

ORIGINAL

Evaluation of male sexual parameters in infertile couples with a history of abortion



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Abstract

Introduction: It is thought that both individuals are affected psychologically and sexually in couples experiencing abortion. In addition to the stress caused by infertility, sexual life may also be negatively affected in couples who experience psychogenic wear, such as abortion and curettage. The aim of this study is to evaluate male sexual functions in infertile couples with a history of abortion and male infertility component.

Methods: Five hundred forty-seven male patients' data were evaluated retrospectively. Group 1 was the included the males of the couples without abortion history and the rest with abortion history was group 2. In addition to demographic data, abortion history, libido level, presence of morning erection and intercourse frequency were evaluated. Hormone levels of all patients were evaluated. After that we created sub-group 1 and sub-group 2 from these groups, respectively, due to whether the patients fulfilled the international index of erectile function (IIEF), Beck anxiety inventory (BAI) and Beck depression inventory (BDI).

Results: There were not any significant differences between the groups regarding psychiatric scale scores, hormone levels, libido, intercourse frequency and IIEF scores. Only orgasmic dysfunction was significant in the males of the couples with abortion history.

Conclusion: Man is not affected from abortion process in which woman get involved. Men only have orgasmic dysfunction when there is one or more abortion history in couples.

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PALABRAS CLAVE

Aborto;
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Índice de Ansiedad de
Beck;
Índice de Depresión
de Beck

Evaluación de parámetros sexuales masculinos en parejas infértiles con historia de aborto**Resumen**

Introducción: Se piensa que ambos individuos se ven afectados psicológica y sexualmente en las parejas que experimentan un aborto. Además del estrés causado por la infertilidad, la vida sexual también puede verse afectada negativamente en las parejas que experimentan desgaste psicógeno, como el aborto y el legado. El objetivo de este estudio es evaluar las funciones sexuales masculinas en parejas infértiles con antecedentes de aborto y componente de infertilidad masculina.

Métodos: Se evaluaron retrospectivamente los datos de 547 pacientes masculinos. El grupo 1 fue el que incluyó a los varones de las parejas sin antecedentes de aborto y el resto con antecedentes de aborto fue el grupo 2. Además de los datos demográficos, se evaluó el historial de abortos, nivel de libido, presencia de erección matutina y frecuencia de coito. Se evaluaron los niveles hormonales de todos los pacientes. Posteriormente se creó el subgrupo 1 y el subgrupo 2 de estos grupos, respectivamente, según si los pacientes cumplían con el índice internacional de función eréctil (IIEF), el inventario de ansiedad de Beck (BAI) y el inventario de depresión de Beck (BDI).

Resultados: No hubo diferencias significativas entre los grupos con respecto a las puntuaciones de la escala psiquiátrica, los niveles hormonales, la libido, la frecuencia de las relaciones sexuales y las puntuaciones del IIEF. Solo la disfunción orgásmica fue significativa en los varones de las parejas con antecedentes de aborto.

Conclusión: El hombre no se ve afectado por el proceso de aborto en el que se involucra la mujer. Los hombres solo tienen disfunción orgásmica cuando hay uno o más antecedentes de aborto en las parejas.

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Introduction

Infertility is the inability to achieve pregnancy after a year of regular and unprotected sexual intercourse.¹ Insemination can be provided in these couples via assisted reproductive techniques (ART). The ratio of having baby with ART were given as 17–24% in the literature.^{2,3} However, some of the couples under treatment experience a spontaneous abortion. In general, recurrent spontaneous abortion (RSA) rate is accepted as 2%.⁴ However, it is reported that if there was an abortion history, the rate of developing RSA would be given as higher than 25%.⁵

The couples that experienced abortion, are thought to be affected regarding physiologic and sexual status. It could be said that especially the woman who has a limited time for having a baby and who lives all the process within her body, might have been affected from abortion much more than the man.^{6,7} On the other hand, the man might be affected deeply in male factor infertility. A study shows that male factor infertility is one of the characteristics of patients with recurrent implantation failure.⁸ In this case, this situation might be disruptive for the man and affects his psychological status.

