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Evaluation of postpartum depression scores of elective and emergency cesarean section patients

Planlı ve acil sezaryen olanlarda depresyon skorlarının değerlendirilmesi

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Abstract

Aim: One of the factors affecting postpartum depression is anxiety during pregnancy. This study aims to provide early diagnosis of postpartum depression by investigating the impact of pre-operative anxiety of women, who had an elective or emergency cesarean, on postpartum depression.

Methods: This case-control study was conducted on 103 patients (51 elective, 52 emergency cesarean section cases). Before the surgery, the patients filled State-Trait Anxiety Inventory (STAI) and a form surveying the descriptive properties and obstetric histories. Edinburg Postpartum Depression Scale (EPDS) was applied 6 weeks after delivery. The impact of these results and the anxiety levels in the preoperative period on postoperative depression were analyzed.

Results: The mean value of STAI-1 in the emergency and elective caesarian section groups were 41.31 and 43.61, respectively. Both groups had higher than average (>41) anxiety levels. The mean values of the STAI-2 were equal (48.35) and the anxiety level was above average. As per EPDS, the mean scores of the emergency and elective cesarean section groups were 6.98 and 5.31, respectively. The difference of postpartum rates between two groups was statistically significant (P=0.050). Postpartum depression was observed in 11.53% of the emergency group and 3.92% of the elective group.

Conclusion: Both groups had high state and trait anxiety, however, the postpartum depression rate in emergency patients was higher. It is significant to provide psychological support to the patients with high pre-operative anxiety and early treatment to the ones with a higher tendency of depression in the postpartum period.

Keywords: Cesarean, Emergency, Elective, State-trait anxiety, Postpartum depression

Öz

Amaç: Postpartum depresyonu etkileyen önemli etmenlerden biri hamilelik dönemindeki kaygıdır. Elektif şartlarda sezaryene alınan kadınlarla acil şartlarda sezaryene alınanların operasyon öncesindeki kaygılarının postpartum depresyon gelişiminde etkili olup olmadığı değerlendirilerek postpartum depresyonu erkenden tanımak amaçlanmıştır.

Yöntemler: Bu vaka kontrol çalışmasında 51 planlı ve 52 acil olmak üzere 103 kişiyle gerçekleştirildi. Sezaryenden önce hastaların tanımlayıcı ve obstetrik özelliklerini içeren anket formu ile Durumluk Sürekli Kaygı Envanteri (STAI) doldurularak kaygı düzeyleri belirlendi. Doğumdan 6 hafta sonra Edinburg Postpartum Depresyon Ölçeği (EPDS) uygulandı. Elde edilen sonuçlarla preoperatif devredeki kaygı durumunun postoperatif depresyon gelişmesine etkili olup olmadığı analiz edildi.

Bulgular: Acil gruptaki hastaların STAI-1 ortalaması 41,31, planlı gruptaki hastaların 43,61'di. Her iki grupta da kaygı seviyeleri ortalamanın üzerindeydi (>41). STAI-2 ortalamaları her iki grupta eşitti (48,35) ve kaygı seviyesi ortalamanın üzerindeydi. EPDS'de acil hastaların puan ortalaması 6,98, planlı hastaların puan ortalaması 5,31 olarak tespit edildi. Bu sonuç istatistikî olarak anlamlıydı (P=0,050). Buna göre acil grubun %11,53'ü, planlı grubun %3,92'sinde postpartum dönemde depresyon tespit edildi.

Sonuç: Her iki grubun durumluk ve sürekli kaygıları yüksek olmakla birlikte acil sezaryen yapılanlarda postpartum depresyon daha yüksekti. Bu nedenle preoperatif yüksek kaygısı olan hastalara gerekli psikolojik desteğin sağlanması ve postpartum dönemde depresyon eğilimi olanların erken tedaviye alınmaları önemlidir.

