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Polikistik Over Sendromlu Kadınlarda Cinsel Disfonksiyonun Değerlendirilmesi

Sexual Dysfunction in Women with Polycystic Ovary Syndrome

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ÖZ

GİRİŞ ve AMAÇ: *Polikistik Over Sendromu(PKOS) olan kadınlarla, kontrol grubu arasında seksüel disfonksiyon skorları açısından fark olup olmadığını ve ayrıca PKOS lu kadınlarda seksüel disfonksiyon skorlarının serum testosteron ve body mass indeksi arasındaki ilişkiyi değerlendirdik.*

YÖNTEM ve GEREÇLER: *PKOS için Roterdam kriterlerini karşılayan kadınlarla kontrol grubu arasında seksüel fonksiyon değerlendirilmesinde kadın cinsel disfonkiyon indeksi (FSFI) kullanıldı. PKOS lu kadınlarda serum testosteron seviyeleri ve Body mass indeks değerleri bağımsız değişkenler olarak değerlendirildi.*

BULGULAR: *Total FSFI skorları arasında istatistiksel olarak anlamlı fark bulunmadı. Ortalama FSFI skorları PKOS lu kadınlarda her kategoride düşük olarak saptanmasına rağmen istatistiksel olarak sadece orgasm skoru için anlamlı fark bulundu.(4.44±0.07, p<0.001). Serum testosteron seviyeleri için standart sapması >1 olan PKOS lu hastalar belirgin olarak daha iyi seksüel fonksiyonlara sahip olduğu bulundu. BMI ile FSFI skorları arasından belirgin bir fark saptanmadı.*

TARTIŞMA ve SONUÇ: *PKOS lu kadınlar ile kontrol grubundaki kadınlar orgasm skorları dışında benzer seksüel fonksiyonlara sahip olduğu saptandı. PKOS lu kadınlarda serum testosterone seviyeleri normal reprodüktif çağdaki hastalarla aynı olanlar seksüel disfonksiyon açısından risk grubuna girmektedir.*

Anahtar Kelimeler: *Polikistik over sendromu, seksüel disfonksiyon, kadın cinsel disfonksiyon indeksi*

ABSTRACT

INTRODUCTION: *To compare the differences in sexual function between women with PCOS and controls, and to assess the relationship of serum testosterone, body mass index (BMI), hirsutism, and acne with sexual function scores in women with PCOS.*

METHODS: *A cross-sectional analysis in which women who met the Rotterdam criteria for PCOS were compared with a group of healthy volunteers. Results from the validated Female Sexual Dysfunction Index(FSFI) were used to assess sexual function. In women with PCOS, serum testosterone levels, BMI, self-reported hirsutism, and acne were assessed as independent variables.*

RESULTS: *The differences between for the total FSFI scores were not statistically different, the mean FSFI scores for women with PCOS were lower in every category as compared with controls, but the differences were only statistically significant for orgasm.(4.44±0.07, p<0.001).There were no significant differences between any of the BMI categories in regard to the mean FSFI scores in any of the subscales.Women with PCOS whose testosterone levels were >1 standard deviation above the mean had significantly better sexual functioning..*

DISCUSSION and CONCLUSION: *Women with PCOS have similar sexual functioning scores compared with controls except in regard to orgasm. The subpopulation of women with PCOS whose serum testosterone levels are in the normal reproductive range are at increased risk for sexual dysfunction.*

Keywords: *Polycystic ovary syndrome, sexual dysfunction, female sexual dysfunction index*

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INTRODUCTION

Polycystic ovary syndrome (PCOS) is the most common endocrine disorder in women of reproductive age. The estimate prevalence is 5-24% in different populations (1, 2). PCOS is characterized by large ovaries, menstrual irregularities, clinical and biochemical hyperandrogenism. It is associated with obesity, insulin resistance, lipid disorders, anovulatory infertility and endometrial cancer (1, 3). There are several studies assessing the impact of symptoms and treatment of PCOS patients on their life quality (1, 4-6). Hirsutism, acne, alopecia and infertility can lead to diminished "feminine identity" and psychological stress in these patients (1, 7-9). Women with PCOS are at an increased risk for depression and anxiety disorders (1, 8, 9). Several studies have revealed diminished quality of life (QOL) in PCOS patients. Women with PCOS and their partners are less satisfied with their sex life (4, 7, 10, 11). PCOS has an overall negative impact on quality of life.(4) Still, there are many components of normal sexual function, and it is clear that further research is needed to evaluate the impact of hormones on sexual function.

