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ARAŞTIRMA / RESEARCH

Effects of infertility treatment on anxiety and depression levels

İnfertilite tedavisinin anksiyete ve depresyon düzeyleri üzerine etkisi

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Abstract

Purpose: In this study we aimed to show the most related factors with women's anxiety and depression levels as well find out the differences between primary and secondary infertile women with unexplained reason.

Materials and Methods: This was a prospective controlled study of 166 primary and 60 secondary infertile women. They had unexplained infertility and had not any hormonal or uterine pathology. Beck Depression Inventory and Hamilton Anxiety Rating Scale were used for questionnaire.

Results: While there were not any differences between two groups for anxiety and depression scores as well for subgroups, secondary infertile women showed a higher rate of severe depression than primary infertile women (11/60 vs. 10/166). While patients' age was correlated with anxiety score, number of treatment attempts was correlated with depression score.

Conclusion: Infertility treatment does not have only physical side effects but it has also psychological burden for women. While having a child is very important for some cultures it may not decrease the stress of women whom started infertility treatment and wanted to have more. It is important to support the women whom undergo infertility treatment whether is primary or secondary infertile, while this affect the patient's mood positively as well may increase the success of treatment.

Keywords: Unexplained infertility, woman, depression, anxiety

Öz

Amaç: Bu çalışmamın amacı kadınların depresyon ve anksiyete skorlarıyla en fazla ilişkili faktörlerin ortaya konması ve açıklanamayan infertiliteye sahip primer ve sekonder infertil kadınlar arasındaki olası farkların bulunmasıdır.

Gereç ve Yöntem: Bu çalışma 166 primer ve 60 sekonder infertil kadını içeren kontrollü prospektif bir çalışmadır. Bunlar hormonal ya da uterin patolojisi olmayıp açıklanamayan infertilite grubundaydı. Hastalar Beck depresyon envanteri ve Hamilton anksiyete skorlamasını içeren bir anket formunu doldurdular.

Bulgular: İki grup arasında anksiyete ve depresyon skorları arasında fark bulunamadı. Alt grup analizileri arasında da sadece şiddetli depresyon sekonder infertil grupta anlamlı derecede daha yüksekti (11/60 ile 10/166,). Hastaların yaşı ile anksiyete skorları ve tedavi deneme sayısı ile depresyon skorları arasında korelasyon olduğu görüldü.

Sonuç: İnfertilite tedavisinin kadın sağlığı üzerine fiziksel yan etkileri olduğu kadar onlara psikolojik bir yük de getirmektedir.Belli kültürlerde çocuk sahibi olmak oldukça önemli olsa da yine de infertilite tedavisine başlamış ve daha fazla çocuk isteyen sekonder infertillerde stresi azaltmayabilmektedir. Primer ya da sekonder infertil olmasına bakılmaksızın infertilite tedavisine başlayacak hastaların desteklenmesi onların mizacını olumlu yönde etkileyeceği gibi tedavi başarısını arttırması bakımından da önemlidir.

Anahtar kelimeler: Açıklanamayan infertilite, kadın, depresyon, anksiyete

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INTRODUCTION:

Infertility affects approximately 12,5% of women and %10 of men in their reproductive ages[1]. While in most cases there is at least one documented reason for infertility, approximately 25% of infertile couples have no cause that can be identified[2]. It is determined as unexplained infertility since these couples have normal hormone and semen analysis profile and patent fallopian tubes.

It was assumed that 53-57% of infertile couples were seeking for infertility treatment[1]. While there has been a small increase in the prevalence of infertility during the last ten years, the proportion of couples looking for medical care has a greater increase[2]. In support of this, while 418 000 assisted reproductive technology (ART) cycles were reported by European Society of Human Reproduction and Embryology (ESHRE) in 2005, there was more than 30% increase in the rate of ART cycles in 2010 comparing to 2005[3,4].

