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RESEARCH ARTICLE / ÖZGÜN ARAŞTIRMA

Long-term changes in sexual functions following complicated pregnancies and deliveries

Komplike gebelikler ve doğumdan sonra cinsel fonksiyonlardaki uzun dönem değişiklikler

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ABSTRACT

Objective: The aim of this study is to evaluate the effects of complicated pregnancy and delivery (P/D) on sexual functions and to determine possible risk factors that affect sexual functions.

Methods: Women, who have the history of severe pre-eclampsia, placenta previa totalis, abruption placentae or postpartum uterine atonia, comprised the study group. The control group was comprised the women matched for age, parity, mode of delivery, vocation, the level of income and education status. Their fear of getting pregnant again and fear of death in the most recent delivery were measured by questionnaires. The Arizona Sexual Experience Scale was used to assess the sexual functions. We compared sexual functions of the women with and without suffering from complicated P/D.

Results: Fear of death during the last delivery and fear of getting pregnant again were significantly more intense in the study group (p=0.002 and p<0.001, respectively). The rates of volunteers detected sexual dysfunction in the study and control groups were 55.1% and 38.7%, respectively (p=0.081). Fear of death during the last delivery was found to be significant risk factors for sexual dysfunction (odds ratio [OR] = 1.653; 95% CI = 1.131-2.415; p=0.009).

Conclusion: In conclusion, sexual dysfunction rate of women with a history of complicated pregnancy and delivery, was almost equal that of women with a history of health pregnancy and delivery. Fear of death during the last delivery was found to be most important risk factor for sexual dysfunction. *J Clin Exp Invest 2013; 4 (4): 429-435*

Key words: Fear of death, fear of getting pregnant again, complicated pregnancy, complicated delivery, sexual dysfunction

ÖZET

Amaç: Bu çalışmanın amacı komplike gebelik ve doğumun cinsel fonksiyonlar üzerine olan etkilerini değerlendirmek ve cinsel fonksiyonları etkileyen olası risk faktörlerini belirlenmek.

Yöntemler: Çalışma grubunu öyküsünde ağır preeklampsi, plasenta previa totalis, dekolman plasenta, post partum atoni öyküsü olan oluşturdu. Kontrol grubu yaş, parite, doğum şekli, meslek, gelir düzeyi ve eğitim durumu eşleşen kadınlardan oluşuyordu. Hastaların tekrar hamile kalma korkusu ve son doğumdaki ölüm korkusu anketler ile ölçüldü. Cinsel fonksiyonları değerlendirmek için Arizona cinsel deneyim skalası kullanıldı. Komplike gebelik ve doğumu olan ve olmayan kadınların cinsel fonksiyonlarını karşılaştırdık.

Bulgular: Son doğum esnasında görülen ölüm korkusu ve tekrar hamile korkusu çalışma grubunda anlamlı olarak daha yüksek olduğu gözlendi (p = 0,002 ve p < 0,001, sırasıyla). Çalışma ve kontrol grubunda cinsel işlev bozukluğu gönüllülük oranı sırasıyla % 55,1 ve % 38,7 (p = 0,081) tespit edildi. Son doğum esnasında yaşanan ölüm korkusu cinsel işlev bozukluğu için önemli bir risk faktörü olarak bulunmuştur (odds oranı [OR] = 1,653; 95% CI = 1,131-2,415; p=0,009).

Sonuç: Sonuç olarak, komplike gebelik ve doğum öyküsü olan kadınlarda cinsel işlev bozukluğu oranı sağlıklı gebelik ve doğum öyküsü olan kadınlarla neredeyse eşitti. Son doğum esnasında görülen ölüm korkusunun cinsel işlev bozukluğu için en önemli risk faktörü olduğu bulunmuştur.

