hyperprolactinemia and PCOS are two different entities. And hence, there is need to evaluate women with hyperprolactinemia when presented with menstrual disturbances.

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