Araştırma Makalesi
Research Article

The effect of maternal anxiety during delivery on birth outcomes

DOĞUM SIRASINDAKİ ANKSİYETENİN DOĞUM SONUÇLARINA ETKİSİ

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ABSTRACT

Birth anxiety can be defined as the fear of direct pain, the fear of the birth process. The aim of this study is to investigate the effect of anxiety level at the time of birth on the birth process and maternal and neonatal outcomes.

Materials and Methods: Anxiety scores of the patients were recorded. Demographic data of the patients, cervical examination findings, place of residence, education level, type of delivery, APGAR score, presence of episiotomy or dehiscence in normal deliveries, 1st, 2nd and 3rd stages of labor, analgesia needs, prenatal and postnatal hemoglobin variability were recorded. The patients were divided into two groups as those with low (n=76) and moderate/high (n=24) anxiety levels, and the effect of anxiety level on birth outcomes was compared.

Results: 53.9% (n=41) of pregnant women with low level of anxiety were nulliparous, and 91.7% (n=22) of patients with moderate/high level of anxiety were nulliparous (p=0.001). Postpartum hemoglobin change in pregnants with low level of anxiety, was higher than the pregnant women with moderate/high level of anxiety (p=0.00). A statistically significant relationship was found between age and anxiety level, the anxiety score of younger pregnant women was significantly higher (p=0.001).

Conclusion: Although we did not find a statistically significant relationship between prepartum anxiety level and fetal and neonatal outcomes in our study, the amount of bleeding was less in pregnant women with low anxiety. We also concluded that previous birth experience and maternal age affect the anxiety score.

Keywords: Anxiety, birth, fear, fetal, maternal

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DEU Tıp Derg 2021;35(3): 283 – 290
J DEU Med 2021;35(3): 283 - 290
doi: 10.5505/deutfd.2021.81894

Gönderim tarihi / Submitted: 02.05.2021
Kabul tarihi / Accepted: 08.09.2021

ÖZ

Amaç: Doğum kaygısı ilk hastaneye yatışta çoğu kadının karşılaştığı doğrudan acı korkusu, doğum süreci korkusu, anne olduğunda anlaşılamama, saygı duyulmama korkusu olarak tanımlanabilir. Bu çalışmanın amacı doğum sırasındaki anksiyete düzeyinin doğum sürecine ve maternal ve neonatal sonuçlara etkisini araştırmaktır.

Gereç ve Yöntem: Çalışmaya katılan 100 hastaya Beck anksiyete envanteri (BAI) uygulandı ve anksiyete skorları kaydedildi. Hastaların demografik verileri, servikal muayene bulguları, yaşadığı yer, eğitim durumu, doğum şekli, APGAR skoru, normal doğum yapanlarda epizyotomi veya deşirür varlığı, doğumun 1. 2. ve 3. evre süreleri, analjezi ihtiyaçları, doğum öncesi ve sonrası hemoglobin değişkenliği kaydedildi. Hastalar düşük (n=76) ve orta/yüksek (n=24) anksiyete düzeyine sahip olanlar olarak iki gruba ayrılarak anksiyete düzeyinin doğum sonuçlarına etkisi karşılaştırıldı.

Bulgular: Düşük düzeyde anksiyetesi olan gebelerin %53,9'u (n=41) nulliparken; orta/yüksek düzeyde anksiyetesi olan hastaların % 91,7'si (n=22) nullipardı (p=0,001). Düşük düzeyde anksiyetesi olan gebelerdeki postpartum hemoglobin değişimi orta/yüksek düzeyde anksiyetesi olan gebelere göre daha fazla idi (p=0,00). Yaş ile anksiyete düzeyi arasında istatistiksel anlamlı ilişki saptandı, yaşı daha genç olan gebelerin anksiyete skoru anlamlı olarak daha yüksekti (p=0,001). Anksiyete skoru orta/ yüksek olan hastaların aile yapısı geniş aile yapısındaydı ve bu istatistiksel olarak anlamlıydı (p=0,001).

Sonuç: Çalışmamızda prepartum ölçülen anksiyete düzeyi ile fetal, neonatal sonuçlar arasında istatistiksel anlamlı ilişki saptamamış olsak da, düşük anksiyetesi olan gebelerde kanama miktarı daha azdı. Ayrıca önceki doğum tecrübesinin ve maternal yaşın anksiyete puanına etki ettiği sonucuna ulaştık.

