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ORIGINAL ARTICLE

Frequency of Subclinical Hypothyroidism among Patients of Polycysitic Ovarian Syndrome (PCOS)

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ABSTRACT

Introduction: Polycystic ovarian disorder is the most frequent kind of persistent anovulation caused by androgen extra, affecting 6-12% of fertile women. PCOS is seen as a complex condition through a variable origin. It has also been linked to greater in metabolic and cardiovascular risk factors. The purpose of our research was to determine the frequency of subclinical hypothyroidism among patients of polycystic ovarian disease presenting in the outpatient department of tertiary care hospital

Methods: The Study was a cross-sectional study which was conducted in Gynecology & Obstetrics Department, Lady Aitchison Hospital, Lahore. All polycystic ovarian disease patients were enrolled. Participants' blood samples were drawn utilizing aseptic methods and transported to a pathology laboratory for serum TSH levels to be measured. Subclinical hypothyroidism was found to be common in polycystic ovarian individuals diagnosed. SPSS v24 was used to enter and evaluate data. The Chi-square method was conducted to test the relevance of post-stratification. A p-value of 0.06 was believed important.

Results: Total 136 cases with polycystic ovarian disease were selected for this study. Mean age was 28.4±7.9 years. Among 136 patients, 26(19.1%) had subclinical hypothyroidism. By stratification of subclinical hypothyroidism, it was found that age >30 years and obese had extensive effect having subclinical hypothyroidism (p=0.00001, p=0.002).

Conclusion: Subclinical hypothyroidism may be a modifiable risk factor, associated with polycystic ovarian disease. Steps should be taken to minimize more this risk factor by screening and early intervention.

Keywords: Subclinical Hypothyroidism, Polycystic Ovarian Disease.

INTRODUCTION

Polycystic ovarian disorder is maximum frequent kind of persistent anovulation caused by androgen extra, affecting 6-12% of pregnant females. PCOS is seen as a complex condition through a variable origin. It has also been linked to greater in metabolic and cardiovascular risk factors. Hyperandrogenemia and inappropriate insulin sensitivity to glucose are the primary endocrine derangements responsible for clinical symptoms. Approximately 54-75 percent among those individuals are insulin dependent and have metabolic disorder, which predisposes them to diabetes and heart disease. A decline in glucose disposal or absorption by muscles or adipose tissues in insulin action, an rise in amount of sex hormone-binding globulin, mass increase, and hyperlipidemia, all of which can contribute to insulin sensitivity, have been associated to hypothyroidism. Thyroid hormones, notably T3, are shown to exert insulin antagonistic effects at the liver level, resulting in greater glucose hepatic output via an extremely high rate of gluconeogenesis and glycogenolysis. As a result, all known PCOS diagnosis need the elimination of hypothyroidism first.

According to one study, around 24.6 percent of women with polycystic ovarian syndrome had hypothyroidism. Thyroid hormones, notably T3, are shown to exert insulin antagonistic things at liver level, resulting in greater glucose hepatic output through an extremely high rate of gluconeogenesis and glycogenolysis. 5 As a result, all known PCOS clinical definition need the elimination of hypothyroidism first. According to one research, around 24.6 percent of women with polycystic ovarian syndrome had hypothyroidism.

METHODOLOGY

The Study was conducted in Gynecology & Obstetrics Department, Lady Aitchison Hospital, Lahore.

June 5, 2018 to January 5, 2019. Cross-Sectional Study. Non-Probability Consecutive Sampling. The arbitrary sample of 136 cases is computed with a 95% confidence level, a 7% margin of error, and the predicted percentage of subclinical hypothyroidism among polycystic ovarian chronic conditions as 22.5 percent. Age 15 to 42 years. Patients not willing to participate in the study. Patients already taking anti-thyroid drugs determined on history and medical record. Patients with thyroidectomy determined on history and medical record. Polycystic ovarian condition remains very complicated metabolic, endocrine, and imitation condition characterized by androgen overproduction including insulin resistance. Menstrual problem, sterility, hyperandrogenemia, and metabolic syndrome are some of the most mental harms of PCOS. 104, The ESHRE/ASRM consensus criteria describe polycystic ovary morphology as at least one ovary having 13 follicles of 3-8 mm (within 3-6 days of cycle) or ovarian volume larger than 10 ml in the absence of a cyst or dominant follicle >11 mm, as determined by doppler ultrasound of the ovaries. Thyroid problems and polycystic ovarian syndrome are two of maximum frequent endocrine problems in regular populace.

