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Thyroid disorders and polycystic ovary syndrome

[1]Asmita Nayak, Assistant Professor, Department of Obstetrics & Gynaecology, Sardar Patel Medical College, Bikaner
[2]Ruchi Saxena, Professor, Department of Obstetrics & Gynaecology, Sardar Patel Medical College, Bikaner
[3]Gajendra Saxena, Professor, Department of General Surgery, Pandit Deendayal Upadhyaya Medical College, Churu.
Corresponding Author: Gajendra Saxena, Professor, Department of General Surgery, Pandit Deendayal Upadhyaya Medical College, Churu.

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Abstract

Background: Polycystic ovarian syndrome (PCOS) is the most common form of chronic anovulation associated with androgen excess; perhaps occurring in 5-10% of reproductive women.

Methods: Observational study done in the Department of Obstetrics & Gynaecology, Sardar Patel Medical College, Bikaner. 50 cases of women with PCOS based on Rotterdam's criteria and an equal number of age-matched controls (women without PCOS) were included in the study.

Results: T4 level was significantly lower in PCOS group with mean free T4 level 0.84 ± 0.72 ng/ml in PCOS group v/s 1.91 ± 0.81 ng/ml in control group (p-value = 0.001). TSH level was significantly higher in PCOS group with mean TSH level 8.72 ± 7.51 mU/L in PCOS group v/s 3.42 ± 1.19 mU/L in control group (p-value = 0.001)

Conclusion: High prevalence of thyroid disorders in PCOS patients thus points towards the importance of early correction of hypothyroidism in the management of infertility associated with PCOS.

Keywords: Women,T4, T3, TSH, PCOS

Introduction

Polycystic ovarian syndrome (PCOS) is the most common form of chronic anovulation associated with androgen excess; perhaps occurring in 5-10% of reproductive women. PCOS is viewed as a heterogeneous disorder of multifactorial etiology. It is also associated with increased metabolic and cardiovascular risk factors. These risks are linked to insulin resistance and compounded by the common occurrence of obesity, although insulin resistance is also present in non-obese woman with PCOS. During the reproductive years, PCOS is associated with important reproductive morbidity including infertility, irregular uterine bleeding and increased pregnancy loss.[2]

Dysfunction and anatomic abnormalities of the thyroid are among the most common diseases of the endocrine gland. Abnormalities in the supply of thyroid hormone to the peripheral tissue are associated with alteration in a number of metabolic processes. Early stages of thyroid dysfunction (before symptoms are obvious) can

lead to subtle change in ovulation and endometrial receptivity, which may have profound effect on fertility. Infantile hypothyroidism if untreated, leads to sexual immaturity. Untreated juvenile hypothyroidism causes a delay in the onset of puberty followed by anovulatory cycles. In adult woman, severe hypothyroidism may be associated with diminished libido and failure of ovulation. Primary ovarian failure can also be seen in patients with Hashimoto's thyroiditis as a part of autoimmune polyglandular syndrome. Rarely, in primary hypothyroidism, secondary depression of pituitary function may lead to ovarian atrophy and amenorrhoea. [3]

Material & Methods

Type of Study : Observational study

CASE - Women with PCOS which were diagnosed by Rotterdam's Criteria were cases.

Inclusion Criteria

- Age group - 13-45 years
- Giving written informed consent

Exclusion Criteria

- Women on OCPs
- Women on steroid
- Hyperprolactinemia
- Congenital Adrenal Hyperplasia
- Cushing's Syndrome
- Virilizing tumor of ovary
- Vitiligo
- Endometriosis

Control

Women of the same age group visiting OPD with problems unrelated to Rotterdam's Criteria of PCOS were controls.

Inclusion Criteria

- Age group - 13-45 years.
- Giving written informed consent

Exclusion Criteria

- Menstrual irregularity
- Hyperandrogenism
- With polycystic ovaries
- Insulin resistance
- Inflammatory and autoimmune disease
- Metabolic abnormalities

Results

Table 1: Risk of Thyroid Disorder in PCOS and Control Group

Group	With Thyroid Disease		Without Thyroid Disease	
	No.	%	No.	%
PCOS	18	36.00	32	64.00
Control	5	10.00	45	90.00

36.00% PCOS cases were present with thyroid disorder.

Table 2: Statistical Value of Thyroid Specific Variable of Case and Control Group

Variables	Cases		Controls		p-value
	Mean	SD	Mean	SD	
T_3	2.48	1.21	2.12	1.21	0.06
T_4	0.84	0.72	1.91	0.81	0.001
TSH	8.72	7.51	3.42	1.19	0.001

TSH level were significantly higher in PCOS and T4 level were significantly lower in PCOS.

Discussion

Patients with PCOS often have defective progesterone secretion which leads to an increased estrogen to progesterone ratio. Oestrogen can increase the expression of IL-6 in T cell and inhibitory action of progesterone may leads to over stimulated immune system and makes these patients more prone to autoimmune disorder.[4]

T4 level was significantly lower in PCOS group with mean free T4 level 0.87 ± 0.75 ng/ml in PCOS group

v/s 1.92 ± 0.84 ng/ml in control group (p-value = 0.001). Similar results were reported by Sinha U et al (2013).[5] In our study mean serum TSH level was found to be significantly higher in PCOS group and in control group. Significant difference was found between two groups. Similar correlation between TSH and Anti-TPO antibody level was reported by Janssen OE et al (2004)[1]

Conclusion

High prevalence of thyroid disorders in PCOS patients thus points towards the importance of early correction of hypothyroidism in the management of infertility associated with PCOS.

References

1. Janseen OE, Mehlmauer N, Hahn S, et al. High prevalence of autoimmune thyroidits in patients with polycystic ovary syndrome. Eur J Endocrinol. 2004; 150(3) : 363–369.
2. Azziz R, Sanchez L, Knochenhauer E, Moran C, Lazenby J, Stephens K et al. Androgen excess in women : Experience with over 1,000 consecutive patients. The Journal of Clinical Endocrinology and Metabolism. 2004; 89(2) : 453-462.
3. Stein I, Leventhal M. Amenorrhoea associated with bilateral polycystic ovaries. American Journal of Obstetrics and Gynecology. 1935; 29(2) : 181-191.
4. Du D, X Li. The relationship between thyroiditis and polycystic ovary syndrome: a meta-analysis. Int J Clin Exp Med. 2013; 6(10) : 880–9.
5. Sinha U, Sinharay K, Saha S, Longkumer SN, Baul SN, Pal SK. Thyroid disorders in polycystic ovarian syndrome subjects: A tertiary hospital based cross-sectional study Janseen OE, Mehlmauer N, Hahn S, et al. High prevalence of autoimmune thyroidits in patients with polycystic ovary syndrome. Eur J Endocrinol. 2004; 150(3) : 363–369.