Sexual dysfunction and impaired libido are likely to be related with anxiety and depressive disorders.⁹ It is also likely to be affected the sexual life of the couples who have been having psychologically hard times caused by abortion and curettage; besides, the stress of infertility itself. The

increased desire for having a baby and the anxiety of being infertile may cause an increase in anxiety status and health anxiety status as well as an amplification in perceiving somatic and visceral sensations.¹⁰ In addition, psychogenic symptoms accompanied by sexual dysfunction may advance when the time for having a baby delayed because of abortion and RSA processes.¹¹

In this study we aimed to evaluate the male sexual functions in infertile couples who had experienced abortion and/or curettage once or more than once.

Materials and methods

Seven hundred and ninety-three infertile men who were admitted to our clinic between November 2017 and April 2020, were included into the study. Patients under 18-year-old, patients with psychiatric disorders, patients who have chronic disease and drug usage, cancer history were excluded from the study. The data of the rest 547 patients were evaluated retrospectively. Demographic data, history of abortion and/or curettage, libido, morning erections and intercourse frequency were analyzed. Libido, morning erections and intercourse frequency were the subjective parameters which acquired from our routine questionnaire form from infertility & andrology outpatient clinic. The patients who reported coitus activity less than once a week were evaluated as impaired intercourse frequency.¹² According to the abortion or curettage history, the patients

were divided into two groups: Group 1 consisted of the males of the couples who had not experienced abortion/curettage and group 2 consisted of the males of the couples that had experienced abortion/curettage once or more than once. Follicular stimulating hormone (FSH), luteinizing hormone (LH) and total testosterone (TT) were analyzed as hormonal parameters.

The data of 176 patients who had filled "International Index of Erectile Function" (IIEF), Beck anxiety and Beck depression questionnaires were evaluated separately. The data from group 1 was allocated as sub-group 1 and from group 2 was called sub-group 2. IIEF questionnaires were evaluated in terms of erectile functions, intercourse satisfaction, orgasmic functions, sexual desire and overall satisfaction. The sum of the scores of the first 5 questions and 15th question was calculated and used to evaluate the erectile function. The total score varies from 0 to 30. The lower the total score, the higher the severity of the individual's erectile dysfunction. According to the chart, the scores were evaluated as following: 0–10 severe, 11–16 moderate, 17–21 mild to moderate, 22–25 mild and 26–30 no ED. Sexual desire scores was collected as the sum of question 11 and 12. The sum of 6th to 8th questions for intercourse satisfaction, 9th and 10th for orgasmic functions, 11th and 12th for sexual desire and 13th and 14th for overall satisfaction were taken into consideration.

Beck anxiety inventory (BAI) is a reliable tool to assess the anxiety level of a patient.¹³ It consists of 21 questions with up to 3 points for each. Beck depression inventory (BDI) is the tool for assessing depression level of the patients.¹⁴ The number of questions and scoring were the same as BAI. It also has a particular scale to categorize depression levels of patients. We used these tools to investigate the anxiety and depression symptoms of the patients.

All statistical analyses were performed with SPSS Statistics for Windows, v25.0 (IBM Corp. Released 2017. Armonk, NY). Kolmogorov–Smirnov and Shapiro–Wilk's tests were used for estimating the distributions of the groups. Categorical data were analyzed using 2×2 Chi-square test between the groups. Numerical data were compared using Mann–Whitney *U* test between the groups. Linear regression analysis was performed to reveal whether there was relationship between abortion history and the parameters such as IIEF and psychiatric scale scores (BAI, BDI). The significance level was accepted as $p < 0.05$.

Results

Demographic data and laboratory result of the two groups were summarized in Table 1. Four hundred and fifty-three (82.8%) of couples did not have an abortion history and the rest 94 (17.2%) have abortion and/or curettage history. According to the results the two groups did not differ in terms of BMI, intercourse frequency, morning erections, libido, FSH, LH and TT levels ($p > 0.05$). However, there were significant differences both in marriage time and age ($p < 0.05$).