Anahtar kelimeler: Sezaryen, Acil, Elektif, Durumluk-sürekli kaygı, Postpartum depresyon

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Introduction

During the postpartum period, the mother tries to adapt to the physical, biological, social, and emotional changes and get used to her newborn. Psychosocial factors, as well as the hormonal changes, cause various fluctuations in moods during the postpartum period [1,2]. A patient that is unable to internalize her new role as a mother and to cope with baby-care may have psychiatric problems. One year following the delivery is a risky period for anxiety disorders, obsessive-compulsive disorder, depression, and sometimes psychosis [3]. Within a couple of days following delivery, postpartum blues are common and it may be confused with postpartum depression [4]. Postpartum blues, which can be seen as mild nervousness, sadness, fatigue, frequent crying, feelings of loss and sorrow, getting attached to the ones around herself, is observed in 60-70% of the women that had delivery [5]. Postpartum blues develop within 1-2 days following delivery and lasts for 1-2 weeks. It does not prevent the mother from caring for her baby but it has a 20% chance of transforming into major depression within 1 year [6].

On the other hand, depression is a complicated psychological disorder, which is a syndrome composed of several symptoms and indications [7]. Depression symptoms include -but are not limited to- fatigue, sleeping and appetite disorders, anhedonia, and agitation. Diagnostic and Statistical Manual of Mental Disorders describes postpartum depression as a non-psychotic major depression that occurs within four weeks following delivery.

This study aims to show that early diagnosis and meticulous treatment of postpartum depression is crucial. The study investigates the moods of women, who had elective and emergency cesarean section, as well as the relationship between urgency and the pre-operative anxiety, and their impact on postpartum depression.

Materials and methods

This study was a single-centered and descriptive case-control study. Initially, 58 elective cesarean section and 60 emergency cesarean section patients, which were randomly selected from a maternity hospital between October 2018 and March 2019, were included in the study. However, the study was finally conducted on 103 patients among which 51 were elective and 52 were emergency cesarean section patients. Visual and hearing-impaired patients, patients who were already diagnosed with psychiatric disorders, patients with speech disorder or depression history in the family, and those that were under 18 years of age were not included in the study. The emergency cesarean cases such as cord prolapse, placenta decollement, actively bleeding placenta previa that would threaten the lives of the mother or the baby were excluded. The cases that are elective only because of the patient's choice and those that lack medical indication were also excluded since this might have affected the anxiety levels. Permission of the University of Health Sciences, Erzurum Regional Training and Research Hospital Ethics Committee (No: 37732058-514.10-2018/10-66) and informed consent of all participants were obtained for the study.

Data collection

For the collection of data, questionnaire forms including descriptive and obstetric properties of the patients, namely, State-Trait Anxiety Inventory (STAI) and Edinburgh Postpartum Depression Scale (EPDS) were used [8, 9]. Patients were asked to fill the STAI state (STAI-1) and STAI trait (STAI-2) forms before the operation and their anxiety levels were evaluated.

STAI-1 is a state anxiety scale that measures the subjective fear of the individual in the present situation. STAI-2 is a trait anxiety scale and measures the tendency of the individual towards anxiety. Such individuals almost always perceive the situations in which they are in as stressful [10]. STAI-1 and STAI-2 forms have 20 questions each. They include some expressions that individuals use to express their emotions. The patients are asked to select the choice that best fits their current feelings without spending a lot of time thinking. In both scales, answer choices are in 4 groups and if the patient does not select 3 or more choices, the answer is considered invalid. Oner and Le Compte measured the validity and reliability of this inventory. The alpha reliability of the scale is 0.83-0.87 and the retest reliability is 0.71-0.86. They reported that the item reliability may fluctuate between 0.34 and 0.72. Low scores indicate a low level of anxiety and high scores indicate a high level of anxiety. They reported the average score to be between 36 and 41 [11].