A cycle of in vitro fertilization (IVF) generally requires nine to 12 days for injection of fertility drugs, retrieval of oocytes via transvaginal ultrasonography, fertilization of oocytes in the laboratory with sperm, and transfer of the one or two embryos to the uterus[5]. Following these procedures couples have to wait nearly three weeks to find out if the cycle is finalized by pregnancy or not. This process is highly stressful for the patients and it was shown that one in seven women and one in 20 men had an anxiety disorder, while one in four women and one in 10 men had a depressive disorder after their ART treatment[6].

Infertility by itself is a great stress factor that may reduce couple's quality of life and lead to psychological disorders. Whereas different studies in the literature that looked for the effect of infertility treatment on anxiety and depression status have controversial results; newer studies showed that infertility affects couples' physic-social life. It causes depression, anxiety, marital conflicts and sexual problems[7].

Early detection of depression and anxiety that arose from infertility and its treatment has a great importance for the achievement of the infertility treatment and women health. In this study we aimed to search depression and anxiety scales both in primer and seconder infertile couples and find out the related factors with those scores. In addition try to expose that having at least one child changes the patient's anxiety and depression scores whom underwent infertility treatment.

MATERIALS AND METHODS:

This was a cross-sectional study of 166 primary and 60 secondary infertile women with unexplained reason who applied to Department of Infertility of Marmara University Faculty of Medicine from January 2013 to June 2015.

Inclusion criteria were being the age of 18-35, diagnosing with unexplained infertility and having a BMI under 35. The diagnosis of unexplained infertility was made by having normal sperm parameters for male and having normal hormone levels as well confirmed open tubal passage by hysterosalpingography (HSG) for women.

In total 250 patients were asked to participate to study. While 226 of them were agreed to join the study 24 of them refused to be part of this study. The local ethic committee of Marmara University approved this study.

The patients were evaluated by a gynecologist for their demographic properties and medical history as age, marriage duration, education, occupation, duration of infertility, number of infertility treatment attempts. Afterwards they were asked to answer the questionnaire, which included Beck Depression Inventory and Hamilton Anxiety Rating Scale.

Measures

Beck Depression Inventory

In this study, depression scores of patients were evaluated by using Beck Depression Inventory (BDI). Beck Depression Inventory is a questionnaire developed by Beck in 1961 for the assessment of depression and is comprised of 21 questions. The lowest score of the inventory is 0, while the highest score is 63. As the score increases, the severity of depression rises and a score above 30, points to severe depression.

Items include sadness, pessimism, sense of failure, dissatisfaction, guilt, expectation of punishment, self-dislike, self-accusations, suicidal ideas, crying, irritability, social withdrawal, indecisiveness, body image change, work difficulty, insomnia, fatigue, loss of appetite, weight loss, somatic preoccupation, and loss of libido. This inventory has been translated to

Turkish by Hisli[8].

Hamilton Anxiety Rating Scale

Hamilton Anxiety Rating Scale (HAM-A) was developed by Hamilton in 1959, and is utilized to measure the severity of depressive symptoms and psychological and somatic anxiety. The validity and reliability of the HAM-A Turkish translation was confirmed by Yazıcı and colleagues in 1998. Presence and severity of the symptoms were rated based on the interviewer's discretion and each symptom was scored separately on a scale from 0 (no symptoms) to 4 (severe symptoms). The total score for HAM-A ranged from 0 to 56, but a cutoff score was not calculated for this Turkish study[9].

Statistical analysis

The data were analyzed by using NCSS (Number Cruncher Statistical System) 2007 (Kaysville, Utah, USA). The chi-squared test was applied to evaluate relationships between qualitative data such as occupation, education and family status. Student's t-test was utilized to determine the difference between means of continuous variables such as age, infertility and marriage duration and treatment attempts. Bonferoni correction was used for comparison of depression severity with the infertility type. Spearman's Rank Correlation Coefficient was used to summarize the relationship between depression and anxiety scores with different variables such as age, infertility length, treatment attempts. P <0.05 was accepted as statistically significant.