Abortion history rate was 14.8% ($n=26$) among the patients whose IIEF and Beck queries were obtained. Erectile function scores were 26.28 ± 4.57 in sub-group 1 and 26.06 ± 4.45 in sub-group 2 and the results were similar

statistically ($p > 0.05$). Intercourse satisfaction scores were 12.06 ± 2.24 in sub-group 1 and 11.72 ± 2.16 in sub-group 2 ($p > 0.05$). Orgasmic functions showed significant decrease in sub-group 2 ($p=0.036$). The scores were 9.24 ± 1.52 in sub-group 1 and 8.77 ± 1.83 in sub-group 2. Sexual desire scores were 7.68 ± 1.50 and 7.11 ± 1.49 in sub-group 1 and 2, respectively. There was a significant difference between the two sub-groups and it was lower in sub-group 2 than sub-group 1 ($p=0.04$). Overall satisfaction scores also lower in sub-group 2 ($p=0.048$). The scores were 8.58 ± 1.69 and 8.27 ± 1.17 in sub-group 1 and 2, respectively. BAI scores of the sub-groups were 13.46 ± 7.73 and 14.44 ± 7.75 , respectively ($p > 0.05$). BDI scores were also similar in both of the sub-groups ($p > 0.05$) and 12.51 ± 7.34 in sub-group 1 and 14.61 ± 7.08 in sub-group 2. All the data about IIEF and Beck queries were summarized in Table 2.

Linear regression analysis results were given in Table 3. Abortion history did not have any relationships with psychiatric scale scores and IIEF scores except orgasmic functions in men ($p > 0.05$). Orgasmic functions have a significant indirect relationship with abortion history ($p=0.04$). According to this finding, orgasmic functions impaired when abortion history existed.

Discussion

Infertility is an important health problem which causes sociopsychological stress.¹⁵ It is responsible for a severe stress both in man and women without considering the disease originates from which of them. According to Simon et al. the diseases with uncertain etiology and which have prolonged treatment process, like in infertility, may increase depression and anxiety levels in patients.¹⁶ It could be thought that the stress in question is more prominent in woman who lives all the process within her body. However, man's stress might be as bad as in woman especially in male infertility cases.^{6,8}

Abortion and curettage processes are also other stressor factors especially affecting female partner.¹⁷ Herrero et al. went one step further and they described the psychological status of woman after abortion as a syndrome.¹⁸ Jacop et al. gave the rate of depression and other psychological disorder 8.9% one year after abortion.¹⁹ In another study, Jacop et al. determined that infertile patients who had experienced induced or spontaneous abortion show direct correlation with the psychiatric disorders ranges from 1.4% to 45%.²⁰ It is thought that this psychological stress should be transient. However, there are several studies that reported the psychological effects of abortion last for many years.²¹

The relationship between sexual dysfunction in woman and the psychological disorders such as anxiety and depression is a known fact. McCool-Myers et al. reported abortion was a consistently risk factor of sexual dysfunction.²² The same relationship exists in man. Rajkumar et al. indicated that anxiety and depression affected sexual desire and erectile functions in man.⁹ Thase et al. found that the nocturnal erections impaired after depression and they indicated to the relationship between depression and sexual functions.²³

Another point that should not overlooked is the existence of a sexual interaction between the partners. Çayan et al. showed that female partners of the men with ED, suffer from

Table 1 Demographic data and laboratory findings of the groups.