Anahtar kelimeler: Ölüm korkusu, tekrar gebe kalma korkusu, komplike gebelik, komplike doğum, cinsel işlev bozukluğu

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INTRODUCTION

The sexual dysfunction identified in 40-45% of adult women is more common especially in the postpartum period [1,2]. Counseling and information regarding sexual life is an important need for postpartum women. This counseling can be a time offering the opportunity to express the current problems of postpartum sexual health and functions [3]. Unfortunately, information on this issue remains incomplete in general practice. In a previous study, only 18% of 481 women in postpartum period had received information about the changes in postpartum sexual functions.4 In that study, only 15% of women with sexual dysfunction had discussed this problem with a provider of postpartum care. Earlier studies have shown that the postpartum sexual dysfunction may develop after the health of a pregnancy and delivery (P/D) [5,6]. Although patients try to cover these problems, postpartum sexual dysfunction has continued to be a topic of interest to new research.

A complicated P/D, such as pre-eclampsia, eclampsia, HELLP syndrome, abruption placentae and major postpartum hemorrhage, requires treatment and follow-up under intensive care conditions during peripartum period, and may result in fetal and maternal mortality [7,8]. In addition, prolonged hospital stay, maternal fear of death and complications lead to morbidity in early and late postpartum period may develop in these women. Intense fear of death makes the parents vulnerable to psychological trauma [9,10]. The intensive fear of death and fear of infant mortality, experienced during the rapid medical intervention and emergency obstetric conditions, can turn into a fear of getting pregnant again and fear of childbirth in these women [11,12]. All of the traumatic results mentioned above may effect adversely on sexual functions as well as mental health in women with a history complicated P/D.

Mode of delivery in women with a history of complicated P/D is usually cesarean delivery under emergency conditions. In literature, there are several studies assessing the postpartum sexual functions after cesarean [13,14]. Considered in terms of the mode of delivery, the cesarean is more protective for sexual functions compared to the normal vaginal delivery [1]. To our knowledge, in literature, there is no study comparing elective and emergency caesareans in terms of their effects on sexual function.

Sexuality, which has behavioral, physiological, and psychological aspects, is a complex structure. Together with all of the conditions, such as the family environment, bad life experiences, income and education level, chronic diseases, medications and physical and mental health should be evaluated during the examination of sexual functions [2,15]. The aim of this study is to evaluate the effects of complicated pregnancy and delivery, affecting the physical and mental health, on sexual functions and to determine possible risk factors that affect sexual functions.

METHODS

In this study, we compared sexual functions in the patients with and without suffering from complicated P/D. The protocol was approved by the Medical Ethics Committee of the Dicle University. Cases for the study and control groups were taken from patients treated and followed in our clinic during the last two years. Dicle University Hospital is a 1400 bed referral Hospital, and it is the largest tertiary care health center, where complicated P/D cases are frequently referred, in the southeast region including approximately 2.5 million people. Patients, who have the history of severe preeclampsia, eclampsia, placenta previa totalis, abruption placentae or postpartum uterine atonia, comprised the study group. The control group was comprised of patients with a history of healthy pregnancy and delivery process. From the patient records, 172 patients who were followed-up/treated in our clinic for complicated P/D were identified. Data of these patients on diagnoses, surgical interventions, mode of delivery, age, gravida, parity, number of living children, duration of hospitalization, level of income, a history of chronic disease and continuous drug usage, early and late morbidity and phone numbers of the patients were obtained retrospectively from the medical file. The early morbidities detected in patients were hypertension, pulmonary edema, brain edema, severe headache, excessive bleeding, acute renal failure, and wound infection. Persistent hypertension and neurologic squeals, such as loss of feeling in hands and visual field loss, were recorded as late morbidity. Exclusion criteria were to be under the age of 18 and above the age of 35, underwent hysterectomy or tubal ligation, having four or more children, suffering from psychiatric and use of drugs affecting sexual function disorders. The control group was comprised the patients matched for age, parity, mode of delivery, vocation, the level of income and education status. In all groups, the patients had their last delivery within 6 months to 2 years and have completed at least primary school education.

The women with and without suffering from complicated P/D patients were interviewed via telephone call and were informed about the study.

Fifty-three and fifty-one patients, who gave written informed consent, created the study and control groups, respectively. Twenty-one patients with a history of severe preeclampsia, [14] patients with a history of eclampsia and 18 patients with a history of major hemorrhage were included in the study group (Figure 1).