RESULTS

Secondary infertile women were significantly older than primary infertile women (29.8 ± 3.9 vs. 27.87 ± 4.17 years, p<0.05). Although they had longer marriage duration (7.63 ± 3.75 vs. 4.5 ± 2.4 years, p<0.05), their infertility history was shorter than primary infertile group (3.16 ± 2.26 vs. 4.08 ± 2.51 years, p<0.05). Primary infertile women had significantly much more infertility treatment attempts than secondary infertile women (0.98 ± 2.73 vs. 1.81 ± 4.37, p<0.05). In contrast of this there was no significant difference between two groups for their education, occupation status and family characteristics (Table 1). There was no significant difference between primary and secondary infertile women for mean anxiety and depression scores (Table 2). As well in categorical analyses of anxiety there was no significant differences for subgroups of no anxiety, minor and major anxiety for both groups (Table 2). Furthermore in categorical analyses of depression, severe depression rate was found significantly higher in secondary infertile women than primary ones (11/60 vs. 10/166, p<0.05).

Table 1. Demographic features

	Primary Infertility	**Secondary Infertility**	**p value**
Age	27.87 ± 4.17	29.8 ± 3.9	p<0.05
Infertility Duration (years)	4.08 ± 2.51	3.16 ± 2.26	p<0.05
Marriage Duration (years)	4.5 ± 2.4	7.63 ± 3.75	p<0.05
Treatment Attempts	1.81 ± 4.37	0.98 ± 2.73	p<0.05
Education			p=0.4
< 10 years	62 (37.3%)	19(31.7%)	
≥ 10 years	104(62.3%)	41(68.3%)	
Occupation			
housewifes	112(67.5%)	43(71.7%)	
working	54(32.5%)	17(28.3%)	p=0.55
family status			p=0.24
Small familiy	141(84.9%)	47(78.3%)	
Large family	25(15.1%)	13(21.7%)	

Table 2. Anxiety and depression scores in two groups as well their distribution in subgroups in infertile women

	Primary Infertile	**Secondary Infertile**	**p value**
Anxiety Score	8.98 ± 8.7	10.28 ± 9.42	0.4
Depression Score	9.5 ± 8.12	12.5 ± 10.89	0.2
Anxiety Subgroups			
no anxiety	73(44%)	23(38.3%)	0.5
minor	62(37.3%)	19(31.7%)	0.5
major	31(18.7%)	18(30%)	0.09
Depression Subgroups			
no depression	100(60.2%)	30(50%)	0.2
minimal	45(27.1%)	16(26.7%)	0.9
moderate	11(6.6%)	3(5%)	0.6
severe	10(6.1%)	11(18.3%)	<0.05

While there was not statistically significant correlation between the age, infertility length, marriage span, for depression scores as well between infertility length, marriage span and number of treatment attempts for anxiety scores. In contrast there was a positive correlation between the numbers of treatment attempts and depression scores as well between the woman's age and anxiety scores (Table 3).

Table 3. Correlation of women fertility history with depression and anxiety score

	Hamilton Depression Score	Beck Anxiety Score
Age (years)	r=0.08, p=0.2	r=0.13, p<0.05
Infertility length (years)	r=0.03, p=0.6	r=-0.004, p=0.94
Marriage span (years)	r=0.06, p=0.3	r=0.034, p=0.6
Number of treatment attempts	r=0.179, p<0.05	r=0.083, p=0.2

DISCUSSION

The present study has aimed to measure depression and anxiety scores both in primary and secondary infertile women and figure out if having a child had a positive effect during infertility treatment. Further more it was investigated the relation of anxiety and depression with infertility characteristics such as duration, age, treatment number etc.

It was reported that having infertility problems increased the probability of having depression and anxiety in women[10]. Furthermore in the same study it was showed that infertile women who were attempting to infertility treatments had more anxiety and depression scores. In support of this another study from our country has showed higher depression and anxiety scores in infertile women comparing the fertile ones[11].