In our study, we waited for at least 6 weeks as required by the postpartum period depressive episode diagnosis criteria. Six weeks after delivery, EPDS was applied to the patients. EPDS, which was defined by Cox et al. in 1987, is a scale that is used by clinicians for early diagnosis of postpartum depression [12]. EPDS is a self-evaluation scale consisting of 10 questions. All questions are scored from 0 to 3. The maximum available score for this scale is 30. Questions 1, 2 and 4 from the scale are scored as 0-1-2-3 and the others are scored as 3-2-1-0. The total value is calculated by adding the scores from these questions. Engindeniz measured the reliability and validity of the scale. The internal consistency coefficient was 0.79, split-half reliability was 0.80, and the cut-off point was 12 or 13. Consequently, sensitivity was 0.84, specificity was 0.88, positive predictive value was 0.69, and the negative predictive value was 0.94 [13]. Medical assistance is suggested if the mother scores more than 12 or 13, which indicates a higher possibility of depression [12]. The results of the study were analyzed to determine whether the anxiety level during the pre-operative period had any impact on postoperative depression.

Statistical analysis

The IBM SPSS 20 statistical analysis program was used for the statistics. Mean, median, standard deviation, minimum, maximum, percentage, and numbers were used to present the data. Shapiro Wilk-W and Kolmogorov Smirnov tests were used when sample sizes were under 50 and equal to or greater than 50, respectively, to examine the normal distribution of continuous variables.

For the comparison of two independent normally and non-normally distributed groups, Independent Samples t-test and Mann Whitney-U test were used, respectively.

Pearson Chi-square, chi-square and Fisher's Exact tests were used for 2x2 comparisons between categorical variables

when the expected count was >5, between 3-5 and <3, respectively. The statistical significance level was $P<0.05$.

G*Power 3.1.9.2 software was used for power analysis. The power of this data was 1-β=0.99 with elective group $n=51$, emergency group $n=52$, α=0.05 and an effect size of d=1.0.

Results

The two groups were similar in terms of age, weight, gestational weeks, and socioeconomic levels. This indicates the homogeneity and normal distribution of the study. The mean ages of 52 patients in the emergency cesarean group and 51 patients in the elective cesarean section group were 27.88 (5.35) and 28.94 (5.35) years, respectively. The mean weights of the emergency and elective groups were 74.42 (12.35) and 75.63 (13.92) kg, respectively. There was no difference between the socioeconomic levels of the patients ($P=0.384$) (Table 1).

Table 1: Descriptive properties

	Emergency		Elective		
	n	Mean (SD)	n	Mean (SD)	*P*-value
Age	52	27.88 (5.35)	51	28.94 (5.35)	0.305
Weight	52	74.42 (12.35)	51	75.63 (13.92)	0.643
Socioeconomic level					
Low	27		23		0.384
Middle	22		23		
High	3		5		
Number of household members	52	4.10 (1.81)	51	4.31 (1.63)	0.492
Smoking					
Yes	3		4		0.444
No	49		46		

* The cells are shaded in gray, if the value or calculation is not available for the particular category.

It was the first cesarean for 44.2% of the emergency group and 66.5% of the elective group; thus, number of first cesarean was higher for the elective group. The mean number of gestational weeks in the emergency and elective groups were 38.29 (1.68) and 38.18 (1.77), respectively. The mean weight of the newborn was 3148.37 (549.11) g in the emergency group, and 3238.31 (551.77) g in the elective group. General conditions of 78.8 % of the newborns from the emergency group were good, whereas this rate was 94.1% for the elective group (Apgar scores > 8-10) ($P=0.009$) (Table 2).

The mean values of STAI-1 in the emergency and elective groups were 41.31 and 43.61, respectively, which were both higher than the average anxiety level (>41). Development of postpartum depression between the two groups was statistically significant ($P=0.003$). The groups had different minimum and maximum values. The mean values of STAI-2 were equal (48.35) and the anxiety level was above average. There was a significant correlation between STAI-1 and STAI-2 values ($P=0.01$). When the mean values are evaluated, it was seen that patients with high trait anxiety also had a high level of state anxiety.

