

Original Article

A Comparative Study of Anxiety and Depression in Patient Undergoing Assisted Reproductive Technology with Donated Oocyte in Comparison with autologous oocyte in Infertile Women

Zahra Heidar¹, Masoumeh Mirzamoradi^{1*}, Maryam Soleymannejad¹

¹Department of Obstetrics and Gynecology, Mahdijeh Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

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Abstract

Background: Since healthy psychological condition, influence the quality of life and social function. Infertility can be one of the stressful situation for every human. Therefore, in this study we assessed some psychological factors such as stress and depression in women who are candidates for taking ART with donated oocytes or autologous oocytes.

Materials and Methods: This cross sectional study was done in Tehran, Mahdijeh hospital, during the 2016-2017. Patients who came one day before replacement of embryos, filled Beck and STAI questionnaires and their demographic information.

Results: The incidence of severe degrees of depression and state anxiety and trait anxiety in patients treated by donated oocytes is more in patients who treated by autologous oocytes.

Conclusion: Psychological situation was worse in patients treated by donated oocytes.

Keywords: Infertility, Stress, Depression, Donated oocyte, ART

*Corresponding Author: Masoumeh Mirzamoradi, Department of Obstetrics and Gynecology, Mahdijeh Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran, Fax: +98 21 22432600; E-mail: drmoradi000@yahoo.com

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Introduction

Infertility defined as a disease characterized by failure in leading to pregnancy after 12 months or more when doing unprotected intercourse¹, which covers 9% of the world's population². The world health organization (WHO) has known infertile women as a major problem in reproductive health, which affects physical, psychological and social aspects of humans³. Infertility is a complex psychological crisis that is a psychologically threatening and emotionally stressful situation⁴. Recent studies have shown that infertility is often associated with increased psychosocial distress and

the stress experienced by infertile couples is more likely to result from infertility than the cause of it⁵. Today, thanks to important advances in assisted reproduction techniques (ART), many infertile couples expectation to treat their disorder⁶. Chromosomal abnormality, autoimmunity problems, iatrogenic, infections and idiopathic disorders are all lead to women's infertility, and along with decreasing oocyte storage with age, can be the most important factors in the necessity to receive new oocytes. Although, this method not accepted in some countries, in many countries, approved by law as the only way to treat infertile couples^{7,8}.

Different people are affected by in vitro

fertilization (IVF) treatment procedure like the recipient, the recipient's wife, the oocyte provider and the child who is born by this method that each of them having different feels, inspirations and desires. Although, information about the medical aspects and health condition of the receiving and donating oocytes such as the examinations, checkups and tests are accessible, but there is no attentiveness for psychological issues associated with this procedure despite the fact that chains of interpersonal interactions and psychological issues are created and involved in this process⁹. Several emotional challenges exist in the situation of oocyte donation¹⁰. Various studies have shown that around 1.4% of women use the ART, experience an anxiety disorder and 17% suffer from major depression¹¹. Given the importance about psychosocial examinations for women who experience ART treatment by autologous oocytes or donated oocytes, in addition to issues related to physical and reproductive health, can reduce the likely risks of this important action to ensure rehabilitation and reduce the psychological pressures¹².

Methods

This cross-sectional study was conducted in Tehran, Mahdiah Hospital, affiliated to Shahid Beheshti University of Medical Sciences and the target population of this study were 62 infertile women ready for IVF. Demographic data and duration of infertility were recorded. Patients were requested to complete the Beck depression inventory (BDI) and state-trait anxiety inventory (STAI) questionnaire one day before the transfer of the embryo. Infertile women who come to infertility clinic of Tehran Mahdiah Hospital in Tehran (capital city of Iran) for treatment by donated oocytes or by autologous oocytes were the population we surveyed.

After a gynecologist examined patients, a psychiatrist examined them. The study process was explained to those eligible to participate in this study and written informed consent was obtained of participants. The ethics committee approval was obtained from Shahid Beheshti University of Medical Sciences.

Inclusion and exclusion criteria for the study: Inclusion criteria were infertile women candidates for IVF, candidates for treatment by donated oocytes or

autologous oocytes and under 50 years. Exclusion criteria were 50 or older and history of psychological or psychiatric treatment.