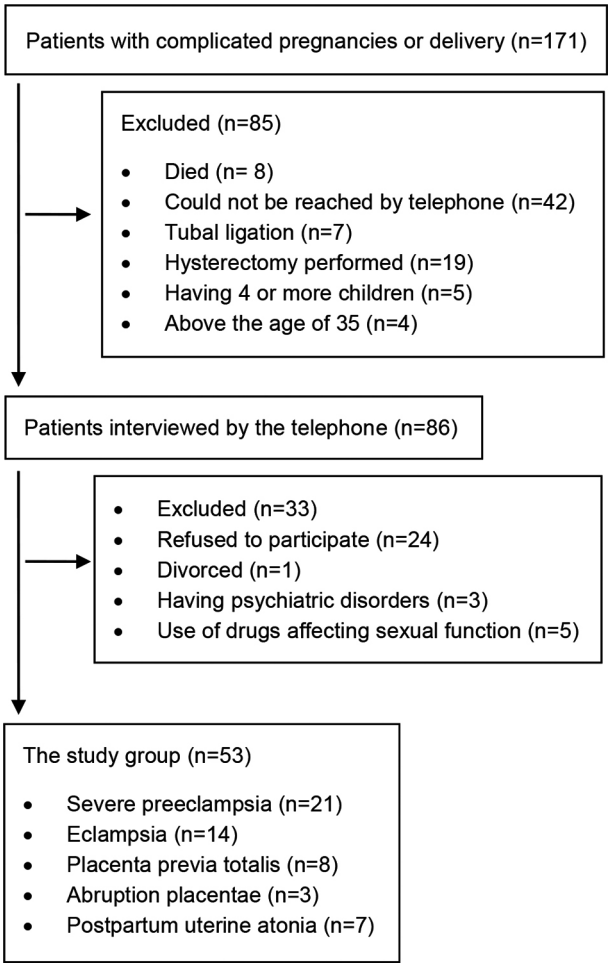

Figure 1. The flowchart for selection of women in study group

Their fear of getting pregnant again, sexual functions and fear of death during the last delivery were measured by questionnaires. The scale was designed as a fear scale (FS) was developed by the investigators to measure the fear of getting pregnant again by rating and the fear of death during the last delivery. The scale was designed as a fear scale (FS) that is a 10 cm long horizontal straight line with 1 cm gaps between each rating, starting from 0 (not worried at all) and continuing up to 10 (worried very much). It was adapted from a visual analogue scales (VAS) used to measure severity of pain subjectively [16]. The patients could mark the level of fear they have regarding a repeat pregnancy by marking between 0 and 10 on the scale. As is, it was a self-reported scale that measures fear from a new pregnancy subjectively.

The Arizona Sexual Experience Scale (ASEX), developed by McGahuey et al.[17] and adapted into Turkish by Soykan [18], was used to assess the sexual problems of the volunteers. This scale includes five questions about sex drive, sexual arousal, vaginal lubrication, ability to reach orgasm and satisfaction with orgasm. Each parameter scored on a range from 1 (normal) to 6 (completely absent). Total scores ranges from 5 to 30 and higher scores correlate with greater sexual dysfunction. The cut-off point for the scale is 11 (sensitivity = 100%, specificity = 52%).

Dependent and independent variables of the study were analyzed by descriptive statistics. While means and standard deviations (SD) were used to describe continuous variables and frequency and percentage were used to describe categorical variables. The distribution pattern of the data was tested with Kolmogorov-Smirnov test. The Chi-square test and the Student's t test were used to evaluate differences between the categorical and continuous variables. P value less than 0.05 was considered as significant. The binary logistic regression analysis was used to assess the related factors to sexual dysfunctions. The six variables found a significant difference between the two groups were included in the backward stepwise procedure. The statistical package SPSS for windows 15.0 (Statistical package for social sciences; SPSS Inc., Chicago, IL) was used to analyze the data.

RESULTS

The baseline characteristics of women in the groups are shown in Table 1. The mean age of the women in study and control groups were 29.1±4.2 and 30.2±3.8 years, respectively. No significant difference was found in the mean age and the number of living children and rates of education status, housewives, low income and having two or more pregnancy or live birth ($p>0.05$). Rates of high school or university graduates in the study and control groups were 72.5% and 54.9%, respectively ($p=0.147$). While a significant difference was observed compared to the groups in terms of having health problems, no significant differences were found compared to in terms of continuous drug usage ($p=0.015$ and $p=0.144$, respectively).