Alterations in the physical and aesthetic standard (hirsutism, obesity, acne, and alopecia) and an imbalance of sexual hormones are consequently observed, which can lead to a loss of quality of life and to the sexuality of the patients, a greater prevalence of mood disorders, such as major depression and bipolar disorder (12, 13, 14). Both the mood disorders and their medicinal treatments are deleterious for the sexual function (15-16). The greater part of the studies specifically directed to the evaluation of the sexuality of patients with PCOS refers to the psychosexuality or to sexual orientation (17-18-19). Studies that go profoundly into the sexual function of patients with PCOS were rare. Changes in physical appearance associated with PCOS may lead to decreased sexual satisfaction (20).

A sexual problem, or sexual dysfunction, refers to a problem during any phase of the sexual response cycle that prevents the individual or couple from experiencing satisfaction from the sexual activity and resulting from physical, social, and psychological factors (21).

The female sexual function index (FSFI) questionnaire measures the sexual function in women. It assesses specific domains of sexual functioning including desire, sexual arousal, lubrication, orgasm, satisfaction and pain (22). In view of multiple factors that can impair the sexual function of these patients, it would seem essential to evaluate the importance of this problem and the main factors related to it. With this purpose, we investigated the sexual function of patients with untreated PCOS in comparison with controls. Furthermore, we examined specific aspects of sexual functioning that might be associated with PCOS. In addition, we evaluated the association of total serum testosterone levels, BMI, hirsutism, and acne with the components of sexual functioning in women with PCOS.

MATERIAL and METHOD

A cross-sectional analysis in which women who met the Rotterdam criteria for PCOS were compared with a group of healthy volunteers. In regard to the women with PCOS, participants who qualified for the study between January 2013 and December 2013 at Sisli Etfal Research Hospital and Van Ercis State Hospital were included in the study. All participants signed an informed consent for the study. Inclusion criteria were: a diagnosis of PCOS using the Rotterdam criteria of oligomenorrhea, nondiabetic, with self-reported hirsutism and/or acne and/or elevated free testosterone (23); age 18 to 43 years; weight ≤ 110 kg; and at least one menses in the past 6 months but no more than eight menstrual periods in the most recent 12 months without hormonal intervention. The control group was selected randomly and inclusion criteria were: no prior or current diagnosis of PCOS; age 18 to 45 years; nondiabetic; weight ≤ 110 kg; nonhirsute; and regular monthly cyclic menses. The following participants were excluded: those with diabetes mellitus, degenerative illnesses, other endocrinopathies; those with illnesses that could cause a cycle of menstrual disorders; those who had used hormones up to 60 days before the selection process; and patients with a diagnosis of primary amenorrhea.

Sexual function was assessed using the FSFI questionnaire in Turkish as previously translated and validated. Sexual dysfunction was assessed

using Female Sexual Function Index (FSFI) scale (24-25-26). The scale is a 19-item questionnaire, developed as multidimensional self-report instrument for the assessment of the key dimensions of sexual functioning in women in last month. This questionnaire consists of questions in six domains including desire, arousal, lubrication, orgasm, satisfaction and pain that scored by patients self-reported. The items of the scale are divided into six domains which include desire (2 questions), subjective arousal (4 questions), lubrication (4 questions), orgasm (3 questions), satisfaction (3 questions) and pain (3 questions).

To assess independent variables for sexual dysfunction in the group of women with PCOS, the effects of BMI, total serum testosterone, acne, and hirsutism on FSFI scores were evaluated. The definitions for the various BMI categories were normal (18.5–24.9), overweight (25–30), and obese (>30). In regard to serum testosterone levels, we compared mean FSFI scores in women with PCOS defined by one of three serum testosterone categories: those within one SD of the mean population level, those > one SD above the mean level, and those > one SD below the mean. Furthermore, we compared the percentage of women in each of these three hormone strata who had FSFI scores below the sexual dysfunction threshold.

Participant mean FSFI scores were compared using the t-test. Differences in percentages between groups were compared using either the Mantel-Haenszel chi-square test or Fisher's exact test. An alpha level of 0.05 was used to evaluate statistical significance. With respect to multivariate analyses, the initial goal was to examine how well sexual function scores could be predicted based on BMI and mean serum testosterone levels (continuous measure). These models were evaluated with R2 coefficients and the Wald P value for the BMI coefficient. All modeling was performed with SAS (version 9.1.3, Cary, NC, USA).

