ORIGINAL ARTICLE

ASSOCIATION OF ANXIETY DISORDER IN WOMEN WITH POLYCYSTIC OVARIAN SYNDROME

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ABSTRACT

Background: Association of anxiety disorders in women with polycystic ovarian syndrome Association of Clinical and metabolic features of PCOD with anxiety

Methods: A comparative cross sectional study was conducted for a one year period from October 2013-October 2014.200 control subjects were compared with 200 patients with PCODs aged 18-35using Rotterdam Criteria. Anxiety and depression symptoms were assessed using the HADS questionnaire.

Results: Anxiety and depression disorders were significantly higher in PCODs as compared to control p value (<0.001). Anxiety was associated with hirsutism p value (<0.001 and obesity p value (<0.003).However, no association was found between abnormal lipid profiles and altered fasting blood sugar levels.

Conclusion: Women with PCODs experience elevated anxiety and depression. Other aspects like weight reduction, behavioral therapy need to be emphasized for a healthy life style.

KEY WORDS: anxiety, acne, hirsutism, quality of life

INTRODUCTION

Polycystic ovary syndrome is an endocrine disorder among women of reproductive age of unknown etiology and is genetic in nature. These women experience the following:

- Infrequent or prolonged menstrual periods
- Excess hair growth
- Acne and obesity

Ultrasound may show enlarged ovaries containing small collection of follicles. Early diagnoses and weight reduction may help in preventing metabolic syndrome.Anxiety and depression has been reported in women with PCOD[1].Risk factors include Type 1 and Type 2 diabetes. Infertility, gestational diabetes,cardio-metabolic abnormalities such as dyslipidemia, insulin resistance.The diagnosis of polycystic syndrome is confirmed on the basis of Modified Rotterdam criteria, i.e. the presence of two of the following criteria:

1. Oligomenorrhoea
2. Hyperandrogenism
3. Polycystic ovaries assessed by ultrasound

Women having polycystic ovarian syndrome are associated with anxiety, depression and eating disorders in comparison with normal ovulating, non-hyper-androgenic women[10].The pathophysiology remains unclear. There are several reports linking PCOD features; acne, obesity, infertility and hirsutism to psychological morbidities[3].

Although anxiety appears to be the most common psychiatric diagnosis among patients with endocrine diseases[4] there is limited data to prove this[3, 4 5 6].The acute distress of not having a family, and obesity may lead to anxiety, depression, and eating disorders, resulting in isolation, quality of life impairment and increased risk of psychiatric disorders. However, research is needed to find association of anxiety and depression before patient can be treated[5, 7].

Mansson etal recently reported that the life time incidence of social phobia was 27% while Kerchner etal documented a prevalence of 11.6%[11].Additional data suggests that clinician should screen women with PCOD for anxiety and depression disorders[9, 10].As PCODs are characterized by heterogeneity in clinical and metabolic characteristics[10], it could be suggested that clinical, hormonal and metabolic parameters could be responsible for this.

Our current study presented clinical and metabolic features of PCODs and their relationship with anxiety and depression.

METHODS

Design, Sample and Setting
This was a comparative cross sectional study. Ethical approval was obtained from Ethical Review Committee of CDGK. The Chief investigator (who was also the clinical examiner) provided written and verbal consent from the participating women and 200 patients aged 18-35 years were diagnosed as PCODs and 200 controls.

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Exclusion Criteria
1.Use of metformin in the 60 days prior to enrollment
2.Pregnant or breastfeeding
3.Coagulation disorders
4.Any psychological disorders
5.Diabetic and hypertensive

Control subjects were randomly selected from women who had regular menses and absence of familial hirsutism. The data was collected by completing two questionnaires (in different regional languages), followed by clinical examination, ultrasound and laboratory investigation.The degree of hirsutism was evaluated by the FG score.

Anthropometrics included body weight, body height, waist and hip circumference. Body weight and body height were measured in an upright position with light clothing and no shoes. BMI was calculated as bodyweight (kg) divided by body height $(m)^2$.Waist circumference was measured in centimeters at the mid-point between the iliac crest and lower rib margin at the end of expiration. Hip circumference was measured in centimeters at the widest point between waist and thigh. WHR (Waist/Hip ratio) was calculated as the ratio of waist and hip circumference. Endocrine parameter were measured during follicular phase of menstrual cycle, lipid profile with 14 hours of fasting.

The demographic questionnaire (details found in Table 1) designed specific categories. Anxiety and depression symptoms were assessed using the Hospital Anxiety and Depression Scale (HADS) questionnaire.

The participants self-reported the severity and frequency of symptoms. The sensitivity is (83.3%) and specificity (61.5%) for the identification of psychiatric cases.