BDI and STAI questionnaire: One day before the embryo transfer, the patient was asked to complete the Persian version BDI and STAI. This 21-item self-report questionnaire was intended to assess the severity of current depressive symptomatology in the psychiatric population. It is written on a fifth or sixth grade reading level. It requires minimal time and no special training to administer. The BDI has been used, extensively, in clinical diagnosis and research. For BDI interpretation <10 is minimal depression, 10 to 18 mild to moderate, 19 to 29 moderate to severe and 30 to 63 interpret as severe depression^{13,14}. STAI an introspective inventory comprising 40 self-report items pertaining to anxiety¹⁵. It distinguishes between two questionnaires with 20 items each, one measuring anxiety perceived in the current situation (STAI-state) and the other evaluating a general tendency towards anxiety (STAI-trait). The STAI-state questionnaire has been used frequently in order to evaluate anxiety levels in clinical settings. Range of scores for each subtest is 20–80, the higher score indicating greater anxiety.

Statistical analyses: For statistical analysis, IBM SPSS version 20.1 was used. Demographic and clinical variables were expressed using descriptive statistics. Comparison of mean and proportions was performed using independent t-test and chi-square test. Mean and standard deviation for all BDI and STAI scores were calculated. Based on the scores, the subjects were divided and psychological stress levels compared to the success of the treatment by Chi-square test. The significance level for all analyzes was considered $p < 0.05$.

Results

Demographic information: Applicants in this study were examined for demographic information and several other indicators, which the results showed in Table I. Women who experienced ART by donated oocytes, had a range of 26 to 55 years with median of 38 years. Most patients had 33, 38 and 39 years old and duration of trying to get pregnant for this group of women, ranged from 1 to 25 years and most people taking assisted reproduction for 5 years by median of

5. While the women who experienced ART by own oocytes were between the ages of 22 and 55 (with a median age of 33) and the age of most people was 26 years. In addition, for this group of women, duration of trying to get pregnant ranged from 1 to 20 years, with most people taking assisted reproduction for 2 years by median of 5 years. In women with assisted reproduction by donated oocytes, 74.2% (23 patient) did not have any children, and 26% (8 women) had one child. Almost the same results attained for women that use their oocytes, 77.4% (24) did not have any children, and 26% (8) had one child.

Involvement ART treatments in the past: Facts about the use of ART techniques in the past and number of users have been shown in Table II. In women that use of ART treatment by autologous oocytes, 58.1% (18) had used previous assisted reproductive techniques and 41.9% (13) had no history of using assisted reproductive techniques. In other hand, women that practice the ART treatment by donated oocytes, 64.5% (20) of them used previous assisted reproductive techniques and 35.5% (11) of them had never used of these techniques.

History of diseases: Among women treated by donated oocytes, 25.8% (8) of them mentioned the history of the disease and 74.2% (23) had no history of the disease. Among women who treated by own oocytes, 19.4% (6) patients had a history of disease, and 80.6% (25) had no history of disease. Previous diseases in both groups have been shown in Table III.

BDI and STAI scores: Mean and standard deviation of BDI and STAI scores in patients participated in this study have been shown in Table IV.

Depression assessment: Depending on the scores obtained from the BDI test depression calculated in both groups. The results of this assessment have been shown in Table V. In patients who undergoing ART treatment by autologous oocytes, 87.1% (27) of patients had the lowest depression, rate and 12.9% (4) had mild to moderate depression, but none of them had moderate to severe or severe depression. Moreover, 90.3% of patients (28) had lowest depression, 6.5% (2) had mild to moderate depression and 3.2% (1) had moderate to severe depression in patients undergoing ART treatment by donated oocytes.

Anxiety assessment: Based on the results of the

STAI test, we evaluated the different levels of state and trait anxiety in the patients, which has been shown results in Table VI. Among women who treated by autologous oocytes, in the field of state anxiety, 35.5% (11) had mild anxiety, 48.4% (15) had medium downward, 6.5% (2) had medium upward and 9.7% of them (3) had relatively severe anxiety while none of them experience the severe anxiety. Furthermore, the level of trait anxiety was assessed in these women, 35.5% (11) had mild anxiety, 41.9% (13) had medium downward, 16.1% (5) had medium upward, 3.2% (1) had relatively severe and the same had severe anxiety.