Problems experienced during or after a complicated P/D and long-term results of these problems were analyzed in both groups. The distribution

of these factors that are likely to impact on sexual function for groups is presented in Table 2. Due to complicated P/D, in the study group, the mean duration of hospitalization was higher than those of control group (10.2±9.3 and 1.7±0.7 days, respectively, p=0.000). Fear of death during the last delivery and fear of getting pregnant again were significantly more intense in the study group (p=0.002 and p<0.001, respectively). Rates of early and late morbidity were higher in the study group compared with the control group (p<0.05).

After the measuring by ASEX scale, the mean total score of the study group (14.55 ±5.69) was lower than that of the control group (16.24 ±4.72) but there was no statistically significant difference between the groups (p=0.061). As seen in Table 3, in control group, only mean A4 score (ability to reach orgasm) was significantly worse than that of the study group (3.51±1.38 and 3.02 ±1.46, respectively; p=0.047). Sexual dysfunction was detected in 46.9% of the women included in the study by the ASEX scale. The rates of volunteers detected sexual dysfunction in the study and control groups were 55.1% and 38.7%, respectively (p=0.081).

Table 4 summarizes the risk variables for sexual dysfunction by using Logistic Regression Model. According to the model, fear of death during the last delivery was found to be significant risk factors for sexual dysfunction (odds ratio [OR] = 1.653; 95% CI = 1.131-2.415; p=0.009).

Table 1. The distribution of baseline characteristics of the women in in both groups

Characteristics	The history of complicated pregnancy or delivery		
	Study group (yes) (n=53)	Control group (no) (n=51)	p
Age, year (mean ± SD)	29.1±4.2	30.2±3.8	0.133
Having 2 or more pregnancies, n (%)	43 (81.1)	36 (70.6)	0.254
Having 2 or more live births, n (%)	37 (69.8)	32 (62.7)	0.290
Number of living children n (mean ± SD)	2.1±0.9	1.9±0.8	0.169
Education status, n (%)			
Primary or intermediate school graduates	37 (72.5)	28 (54.9)	0.147
High school or university graduates	14 (27.5)	23 (45.1)	
Housewife, n (%)	41 (77.4)	35 (68.6)	0.217
Low income, n (%)	38 (71.7)	34 (66.7)	0.366
Having a chronic disease, n (%)	20 (37.7)	8 (15.7)	0.015
Continuous drug usage, n (%)	14 (26.4)	7 (13.7)	0.144

SD, standard deviation

Table 2. Comparison of both groups in terms of the problems experienced during and after a complicated pregnancy or delivery and long term results of these problems

The problems of the most recent delivery	The history of complicated pregnancy or delivery		
	Study group (yes) (n=53)	Control group (no) (n=51)	p
Cesarean, most recent delivery mode, n (%)	43 (81.1)	41 (80.3)	0.599
Duration of hospitalization, days (mean ± SD)	10.2±9.3	1.7±0.7	<0.001
Early morbidity, n (%)	28 (52.8)	0 (0)	<0.001
Late morbidity, n (%)	23 (43.4)	0 (0)	<0.001
Fear of death in the most recent delivery, score (mean ± SD)	8.26 ± 5.33	5.21 ± 4.56	0.002
Fear of getting pregnant again, score (mean ± SD)	7.68 ± 3.68	4.31 ± 3.84	<0.001
Using effective contraceptive method, n (%)	40 (75.5)	40 (78.4)	0.451
Dyspareunia, n (%)	15 (30.6)	14 (29.8)	0.554

SD, standard deviation

Table 3. Mean and standard deviation (SD) values of the scores Arizona Sexual Experience (ASEX) scale in the groups

ASEX scale, score (mean ± SD)	The history of complicated pregnancy or delivery		
	Study group (yes) (n=53)	Control group (non) (n=51)	p
A-1 How strong is your sex drive?	2.91 ±1.33	3.24 ±1.08	0.076
A-2 How easily are you sexually aroused (turned on)?	2.98 ±1.36	3.45 ±1.28	0.060
A-3 How easily does your vagina become moist or wet during sex?	2.77 ±1.23	3.22 ±1.23	0.070
A-4 How easily can you reach an orgasm?	3.02 ±1.46	3.51±1.38	0.047
A-5 Are your orgasms satisfying?	2.89 ±1.46	3.22 ±0.92	0.067
Total	14.55 ±5.69	16.24 ±4.72	0.061

Table 4. Logistic regression analysis of the risk factors for sexual dysfunctions in women with and without the history of complicated pregnancies or delivery (Block 1: Method = Backward Stepwise).