DATA ANALYSIS

The data were analyzed from two questionnaires, clinical examination findings, and lab results. Continues variables were analyzed using a two-tailed t-test. Chi-square test were used to evaluate categorical variables of anxiety disorders between subjects with PCODs and control subjects and correlation between anxiety disorders, hyperandrogenism , hormonal and other metabolic profile of patients with PCODs. The correlation were statistically significant at the level of a p value of 0.05 or less.

RESULT

PCODs (n=200) and control(n=200) completed the questionnaire. The demographic characteristics and potential moderators for anxiety disorders are shown in Table 1.56(28%) were unmarried and control group 44(22%) and most patients with PCODs were highly educated as compared to control group (p value=0.002).PCODs were more prevalent in nulliparous women. PCODs and women were using medications to either conceive or correct their problems like menstrual irregularities, weight gain etc.(p value=<0.001).
Table1 shows no difference in employment status, psychiatric illness, family history of diabetes, and eating habits of PCODs and control group. PCOD patients indulged in more physical activities compared to control subjects (p value=<0.001). PCOD patients were more obese as compared to the control (p value=0.001).Table 2:Anxiety and depressive disorders were significantly higher in PCODs compared to the control (p value=<0.001).Table 3 shows that there was no relationship between demographic data of PCODs patients with anxiety disorders.
Significant association was found in PCODs patients having hirsutism with anxiety as compared to control group (p value =0.001).Patients with hirsutism were more anxious and visited more frequently for treatment. To examine the role of obesity, we found that anxiety disorders were more prevalent among PCOD obese women (p value=0.003). This is because obese women tend to stay away from social gatherings, leading to withdrawal and isolation.
BMI has a great influence on quality of life too. Table 3 shows anxiety symptoms were associated with PCOD patients who had a higher BMI compared to normal BMI (p value=<0.001).Table 3shows there was no association between anxiety disorders and deranged fasting blood sugar and lipid profile.

Table1-Comparisonof Demographic & History Data for Women with & without PCODs

		With PCODs (n=200)	Without PCODs (n=200)	p-value
Age (years), mean + SD		26.6 + 5.1	27.5 + 5.2	0.062
Marital Status of patient	**Un married**	56 (28%)	44 (22%)	0.397
	MArried	135 (67.5%)	144 (72%)	
	Separated	4 (2%)	8 (4%)	
	Divorced	4 (2%)	2 (1%)	
	Widow	1 (0.5%)	2 (1%)	

Literacy of the patient	**No literacy**	32 (16%)	40 (20%)	0.002
	Primary	33 (16.5%)	58 (29%)	
	Secondary	135 (67.5%)	102 (51%)	
Employment of the patient	**Unemployment**	149 (74.5%)	148 (74%)	0.010
	Employed full time	19 (9.5%)	6 (3%)	
	Employed part time	32 (16%)	46 (23%)	
Obstetrical history	**Unmarried**	59 (29.5%)	45 (22.5%)	<0.001
	Nulliparous	87 (43.5%)	50 (25%)	
	Multiparous	54 (27%)	105 (52.5%)	
Psychiatric illness history	**Yes**	6 (3%)	11 (5.5%)	0.15
	No	194 (97%)	189 (94.5%)	
Drug history of the patient	**Metformin**	11 (5.5%)	3 (1.5%)	<0.001
	Hormonal contraceptive	10 (5%)	1 (0.5%)	
	Anti-psychotic	3 (1.5%)	0	
	No	147 (73.5%)	194 (97%)	
	Ovulation induction	22 (11%)	2 (1%)	
	1+2	7 (3.5%)	0	

Table 2- Comparision of Anxiety & Depression in Women with & without PCODs

		With PCODs (n=200)	**Without PCODs (n=200)**	**p-value**
Anxiety	>8	159 (79.5%)	34 (17.5%)	<0.001
No Anxiety	<8	41 (205%)	160 (82.58%)	
Depression	>8	100 (50%)	35 (18%)	<0.001
No Depression	<8	100 (50%)	159 (82%)	

Table 3- Comparison od Demographic & History Data for PCODs Women with & without Anxiety

		PCODs Women with Anxiety (n=159)	PCODs Women without Anxiety (n=159)	p-value
Age (years), mean ± SD		26.9 ± 5.1	25.9 ± 5.0	0.091
Marital status of patient	**Un married**	40 (25.2%)	16 (39%)	
	Married	110 (69.2%)	25 (61%)	
	Separated	4 (2.5%)	0	
	Divorced	4 (2.5%)	0	
	Window	1 (0.6%)	0	
Literacy of patient	**No literacy**	31 (19.5%)	1 (2.4%)	0.011
	Primary	28 (17.6%)	5 (12.2%)	
	Secondary	100 (62.9%)	35 (85.4%)	
Employment of the patient	**Unemployment**	120 (75.5%)	29 (70.7%)	0.767
	Employed full time	14 (8.8%)	5 (12.2%)	
	Employed Part time	25 (15.7%)	7 (17.7%)	
Obstetrical history	**Unmarried**	42 (26.4%)	17 (41.5%)	0.045
	Nulliparous	76 (47.8%)	11 (26.8%)	
	Multiparous	41 (25.8%)	13 (31.7%)	
Psychiatric illness history	**Yes**	6 (3.8%)	0	0.207
	No	153 (96.3%)	41 (100%)	
Drug history of the patient	**Metformin**	10 (6.3%)	1 (2.4%)	0.569
	Hormonal contraceptive	8 (5%)	2 (4.9%)	
	Anti-psychotic	3 (1.9%)	0	
	No	114 (71.7%)	33 (80.5%)	
	Ovulation induction	17 (10%)	5 (12.2%)	
	1+2	7 (4.4%)	0	
	Yes	5 (3.1%)	1 (2.4%)	0.813