The cut-off point in EPDS was calculated as 13. The rate of patients in the elective group that were above cut-off point was 3.92%, whereas this rate was 11.53% for the emergency cesarean group. As per EPDS, the mean scores of the emergency and elective groups were 6.98 and 5.31, respectively ($P=0.050$). Postpartum depression was observed in 11.53% of the emergency group and 3.92% of the elective group (Figure 1) (Table 3).

Table 2: Obstetric history

	Emergency			Elective			Chi-square	*P*-value
	Mean (SD)	Min	Max	Mean	Min	Max		
Number of pregnancy (n)	3.65 (1.34)	2.00	8.00	3.63 (1.17)	1.00	7.00		0.932
Number of previous cesarean section	1.81 (1.05)	1.00	5.00	2.06 (0.76)	0.00	3.00		0.044
Number of living children	2.52 (1.34)	1.00	7.00	2.53 (0.83)	1.00	5.00		0.741
Number of abortion	0.27 (0.60)	0.00	3.00	0.27 (0.63)	0.00	3.00		0.892
Week in pregnancy at delivery (w)	38.29 (1.68)	34.00	41.00	38.18 (1.77)	32.00	41.00		0.743
Weight of newborn (g)	3148.37 (549.11)	1500.00	4110.00	3238.31 (551.77)	2000.00	4800.00		0.729
Problems during pregnancy								
Yes	30			23			1.635	0.201
No	22			28				
General condition of the newborn*								
Apgar score 8-10	41			48			6.745	0.009
Apgar score 4-7	11			2				
Apgar score 1-3	0			0				
Indication of cesarean								
Previous cesarean	23			35			6.229	0.013
Other	29			16				
Previous problematic pregnancy								
Yes	8			12			0.810	0.201
No	41			39				
Chronic illness								
Yes	11			3			5.113	0.024
No	41			48				

* Apgar score indicates the general condition of the newborn (Apgar score 8-10 (good), 4-6 (has to be observed), 1-3 (needs intensive care)), ** The cells are shaded in gray, if the value or calculation is not available for the particular category

Table 3: Scale values

	Emergency			Elective			t, Z	*P*-value
	Mean (SD)	Minimum	Maximum	Mean	Minimum	Maximum		
STAI-1	41.31 (6.44)	26.00	70.00	43.61 (3.64)	36.00	52.00	-2.992	.003
STAI-2	48.35 (5.49)	36.00	62.00	48.35 (4.91)	35.00	59.00	-.007	.995
EPDS	6.98 (4.35)	0.00	21.00	5.31 (4.32)	0.00	24.00	1.949	.050

STAI: State Trait Anxiety Inventory, EPDS: Edinburgh Postpartum Depression Scale

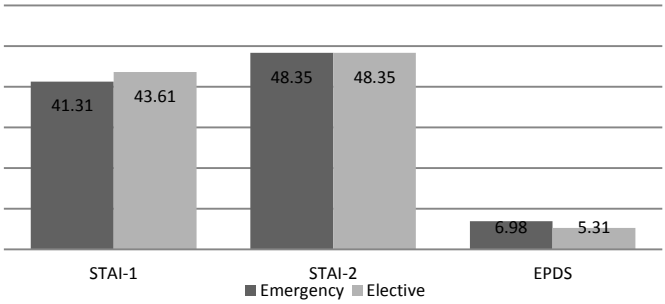

Figure 1: Mean of scale values

Discussion

Postpartum depression affects the health and life quality of the newborn and the mother [14]. Therefore, its early diagnosis, prevention, and treatment are crucial. The present study investigated the existing anxiety in elective and emergency cesarean section patients, their anxiety during cesarean section and the impact of a high level of anxiety on postpartum depression. In this study, both groups had very high STAI-1 and STAI-2 anxiety levels. Jokić-Begić et al. [15] stated that the fear of labor significantly increased antenatal anxiety. Another study reported that the trait and state anxiety levels increased as the time for delivery got closer [16]. In a study by Hepp et al. [17], it is stated that the labor pain and postoperative pain increased the anxiety level.