Risk factors for sexual dysfunctions	Regression		Odds ratio	Exp (β) for 95% CI	
sexual and other problems; No:0 / Yes:1	coefficient β	P value	Exp (β)	Lower	Upper
Having health problems, (1)	-1.398 (0.823)	0.089	0.247	0.049	1.240
Duration of hospitalization (days)	-0.015 (0.060)	0.809	0.985	0.875	1.110
Early morbidity (1)	1.179 (0.990)	0.233	3.252	0.467	22.621
Late morbidity (1)	2.352 (1.030)	0.022	10.508	1.396	79.103
Fear of death in the most recent delivery (score)	-0.187 (0.276)	0.499	0.830	0.483	1.426
Fear of getting pregnant again (score)	0.504 (0.124)	<0.001	1.655	1.298	2.111
Constant	-2,204 (1.225)	<0.001	0.110		

Classification table; overall percentage: 85.6; model chi-square: 43.8; df: 6; p = 0.000; Hosmer and Lemeshow Test: 9.009; df: 8, p = 0.342, SE, standard error

DISCUSSION

After the pregnancy and delivery, the temporary sexual dysfunction in the early postpartum period was showed at high rates of up to 86% [19]. Fallowing physical improvement of the women, postpartum sexual dysfunction improves over time. In a previous study, it was reported that sexual problems detected in 70.6% women in the third postpartum month were detected in 34.2% of women in sixth month [20]. In another study, this rate was found to be 54.5% at the 12th postpartum month [21]. As previously mentioned, approximately 40-45% of adult women suffer from sexual dysfunction [2]. In the light of this data, it can be said that the rates of sexual problems regress approximately rates in adults fallowing the postpartum first year. The causes of postpartum sexual dysfunction are morphologic disturbances, such as perineal trauma, perineal pain, dyspareunia, and vaginal dryness and mental disorders, such as anxiety, postpartum depression and post-traumatic stress disorder [2,5,15]. In this study, the long-term changes in sexual functions of women after a complicated P/D were evaluated for the first time. To exclude the temporary postpartum sexual dysfunction, ASEX scale was performed to women, who had their last delivery within 6 months to 2 years. The sexual dysfunction was detected in 46.9% of the women included in our study. Compared sexual dysfunction rates of women with and without a history of complicated pregnancy and delivery, there was no statistically significant difference.

According to DSM-IV criteria, after exposure to events, such as a real threat of death or a serious injury or a threat to the integrity of the body, the reaction in the form of intense fear, helplessness or horror PTSD is diagnosed as PTSD [10]. During childbirth, many women experience fear of physical harm or death for themselves or their baby [22]. PTSD may develop in people who applied to surgical and medical interventions [23,24]. Severe preeclampsia, eclampsia, HELLP syndrome, abruption placentae and major postpartum hemorrhage could be considered as a predisposing factor for PTSD [25]. The fear of permanent damage and death can

occur in patients during the serious clinical condition mentioned above. Moreover, the event may become more traumatic in woman and her wife after being informed about the severity of the disease. In our study, it was found that the women with a history of complicated pregnancy and delivery had more intense fear of death during the latest childbirth. The women in the same group had more fear of becoming pregnant again. In a previous study, the women with PTSD after childbirth suffer from avoidance of sex and fear of having further children in the long term [10,26]. In our study, the fear of death during the latest childbirth was found to be the most important risk factor for sexual dysfunction.