RESULTS

Total 136 patients with polycystic ovarian disease were selected for this study. Mean age was 28.4±7.9 years. According to age distribution among cases, 77(56.6%) were in 15-30 years age group, while 59(43.4%) were in 31-45 years age group. According to BMI distribution, 76(55.9%) had normal BMI, while 57(41.9%) and 3(2.2%) were overweight and obese respectively. Among 136 patients, 26(19.1%) had subclinical hypothyroidism. By stratification of subclinical hypothyroidism, it was found that age >30 years and obese had extensive effect having subclinical hypothyroidism (p=0.00001, p=0.001). Subclinical hypothyroidism was found in 19.1 percent of the participants in the current investigation. In comparison research conducted by Sinha et al including 82 cases through PCOS and 82 cases as controls, biochemically thyroid abnormalities were discovered in 24 (28.6 percent) of 80 cases through PCOS opposed to just 10 (11.25 percent) of the control group (P 0.05). PCOS patients showed higher average TSH levels than the control group (4.5472.66 and 2.673.11, correspondingly; P 0.06). Pinto et al investigated connection among selected clinical and metabolic markers in females through PCOS and subclinical hypothyroidism. One hundred and eighty-eight of 168 females evaluated had subclinical hypothyroidism. In terms of metabolic parameters, females having SCH had substantially greater blood low-density lipoprotein cholesterol also PRL levels (122.6 26.7 mg/dL and 18.8.8 ng/mL, correspondingly) than someone through normal thyroid function

(106.633 mg/dL and 1410.3 ng/mL, respectively). Those females ranged in age from 14 to 19 years old (average age 14.7 years). The frequency of PCOS is substantially greater in females having euthyroid CLT compared to their control peers (46.8 vs. 5.4 percent, P 0.002).

Table-1: Frequency distribution of age groups:

Age groups	Frequency	Percent
15-30 years	77	56.6
31-45 years	59	43.4

Table-2: Frequency distribution of BMI:

Body Mass Index (BMI)	Frequency	Percent
Normal (18-24.9)	76	55.9
Overweight (25-29.9)	57	41.9
Obese (>30)	3	2.2
Total	136	100.0

Table-3: Frequency distribution of subclinical hypothyroidism:

Subclinical Hypothyroidism	Frequency	Percent
Yes	29	19.1
No	110	80.9
Total	136	100.0

Table-4: Stratification of subclinical hypothyroidism with respect to age:

Age groups	Subclinical Hypothyroidism		Total	p-value
	Yes	No		
15-30 years	5	72	77	0.00001
	6.5%	93.5%	100.0%	
31-45 years	21	38	59	
	35.6%	64.4%	100.0%	
Total	26	110	136	
	19.1%	80.9%	100.0%	

Table-5: Stratification of subclinical hypothyroidism with respect to BMI:

Body Mass Index (BMI)	Subclinical Hypothyroidism		Total	p-value
	Yes	No		
Normal (18-24.9)	11	65	76	0.001
	14.5%	85.5%	100.0%	
Overweight (25-29.9)	12	45	57	
	21.1%	78.9%	100.0%	
Obese (>30)	3	0	3	
	100.0%	0.0%	100.0%	
Total	26	110	136	
	19.1%	80.9%	100.0%	

DISCUSSION

In main hypothyroidism, an increase in thyrotropin-releasing hormone leads to higher in prolactin also thyroid stimulating hormone. Prolactin backs to polycystic ovarian morphology through suppressing ovulation due to a shift in ratio of follicle stimulating hormone also luteinizing hormone, as well as elevated dehydroepiandrosterone from the adrenal gland. Thyroid abnormalities are now extra recurrent in women with PCOS than in the regular populace, according to growing research. Including in studies that show a link among PCOS and thyroid issues, it is unclear if this is owing to shared main risk factors or a pathophysiological connection. The average age of study contributors in our current research remained 29.56.8 years, which seems to be the frequent reproductive age range through very high prevalence of PCOS. The average BMI of research participants was 283.5 kg/m2, indicating a proclivity for overweight and obesity. This really is the frequent source of both of these endocrinological disorders. In addition, 3.3 percent of the research participants are obese. Rahul Mittal investigated the incidence of PCOS in addition thyroid dysfunction in heavy females and reported that here is still a rise in PCOS and hypothyroid occurrences amongst heavy people. Clinical symptoms of hyperandrogenism, such as acne and hirsutism, were found in 52 individuals, which is consistent with prior investigations. Thyroid hormones, notably T3, have been shown to exert insulin antagonistic properties at liver level, due to increased glucose hepatic output via an accelerating incidence of gluconeogenesis and glycogenolysis. As a result, many known PCOS diagnostic criteria need the elimination of hypothyroidism first. According to one study, around 22.5 percent of females having polycystic ovarian disorder had hypothyroidism. Another research found that around 25.7 percent of women with polycystic ovarian syndrome had hypothyroidism.

CONCLUSION

Subclinical hypothyroidism may be a modifiable risk factor, associated with polycystic ovarian disease. Steps should be taken to minimize more this risk factor by screening and early intervention.

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