Among patients who undergoing ART treatment by donated oocytes, in the field of state anxiety, 19.4% (6) had relatively severe anxiety and the same had medium upward, 29% (9) had medium downward anxiety and 33.3% (10) patients had low anxiety. In addition, the level of trait anxiety was assessed in this group of women, 22.6% (7) had mild anxiety, 32.3% (10) had medium downward, 29% (9) had medium upward, 12.9% (3) had relatively severe anxiety and 3.2% of them (1) had severe anxiety.

Association between variables: There was no significant correlation between duration of infertility and BDI score ($p=0.713$), state anxiety score ($p=0.802$) and trait anxiety score ($p=0.270$) by Spearman test. In addition, Kruskal Wallis test was used to determine the relationship between the duration of infertility and the level of depression, state anxiety and trait anxiety which was not statistically significant ($p=0.129$, $p=0.627$ and $p=0.225$, respectively). Spearman and Pearson's tests were used to determine the association between users number of all assisted reproductive techniques, state/trait anxiety scores and depression scores, which were found to be not significant ($p=0.158$, $p=0.827$ and $p=0.301$). Spearman and Pearson tests ($p=0.484$, $p=0.819$ and $p=0.25$) were not significantly correlated with age, scores of state and trait anxiety and depression scores. However, by Spearman test, there was a significant relationship ($p=0.004$) between age and duration of infertility. In addition, there was no significant relationship between age, number of children and number of users of all assisted reproductive techniques. The Spearman test was used with $p=0.612$ and $p=0.689$ respectively. One way ANOVA test was used to examine the relationship between the age and

level of state and trait anxiety, and depression level which was not statistically significant with $p=0.378$, $p=0.659$ and $p=0.972$, respectively.

Discussion

The importance of mental health to the quality of life and the economic and social functions of people has been evidently proven. Additionally, infertility is known as a major stressor for women. In several studies, psychological factors such as depression and stress have been evaluated in infertile women that treated by assisted reproduction techniques, although the results of these studies are contradictory.³⁻⁶ The aim of this survey was to determine the psychological status of ART candidates who used of donated oocytes compared with ART candidates who used of autologous oocytes were referred to infertility health center of Mahdiah Hospital in Tehran. Although there was no significant relationship between the frequency use of assisted reproductive techniques and the amount of anxiety and depression in women who treated by donated oocytes. There was a significant correlation between the number of attempts for the previous IVF and the level of depression in the subjects treated with autologous oocytes. Also, the state and trait anxiety scores were higher in women treated by donated oocytes than those treated by autologous oocytes, and the number of people with mild to moderate and relatively high levels of anxiety was higher in women treated by donated oocytes. However, the number of people with medium upward, relatively high, and high levels of trait anxiety was higher in those who were treated autologous oocytes, which means that state anxiety was seen in those who treated by donated oocytes and trait anxiety in those who were treated by autologous oocytes. Boivin *et al.*¹³ considered the results of 14 studies involving 3,583 infertile women who treated by IVF and concluded that women and doctors should be convinced that to ensure women and doctors that the emotional distress caused by fertility problems and other life events that occur during treatment will not reduce the chance of getting pregnant. In addition, there was no significant correlation between the level of education and the level of depression and anxiety in our study and Boivin. Moreover In our study, similar to Boivin *et*

*al.*¹⁴, There was no significant correlation between the state and trait anxiety scores and the duration of infertility as well as the level of anxiety.

Conclusion

Mean score of depression in women treated by donated oocytes was higher than women treated by autologous oocytes. In addition, anxiety rate in medium upward, medium and intense levels in women treated by donated oocytes were higher than women treated by autologous oocytes. The incidence of depression was moderate to severe in patients treated by donated oocytes, and there was no moderate to severe depression in individuals treated with autologous oocytes. Results of this study showed that depression (in severe stages), state anxiety and trait anxiety were higher in women treated by donated oocytes than those treated with autologous oocytes.

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