Compared with caesarean section, vaginal delivery is more risk for sexual dysfunction [1]. During the vaginal delivery, the most important risk factor for sexual dysfunction is perineal stretching and trauma [27]. The majority of patients in the study and control groups had a history of giving birth by cesarean section. Compared in terms of mode of delivery, there was no significant difference between the control group and the study group. Due to evaluation of sexual functions in the late postpartum period and almost equal rates of caesarean section in both groups, we thought that comparison of the two groups in terms of sexual dysfunction was not influenced by the mode of delivery.

The ASEX scale has performed in many studies to measure five specific items identified as the core elements of sexual function: sexual drive, arousal, penile erection/vaginal lubrication, ability to reach orgasm, and satisfaction from orgasm [5,28,29]. The most important deficiency of ASEX scale is that dyspareunia is not taken into account in evaluation of the sexual functions [17]. In the literature, ASEX scale has not been preferred to investigate the effects of the changes in the morphological structure on sexual functions, probably because of this deficiency. This method has been preferred usually to evaluate psychological aspects of sexual functions [28]. In our study, we evaluated dyspareunia as well as ASEX scale. No significant differences were found between the two groups in terms of the presence of dyspareunia.

Severe acute maternal complications associated with pre-eclampsia are thrombotic complications, acute pulmonary edema, acute renal failure, liver rupture, abruption placentae, hepatic failure, seizures and neurologic deficits [30]. In addition, sequels, such as hypertension and neurological deficits, may remain in long term [31]. During the massive postpartum hemorrhage requiring multidisciplinary management, early and late morbidities may occur [32]. In this study, it was envisaged that this late-morbidities can affect sexual functions both morphologically and psychologically, recalling health complications during pregnancy and childbirth. However, in logistic regression analysis, it was found that the presence of late morbidity carries no risk for sexual dysfunction.

In a previously study, we showed that women with a history of complicated P/D have more intense the fear of getting pregnant again those of women with a history health P/D.33 In addition, the same study was reported that planning more children is decreased after high-risk pregnancies. We thought that the fear of getting pregnant again, causing a reduction in the desire to conceive, may lead to sexual dysfunction. Women with a history of complicated pregnancies and delivery had a more intense fear of getting pregnant again. However, it was found that the fear of getting pregnant has no effect on sexual functions.

In conclusion, sexual dysfunction rate of women with a history of complicated P/D, was almost equal that of women with a history of health pregnancy and delivery. Fear of death and the fear of getting pregnant again were more intense in women with a history of complicated P/D. Fear of death during the last delivery was found to be most important risk factor for sexual dysfunction.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

REFERENCES

1. Abdool Z, Thakar R, Sultan AH. Postpartum female sexual function. Eur J Obstet Gynecol Reprod Biol 2009;145:133-137.
2. Lewis RW, Fugl-Meyer KS, Bosch R, et al. Epidemiology/risk factors of sexual dysfunction. J Sex Med 2004;1:35-39.
3. World Health Organization. Sexual Health: working definitions. 2002; Available at: http://www.who.International/reproductive-health/gender/sexual_ health. html (accessed July 24, 2008).
4. Barrett G, Pendry E, Peacock J, et al. Women's sexual health after childbirth. BJOG 2000;107:186-195.
5. Acele EÖ, Karaçam Z. Sexual problems in women during the first postpartum year and related conditions. J Clin Nurs 2012;21:929-937.
6. Connolly A, Thorp J, Pahel L. Effects of pregnancy and childbirth on postpartum sexual function: a longitudinal prospective study. Int Urogynecol J Pelvic Floor Dysfunct 2005;16:263-267.