Parameters	Group 1 (n = 453)	Group 2 (n = 94)	P
Age	29 (17–54)	31 (23–47)	0.003
BMI	26.42 (17.7–41.52)	26.26 (18.29–38.20)	0.80
Marriage time (year)	2.0 (0–32)	5.0 (0.4–23)	<0.001
Intercourse frequency (n/week)			0.25
Normal	422 (93.4)	84 (89.4)	
Impaired	30 (6.6)	10 (10.6)	
Morning erections (n; %)			0.19
Present	447 (98.7)	91 (96.8)	
Absent	6 (1.3)	3 (3.2)	
Libido (n; %)			0.12
Impaired	20 (4.4)	8 (8.5)	
Normal	433 (95.6)	86 (91.5)	
FSH (mIU/ml)	3.42 (0.10–62.8)	3.45 (1.0–21.8)	0.45
LH (IU/L)	3.46 (0.00–21.7)	3.62 (1.3–9.0)	0.51
TT (ng/dL)	428.29 (106.8–1089.4)	458.57 (152.4–803.5)	0.44

Numerical values were given as median (min–max) and categorical values were given as n (%).

BMI: body mass index; FSH; follicular stimulating hormone; LH: luteinizing hormone; TT: total testosterone; $p < 0.05$.

Table 2 IIEF and psychiatry scale scores of the groups of patients.

Parameters	Sub-group 1 (n = 150)	Sub-group 2 (n = 26)	p
Marriage time (year)	3.52 ± 3.85	6.22 ± 4.73	<0.001
Intercourse frequency (n; %)			0.70
Normal	137 (91.9)	24 (88.9)	
Impaired	12 (8.1)	3 (11.1)	
Morning Erections (n; %)			0.14
Absent	0 (0.0)	1 (4.0)	
Present	146 (100)	24 (96)	
Libido (n; %)			0.34
Impaired	6 (4.1)	2 (7.7)	
Normal	140 (95.9)	24 (92.3)	
Previous infertility treatment history			
Male (n; %)			0.37
Absent	130 (87.2)	22 (81.5)	
Present	19 (12.8)	5 (18.5)	
Female			0.70
Absent	30 (20.1)	4 (14.8)	
Present	119 (79.9)	23 (85.2)	
TT	465.34 ± 188.31	480.41 ± 136.00	0.31
Erectile Functions (1–5 & 15)	26.28 ± 4.57	26.06 ± 4.45	0.42
Intercourse satisfaction (6–8)	12.06 ± 2.24	11.72 ± 2.16	0.19
Orgasmic functions (9–10)	9.24 ± 1.52	8.77 ± 1.83	0.036
Sexual desire (11–12)	7.68 ± 1.50	7.11 ± 1.49	0.04
Overall satisfaction (13–14)	8.58 ± 1.69	8.27 ± 1.17	0.048
BAI	13.46 ± 7.73	14.44 ± 7.75	0.23
BDI	12.51 ± 7.34	14.61 ± 7.08	0.24

Numerical data were given as mean ± SD. For categorical parameters patient counts and percentages were given. The related numbers of each parameters of IIEF were given in phrases after the parameters' names. IIEF: International index of erectile functions; TT: Total testosterone; BAI: Beck anxiety inventory; BDI: Beck depression inventory; $p < 0.05$.

Table 3 Linear regression table of IIEF parameters and scores of Beck queries for abortion history as an independent variable.

Parameters	B	t	p
Erectile functions	−0.31	−0.34	0.72
Intercourse satisfaction	−0.65	−1.30	0.16
Orgasmic functions	−0.62	−2.03	0.04
Sexual desire	−0.56	−1.76	0.08
Overall satisfaction	−0.50	−1.5	0.11
BAI	2.08	1.08	0.28
BDI	2.14	1.19	0.23

Slope and beta coefficient of the parameters can be seen in B column. IIEF: International index of erectile functions; BAI: Beck depression inventory; BDI: Beck depression inventory; $p < 0.05$.

several sexual disorders and these could be treated by the treatment that given to the men for ED.²⁴ On the other hand, Muin et al. showed that female sexual treatment with oxytocin or placebo significantly improved the sexual quality of the male partner.²⁵

In the light of these data, it seems impossible to think of the sexual life of male partner does not affected from abortion or curettage processes. As it is mentioned above, female partner affected from these interventions seriously. Besides, the stress of infertility itself, male should be affected for being a witness for a female partner who is suffering. Although there have been studies evaluating the relationship between infertility and male sexual functions, there have not been a comprehensive study about this issue. Therefore, this study is a unique study focusing on male sexual functions after abortion or curettage.