RESULTS

A total of 90 women with PCOS and 80 controls were included to the study. The mean age of cases and controls was 28.3 ±2.12 and 29.1±4.8 respectively (not significant). The mean BMI of cases was 31.27 ±7.1 kg/m2 and control group was 23.9 ±8.2 kg/m2 (significant). The mean total testosterone levels in the women with PCOS were 65.6 ± 9.31 ng/dl and control group were 32.1±6.7 ng/dl (significant). In women with PCOS, % 70.6 were hirsute and %51.5 had acne.

The differences between groups for the total FSFI scores were not statistically different (Table1).

Table 1. Comparison of mean FSFI total and subdomain sexual function scores between women with PCOS and controls

Category	PCOS	Controls	P value
Desire	3.69±0.81	3.77±0.95	NS
Arousal	4.01±0.89	4.51±1.04	NS
Lubrication	4.31±0.33	5.03±1.02	NS
Orgasm	4.44±0.07	5.21±1.12	P <0.001
Satisfaction	4.91±0.90	5.10±1.01	NS
Pain	*4.65±1.02*	4.94±1.05	NS
Total FSFI	**26.01±5.43**	**28.56±6.41**	**NS**

FSFI = Female Sexual Function Index
PCOS= Polycystic ovary syndrome
NS=non significant

In regard to all of the FSFI subscales, the mean FSFI scores for women with PCOS were lower in every category as compared with controls, but the differences were only statistically significant for orgasm (4.44± 0.07 , p<0.001). The mean total FSFI scores were not below the threshold for dysfunction in both groups.In patients with PCOS, sexual dysfunction rate was % 30.

Of the study participants with PCOS , 27 (%30) had a normal BMI , 9 (%10) were overweight , 54 (%60) were obese. The data in regard to the association of BMI on sexual function scores based on BMI are shown in Table 3. The R2 coefficient for the total sexual function scores vs. BMI (0.0168) was not significant. Furthermore , there were no significant differences between any of the BMI categories in regard to the mean FSFI scores in any of the subscales. (Table 2)

Table 2. Comparison of sexual function based on mean FSFI scores in women with PCOS stratified by BMI

FSFI Category	Normal BMI	Overweight	Obese	
Desire	3.78±0.88	3.81±0.89	3.77±1.12	NS
Arousal	3.94±0.84	3.91±0.81	3.89±1.02	NS
Lubrication	4.53±0.68	4.21±0.69	4.45±0.77	NS
Orgasm	4.45±0.08	4.10±0.11	4.01±0.39	NS
Satisfaction	4.71±0.97	4.55±0.91	4.69±0.94	NS
Pain	*4.53±1.02*	4.51±1.01	4.39±1.09	NS
Total	**25.94±6.72**	**25.09±6.11**	**25.20±5.98**	**NS**

FSFI = Female Sexual Function Index PCOS= Polycystic ovary syndrome
NS=non significant

In regard to the association of serum testosterone levels with sexual functioning, the R2 coefficient for the total sexual function scores vs. total testosterone (0.0289) were not significant. For further comparison, women with PCOS were divided into three data based on their total serum testosterone levels as previously outlined (Table 3).

Table 3. Comparison of sexual function based on mean FSFI scores in women with PCOS stratified by total serum testosterone levels

FSFI Category	T>1 SD (>92ng/dL)	T within 1 SD (33-92 ng/dL)	T<1 SD (<33ng/dL)	P Values
Desire	4.43±0.91	3.89±0.99	3.78±0.71	p<0.001
Arousal	4.48±0.89	3.97±0.77	3.84±0.77	p<0.001
Lubrication	4.69±1.01	4.18±0.85	4.13±0.68	NS
Orgasm	4.93±0.98	4.31±1.11	3.91±0.91	p<0.001
Satisfaction	4.71±0.81	4.38±0.94	4.05±0.87	NS
Pain	4.53±1.12	4.28±1.04	4.09±0.98	NS
Total FSFI	**27.77±5.66**	**25.01±5.25**	**23.80±4.96**	**p< 0.001**

FSFI = Female Sexual Function Index
PCOS= Polycystic ovary syndrome
NS=non significant

In regard to mean FSFI scores, women with PCOS who had total serum testosterone levels greater than one SD above the mean for that population had significantly higher sexual functioning scores for desire, arousal, orgasm and total score as compared with women within one SD of the population mean (P = 0.015) Furthermore, in all of the categories with significant differences, sexual function scores consistently fell with decreasing serum testosterone levels.