7. Baskett TF, O'Connell CM. Maternal critical care in obstetrics. J Obstet Gynaecol Can 2009;31:218-221.
8. Sak ME, Evsen MS, Soydinc HE, et al. Risk factors for maternal mortality in eclampsia: analysis of 167 eclamptic cases. Eur Rev Med Pharmacol Sci 2012;16:1399-1403.
9. Côte-Arsenault D, Mahlangu N. Impact of perinatal loss on the subsequent pregnancy and self: women's experiences. J Obstet Gynecol Neonatal Nurs 1999;28:274-282.
10. Polachek IS, Harari LH, Baum M, et al. Postpartum post-traumatic stress disorder symptoms: the uninvited birth companion. Isr Med Assoc J 2012;14:347-353.
11. Ryding EL, Wijma B, Wijma K, et al. Fear of childbirth during pregnancy may increase the risk of emergency cesarean section. Acta Obstet Gynecol Scand 1998;77:542-547.
12. Storksen HT, Eberhard-Gran M, Garthus-Niegel S, et al. Fear of childbirth; the relation to anxiety and depression. Acta Obstet Gynecol Scand 2012;91:237-242.
13. Hosseini L, Iran-Pour E, Safarinejad MR. Sexual function of primiparous women after elective cesarean section and normal vaginal delivery. Urol J 2012;9:498-504.
14. Khajehei M, Ziyadlou S, Safari RM, et al. A comparison of sexual outcomes in primiparous women experiencing vaginal and caesarean births. Indian J Community Med 2009;34:126-130.
15. Moel JE, Buttner MM, O'Hara MW, et al. Sexual function in the postpartum period: effects of maternal depression and interpersonal psychotherapy treatment. Arch Womens Ment Health 2010;13:495-504.
16. Aitken RC. Measurement of feelings using visual analogue scales. Proc R Soc Med 1969;62:989-993.
17. McGahuey CA, Gelenberg AJ, Laukes CA, et al. The Arizona Sexual Experience Scale (ASEX): reliability and validity. J Sex Marital Ther 2000;26:25-40.
18. Soykan A. The reliability and validity of Arizona sexual experiences scale in Turkish ESRD patients undergoing hemodialysis. Int J Impot Res 2004;16:531-534.
19. Hicks TL, Goodall SF, Quattrone EM, et al. Postpartum sexual functioning and method of delivery: summary of the evidence. J Midwifery Womens Health 2004;49:430-436.
20. Xu X, Yao Z, Wang H, et al. [Women's postpartum sexuality and delivery types]. Zhonghua Fu Chan Ke Za Zhi 2003;38:219-222.
21. Williams A, Herron-Marx S, Carolyn H. The prevalence of enduring postnatal perineal morbidity and its relationship to perineal trauma. Midwifery 2007;23:392-403.
22. Moleman N, van der Hart O, van der Kolk BA. The partus stress reaction: a neglected etiological factor in postpartum psychiatric disorders. J Nerv Ment Dis 1992;180:271-272.
23. Furuta M, Sandall J, Bick D. A systematic review of the relationship between severe maternal morbidity and post-traumatic stress disorder. BMC Pregnancy Childbirth 2012;12:125.
24. Ryding EL, Wijma K, Wijma B. Predisposing psychological factors for posttraumatic stress reactions after emergency cesarean section. Acta Obstet Gynecol Scand 1998;77:351-352.
25. Hoedjes M, Berks D, Vogel I, et al. Symptoms of posttraumatic stress after preeclampsia. J Psychosom Obstet Gynaecol 2011;32:126-134.
26. Fones C. Posttraumatic stress disorder occurring after painful childbirth. J Nerv Ment Dis 1996;184:195-196.
27. Rathfisch G, Dikencik BK, Kizilkaya Beji N, et al. Effects of perineal trauma on postpartum sexual function. J Adv Nurs 2010;66:2640-2649.
28. Lin C-F, Juang Y-Y, Wen J-K, et al. Correlations between sexual dysfunction, depression, anxiety, and somatic symptoms among patients with major depressive disorder. Chang Gung Med J 2012;35:323-331.
29. Mathias C, Cardeal Mendes CM, Pondé de Sena E, et al. An open-label, fixed-dose study of bupropion effect on sexual function scores in women treated for breast cancer. Ann Oncol 2006;17:1792-1796.
30. Alvarez Navascués R, Marín R. [Severe maternal complications associated with pre-eclampsia: an almost forgotten pathology?]. Nefrologia 2001;21:565-573.
31. Williams D. Long-term complications of preeclampsia. Semin Nephrol 2011;31:111-122.
32. Walker MG, Allen L, Windrim RC, et al. Multidisciplinary management of invasive placenta previa. J Obstet Gynaecol Can 2013;35:417-425.
33. Tan P, Evsen MS, Soydinc HE, et al. Increased psychological trauma and decreaseddesire to have children after a complicated pregnancy. J Turkish-German Gynecol Assoc 2013;14:11-14.