We found the rate of various degree of anxiety in infertile women without classifying them as primary or secondary was 57.5%. This rate was 70% for a Pakistani study[12] while it was found 15% in an Italian study[13]. We found depression rate 42.5% in all infertile women that would undergo ART. Similar to anxiety rates, our depression rate was lower than Pakistani study while higher than Italian study. These different studies supported the cultural differences and women's role in social life and expectations from them. The other factor that make our anxiety and depression rate 3-4 times higher than Italian study might be the study population characteristics, while our study included infertile women with unexplained reason, male infertility was the heading reason for population that planned to undergo ART treatment. While male factor decrease the self-guilty feelings in women comparing the female factor, it still does not change the fact that female partner need to undergo ovulation induction and oocyte retrieval process.

In many articles reported that IVF treatments increased the probability of negative emotions[14], especially depression[15]. Unsuccessful fertility treatments have sometimes been found to be even more predictive of infertility-related stress[16] and depression[17] than infertility itself. The effect of fertility treatments on psychological health may be the strongest in the case of depressive symptoms, possibly due to an increased sense of powerlessness[17].

In this study we found a positive correlation between the number of treatment attempts and depression scores. While a previous study showed that older age was associated with higher level of depression in the infertile women[18], we could not find a relation between the age and depression scores. Depression could be the reaction to the potential shattering of a wish postponed until its fulfillment is doubtful. Also more unsuccessful treatment attempts may lead women to hopelessness and it is a component of depression. Meanwhile in our study age was positively correlated with anxiety scores. This can be explained with the patient's knowledge about the negative correlation with treatment success in infertility.

Having a child is one of the most important events in a woman's life globally and infertility problems have greater effects on a woman's life than an infertile man[19]. With this, desire of having a child for childless women includes big differences between cultures and communities[20]. Though most part of Turkish people still has traditional lifestyle, being childless are generally devastating for women but still having one child is mostly not enough for them feel better about their fertility and family life and more is highly desirable. Our findings support this while we could not find any statistically significant differences between secondary infertile women comparing primary infertile women for mean anxiety and depression scores. Moreover, we showed that severe depression rate was significantly higher in secondary

infertile groups. This was incompatible with the previous literature, which exposed higher depression and anxiety rates in primary infertile women than secondary infertile ones. (fertile-steril 2005). Although women that belong to different cultures react in altered ways to infertility and its medical treatment. Because they have already one child and do not carried the risk of being childless forever, still it is expected that secondary infertile women have to be more comfortable about infertility issues comparing the primary infertile women. Our findings can be explained as a woman that undergoes infertility treatment either has a child or no has great psychological burden that may mask their stress that was related with infertility. As well the secondary infertile group was older than primary infertile group and this may negatively impact their anxiety and depression scores. However because our study was a cross-sectional study and did not search the study population's basal anxiety and depression levels before starting the infertility treatment process and also after treatment it is needed to confirm with further studies that include those parameters.

This study measured the effect of infertility treatment on women indirectly. For better results women have to be questioned before the idea of infertility treatment while still they are aware of that they are infertile. Meanwhile this study compared the primary infertile women with secondary infertile women, chosen a third group that include the fertile women will cause better understanding of the results and interpretation of the findings. Likewise, the present study was restricted to women with unexplained infertility factor and so has limitations to measure the accurate depression and anxiety levels in infertile women. By that time our study is the first study to our knowledge that compare the secondary infertile women with primary ones in a group of unexplained infertility. While unexplained infertility has its own challenges for partners it is still better than female factor infertility and worse than male factor infertility for a woman who has to deal with infertility issue. So far most of studies in the literature focused on primary infertile women's problems and secondary infertile women's psychological burden were underestimated and/or less pronounced than it had to be[22]. In this aspect our study has highly important results by showing secondary infertile women have sometimes more depressive symptoms than primary ones and so need to be evaluated carefully.

In conclusion having at least one child is highly important for women but does not mean to be relaxed or comfortable if they want another but could not. Commonly, classified the infertile woman as primary and secondary, and giving the support due to this classification may not be suitable. Besides we believe that determining the patient's anxiety and depression scores and personalizing the psychosocial support would increase the treatment compliance and success as well supportive relationship between patients and care givers.

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