STAI-1 scale was higher in elective cesarean patients compared to emergency cesarean patients. Although it was statistically insignificant, the rate of previous cesarean sections and number of children > 2 were higher in the elective cesarean group compared to the emergency cesarean group. The studies state that increased responsibility with more children, and the mother's exposure to psychological and biological changes increases the possibility of depression [18]. In the literature, pre-operative anxiety and depression levels of patients who underwent cesarean section were reportedly high [19]. High state anxiety of elective cesarean patients is due to increased responsibility regarding their families and their previous operation experiences that caused developing fear against pain.

In a study by Hepp et al. [17], it was reported that subjective anxiety levels before elective cesarean were high, and the feeling of pain increased the perioperative anxiety but did not affect postpartum depression. In this study, STAI-2 was also applied to the patients before the operation to determine if they had existing anxiety and whether such a state of anxiety had any impact on the progression of postpartum depression. Both groups had same STAI-2 levels. Their anxiety levels were equal because of similar demographic properties of the patients. This indicated that the anxiety of the patients was not only related to delivery but also due to an elevated level of anxiety in their daily lives. In another study, women that had little social support, poor health and a history of stressful life events were found to be at risk of poor mental health [20].

Similarly, we concluded that the middle and low socioeconomic status increased concerns about living standards. The majority of the patients in both groups indicated their socioeconomic levels as either middle or low. The number of patients, who indicated their socioeconomic level as high, was very little. This data suggests that socioeconomic level affects anxiety due to the concerns in life. In a prevalence study by Ayvaz et al. [21], the incidence of postpartum depression in lower-income societies was found to be high. In a study by Hein et al. [22], socioeconomic status was reported to be effective in the progression of depression after pregnancy.

Postpartum depression develops at least 2 weeks after delivery and this period may extend up to 1 year [23]. Thus, to optimize the study, EPDS was applied 6 weeks after the delivery to detect postpartum depression in patients. Depression ratings of the emergency cesarean patients were higher than the elective cesarean patients and the results were statistically significant. According to the STAI-1 scale, the anxiety level of the emergency group was lower than the elective group; even though the postpartum depression rate was higher for the emergency group. This conflict may be explained by the obstetric histories of the patients. In the emergency group, the number of weeks in pregnancy was lower, there were more newborns in a bad general condition and the number of patients who were faced with problems during pregnancy was higher. Therefore, the postpartum depression rate was higher in the emergency group despite the lower anxiety level.

Previous studies reported that the rate of postpartum depression increased if there were problems with the newborn or the newborn was kept in the intensive care unit [23]. Consequently, the patients, who had newborns with bad general conditions, were excluded from this study to maintain the normal distribution of the patients.

The low anxiety level in the emergency group may also be explained by the time restriction. The patients possibly did not comprehend the urgency of the situation to develop state anxiety. However, if they had had complications after the delivery due to operation, if they had received their newborn later than they expected or if their newborns were held under intensive care longer, they may also have shown increased postpartum depression rates.

The elective group had a lower rate of postpartum depression despite the higher state anxiety level. This is probably related to the feeling of relief and being able to return to their routine after birth.

Limitations

The limitation of the study was that we were unable to reach some of the mothers in 6th postpartum week and they were excluded from the study. Consequently, this reduced the sample size of the study. It is suggested for future studies to measure and investigate depression scores of the patients with high pre-operative anxiety.

Conclusion

Both groups had prominent levels of trait anxiety, however, the postpartum depression rates of the emergency group were higher. For the sake of mothers' mental health and the newborns' psychological progression, we believe that it is crucial to provide necessary psychological support to patients with high pre-operative anxiety, particularly to emergency cesarean patients, determine the patients with high-risk of postpartum depression during the postpartum period, and treat them at an early stage as necessary.

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