Family history of psychlatric illness	Yes	5 (3.1%)	1 (2.4%)	0.813
	No	154 (69.9%)	40 (97.6%)	
Family history of diabetes	Yes	61 (38.4%)	8 (19.5%)	0.024
	No	98 (61.6%)	33 (80.5%)	
Menstrual calender of patient	Normal cycle	47 (29.6%)	10 (24.4%)	
	Short cycle	4 (2.5%)	1 (2.4%)	
	Prolong cycle	108 (67.9%)	30 (73.2%)	
Eating habit of the patient/daymostly	Carbohydrate	26 (16.4%)	7 (17.1%)	0.913
	Protein	1 (0.6%)	0	
	Fat	1 (0.6%)	0	
	Mix	131 (82.4%)	34 (82.9%)	
Physical acvtivity of the patient	Sedentary life	46 (28.9%)	9 (22%)	0.577
	Walking>i hour	93 (58.5%)	25 (61%)	
	Aerobic exercises	20 (12.6%)	7 (17.1%)	
Acanthosis nigrican of patient	Yes	124 (78%)	26 (63.4%)	0.055
	No	35 (22%)	15 (36.6%)	
Hirsutism	Yes	148 (93.1%)	31 (75.6%)	0.001
	No	11 (6.9%)	10 (24.4%)	
Alopecia	Yes	59 (37.1%)	9 (22%)	0.068
	No	100 (62.9%)	32 (78%)	
Acne	Yes	53 (33.3%)	17 (41.5%)	0.330
	No	106 (66.7%)	24 (58.5%)	
Height (cm), mean + sd		155.1 + 5.7	155.3 + 6.9	0.887
Weight (kg), mean + sd		73.9 + 13.9	64.3 + 14.0	0.003
BMI, mean + sd		30.5 + 5.2	27.1 + 4.6	<0.001
Waist (cm), mean + sd		92.4 + 15.2	84.7 + 11.8	0.002
Hip(cm), mean + sd		108.4 + 16.3	101.7 + 11.4	0.028
Waist-hip ratio, mean + sd		0.85 + 0.06	0.83 + 0.07	0.108
Fasting blood sugar, mean + sd		89.0 + 8.7	87.0 + 6.9	0.130
Lipid Profile	Normal	124 (78%)	40 (97.6%)	0.004
	Increased	35 (22%)	1 (2.4%)	

DISCUSSION

Our study found that was there was a higher anxiety score in women with PCOD than in control. Another study showed an increased association between metabolic and hormonal profile[1].Patients recruited had no previous health care contact and rigorous inclusion and exclusion criteria was used. A large proportion of women PCOD had anxiety which suggests that there is a definite need for treatment and/or counseling[10].Signs of anxiety and depression need to be evaluated before we start treating patients[7].

A life time diagnosis of generalized anxiety disorder (GAD) in 17% of PCODs[11].It remains unclear what factors maintain a high level of anxiety in PCOD women. Cycle disturbance and infertility may interfere with normal female role expectations which contribute to social fears and withdrawal.

Hirsutism93%, acne 53%, obesity30.5%, and76%had anxiety related symptoms. However, our data cannot exclude that elevated anxiety was attributed to the emotional sequels of unsuccessful infertility treatment.

Some authors have suggested that adolescents with PCODs are at a higher risk of anxiety symptoms due to hyperandrogenism, as treatment of hirsutism has shown is associated with an improvement in the anxiety score[8].In our study high BMI reported a higher generalized anxiety .In an internet study using HADS, anxiety was more common in those with acne than those with an unfulfilled wish for conception.

CONCLUSION

PCODs is a highly heterogeneous disease. Therapy should focus on both short term and long term reproductive, metabolic and psychological features. It's important to look into the psychological aspects so as to bring about such changes that would improve the quality of life. Screening, assessment and treatment of anxiety and depression are important. Treatment should include other aspects of emotional wellbeing, like obesity, disordered eating. Management should not only focus on targeted treatment but education and counselling for a healthy life style. Social support groups should be established.

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