According to the result of this study, male partner of the couples with abortion history have significant decreases in orgasmic function, sexual desire and overall satisfaction. However, linear regression analyses showed that male partner did not affected from this process. In parallel with this data, the differences in these parameters except orgasmic functions cannot be the cause for the decreases in both sexual desire and overall satisfaction. Also, male partner do not have any decrease in libido and morning erections. And coitus frequency of the couples were not different from each other between the two sub-groups. Orgasmic functions may have relationship with abortion history. However, the mechanism cannot be explained while the psychological parameters and hormonal parameters were normal. In fact, we thought that there might be other factors which affect orgasmic functions. And these factors may probably be related with female mental and sexual status.

As it is known, male sexual functions – notably ED – have many organic and psychogenic etiologic factors.²⁶ Testosterone deficiency is accepted as the most common cause of ED among the organic factors. Foresta et al. showed that TT has a critical role in the control of erection.²⁷ Isidori and Corona indicated to the importance of TT in terms of erection in their meta-analyses.^{28,29} Also, it is another known fact that some psychological factors may sometimes come first than the organic factors in ED.³⁰ In our study, neither TT levels nor psychiatric scale scores did not show any significant changes between the sub-groups and this could help us to understand why the erectile functions did not differ between the sub-groups of this study. When it comes to orgasmic functions, it is mostly accepted as orgasmic

dysfunction is related with neurological disorders and psychological drugs besides endocrine disorders.^{31,32} However, as a repetition, our psychological and hormonal results did not differ between the sub-groups and these parameters cannot explain the difference in orgasmic functions. In the literature, orgasmic dysfunction incidence in infertile men was given as 8–11%.^{33–35} Elia et al. reported that the reason beyond orgasmic dysfunction could be the difference between the aims of sexual intercourse.³⁶ In their study they emphasized that orgasmic disorders were lower in the couples who are having sex to get pleasure, than the others who are trying to have a baby. This approach seems logical in explaining the orgasmic difference in our study.

There are a few study that emphasized that the male should be included into the all steps of the invasive processes such as abortion and curettage.³⁷ However, it is not a well-known issue that how these processes affect men. In this study, we found that male partner did not affect from the abortion or curettage history regarding psychologically and sexually, except orgasmic dysfunction. In linear regression analyses the diminishing of the significance values determined in two-paired comparisons and the inability to conduct some regression models made us think there was other factors that affected man's sexual life. At this point, it is a limitation of our study that female partner's hormonal, psychological and sexual queries were not evaluated. These factors might be related with the sexual and psychological status of woman partner. However, we cannot make any further evaluations because of the lack of the data.

There are several limitation of this study. First of all the data obtained from the queries might be subjective. Also, the study includes only a population of a local area. Multicenter studies always gives more reliable information. In addition, retrospective design of the study limits our evaluation and exposition capabilities. For example we do not have some parameters that might affect the psychological status and sexual life of the couples, such as infertility duration, information about a previous marriage, etc. These data would have given us a chance to write a broader discussion.

Conclusion

This study showed that male partner is not affected from abortion process in which female partner get involved. Men only have orgasmic dysfunction when there is one or more abortion history in couples. However, there might be other

possible factors that could affect the orgasm in men. More comprehensive prospective randomized multicenter trials are needed to conclude about this issue.

Ethical disclosures

Protection of human and animal subjects. The authors declare that the procedures followed were in accordance with the regulations of the relevant clinical research ethics committee and with those of the Code of Ethics of the World Medical Association (Declaration of Helsinki).

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors have obtained the written informed consent of the patients or subjects mentioned in the article. The corresponding author is in possession of this document.

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Conflict of interest

The authors declare that there is no conflict of interest.

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