DISCUSSION

The impact of PCOS on sexuality is a subject of much debate. Available studies have shown conflicting results, showing ‘moderate effect’ to ‘no effect’ of PCOS on sexual function. Women with PCOS have been reported to have reduced sexual satisfaction. In Turkish population, sexual dysfunctions of patients with PCOS have not been discussed before. Our study may provide a small but important contribution current state of knowledge on the relationship between PCOS and sexuality. We evaluated sexual functions of PCOS patients and control group with FSFI questionnaire in this study. FSFI had been previously used to assess sexual functioning in several disease (27-30). According to our results there is not a high prevalence of sexual dysfunction among PCOS patients. After comparing the the mean FSFI total and subdomain sexual function scores between controls and women with PCOS , the only significant differences we found were in regard to the orgasm scores. A study with greater statistical power might have revealed significant differences in many. Dale W Stovall et al in a study , showed that same results before.(20) In the study of Khademi et al in Iranian population with using the Sexual Function Questionnaire (SFQ) to assess FSD, was reported that only 7 out of 100 infertile Iranian women reported normal sexual functioning. The most prevalent sexual problem among these women was decreased sexual arousal (80%) Tayeb et al in 2009 has reported that the most common sexual problems in infertile Iranian females were anorgasmia (83.7%) and decreased libido (80.7%) and indicated the sexual desire and frequency of coitus in infertile women has reduced significantly after infertility diagnosis (31,32). Jain and associates have indicated that sexual problems in infertile women are consisted of dyspareunia, decreased libido, and orgasmic failure were the most common problems in their study (33).

The association between serum testosterone levels and sexual functioning in women with PCOS is important to study, as hyperandrogenemia is one of the hallmarks of this syndrome. In general , our study showed that women with PCOS who had the lowest total serum testosterone levels tended to have the lowest sexual function scores, although

significant differences were not seen in either the lubrication, satisfaction and pain subscales. Higher testosterone levels were associated with higher desire, arousal, orgasm and total FSFI scores. This is an interesting finding, as testosterone has been advocated as a possible treatment for sexual dysfunction. Ayala C. et al showed that mean serum testosreone levels in reproductive age women who have regular menstrual cycles and are not hirsute, were within the normal serum levels (34). In our study we found that serum testosterone levels in the <1 SD PCOS group were normal.

Janssen OE et al and Coffey S et al have found that physical features of PCOS have significant effect on the psychological weel being of patients even beyond that of other chronic illnesses (35,36).de Niet JE et al showed that both hirsutism and BMI were negatively associated with many psychological variables in women with PCOS (37). Changes in physical appeareence associated with PCOS may lead to decreased sexual satisfaction (38). In a recent study Dale W Stovall et al found that, no significant differences between any FSFI variables and sexual dysfunction were regard in to body mass index group (20). In our study we studied the same results and we found that no significant differences between BMI groups and FSFI subscales. Although this evidence does not clearly establish a relationship between increasing BMI and sexual dysfunction in women with PCOS, it is an area that requires further investigation. One could speculate that the effect of BMI on sexual functioning is related to a reduction in one's perception of sexual attractiveness. And although the same could be said for both acne and hirsutism, we did not find any association between these two variables and sexual dysfunction.

Mansson et al showed that almost half of women with PCOS had a great effect on their sex lifes and that women with PCOS were generally less satisfied with their sex lives. They studied with McCoy questionnaire and a Psychological General Well Being Index (39). In our study we elected to use FSFI to assess specific components of sexual functining. FSFI assesses specific domains of sexual functioning including desire, sexual arousal, lubrication, orgasm, satisfaction and pain and has high test reliablity (22).

Our study has several limitations. First one is: not enough patient quantity with both groups and second is : we only had "yes/no" data in regard to our assessment of both hirsutism and acne, and a better assessment of the potential effects of these variables on sexual function in women with PCOS would require a continuous measurement of these parameters.

In conclusion this study showed us that there are not many differences in regard to sexual functioning between women with PCOS and controls, except in regard to orgasm completion. Although the data from this study demonstrate that serum testosterone levels may play a significant role in sexual function in women with PCOS, further investigation is required to determine the potential effects of BMI, acne and hirsutism on sexual dysfunction in this population.

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