Anahtar Kelimeler: Anksiyete, doğum, fetüs, korku

Anxiety is a feeling of fear that bothers a person and is known as inner distress of unknown cause. It is the emotional state of any situation that the person perceives and interprets as dangerous, or the possibility of danger from the inner or outer world olacak (1). Women often experience feelings of fear and anxiety during childbirth. Birth anxiety can be defined as fear of direct pain, fear of the birth process, fear of not being understood, and disrespect when most women are hospitalized for the first time (2). This concern is most likely related to the psychological and physiological changes that occur during pregnancy (3). Perinatal anxiety is complex and remains uncertain (4-5). There is a lack of standardization in the definition of birth anxiety that includes both medical and emotional definitions. In the studies conducted, there is no consensus on the relationship between maternal anxiety, pregnancy process and delivery (6-9).

The aim of this study is to investigate the effect of anxiety level during delivery on the birth process and maternal and neonatal outcomes and to prevent the potential negative effects of high anxiety level on the birth process.

MATERIALS AND METHODS

Our study was designed prospectively. Inclusion criteria; to apply to our hospital for delivery and to be pregnant between 37-42 weeks. Between January 2020 and April 2020, a total of 216 pregnant women were admitted to our hospital for delivery. Of these patients, those with known chronic diseases (n: 76), with fetal anomaly (n: 23) and with a diagnosis of psychiatric disease (n: 7) were not included in the study. Ten pregnant women refused to participate in the study. Informed consent forms were signed by the remaining 100 patients.

Sociodemographic and clinical characteristics data form: Height, weight, body mass index, place of residence, educational status, gravidity, parity, gestational week, amount of effacement and dilatation in cervical examination, delivery types, 1st, 2nd and 3rd stages of labor, presence of episiotomy and dehiscence, 1st and 5th minute APGAR scores, newborn birth weight, antepartum and postpartum hemoglobin variability and postpartum analgesia need were recorded.

The Beck Anxiety Inventory (BAI): BAI is a self-assessment scale developed by Beck et al. in 1988 used to determine the frequency of anxiety symptoms experienced by individuals. It is a Likert-type scale consisting of 21 items and scored between 0-3. Its validity and reliability in Turkey was done by Ulusoy et al. (1998) (10).

Beck Anxiety Inventory was performed while the anamnesis of the patients were taken when they first admitted to the hospital for delivery. The anxiety scores of the patients were recorded. Demographic data of the patients, cervical examination findings, place of residence, education status, delivery type, APGAR score, presence of episiotomy or dechirure in normal deliveries, duration of 1st, 2nd and 3rd stages of labor, analgesia needs, prepartum and postpartum hemoglobin variability were recorded. The patients with low (n = 76) and moderate / high (n = 24) anxiety levels were divided into two groups and the effect of anxiety level on birth outcomes was compared. Approval was obtained from the ethics committee for our study (registration number: 2020 / 2-9).

Statistical analysis

Statistical analysis was performed using SPSS 22 package program. Descriptive analyzes in the study are mean, median, standard deviation, minimum-maximum value for numerical variables; for categorical variables, the number is presented using percentages. The compliance of the data with the normal distribution was tested with Shapiro-Wilk. Mann-Whitney U test to compare numerical variables that do not show normal distribution between two groups; Chi-square and Student t-test tests were used for intergroup comparisons of categorical variables. Values with a p value less than 0.05 were considered statistically significant.

RESULTS

A total of 100 pregnant women were included in the study. The median age of the pregnant women included in the study was 25 (17-43) years. While 8% (n: 8) of all pregnant women were illiterate, 26% (n: 26) were primary school graduates, 26% (n:26) were secondary school graduates, 30% (n: 30) were high school graduates, 3% (n: 3) were associate degree graduates and 7% (n: 7) were undergraduate. The mean BMI was 28.75 ± 4.29 kg / m2. 71% of the pregnant women lived with their elementary family. Mean week of gestation was found to be 39.69 ± 1.53 (min-max: 37-42). 65% of the pregnant women delivered by normal spontaneous way. Episiotomy was performed in 38 (58.5%) of the pregnant women who gave birth normally, and it was found that dechirure occurred in 21 (32.3%) of them.

Beck Anxiety Inventory (BAI) scores of all cases were evaluated and it was determined that 76% (n = 76) of the cases had low level, 15% (n = 15) had moderate and 9% (n = 9) had high level of anxiety. No statistically significant difference was found in BAI scores of pregnant women according to delivery type, cervical dilatation and effacement, education status (p = 0.327; 0.912; 0.602; 0.412 respectively). However, 53.9% of pregnant women with low level anxiety (n = 41) nulliparous; 91.7% (n = 22) of the patients with moderate / high level of anxiety were nulliparous (p = 0.001). Postpartum hemoglobin change in pregnant women with low level of anxiety was higher than those with moderate / high level anxiety (p = 0.00). A statistically significant relationship was found between age and anxiety level, the anxiety score of younger pregnant women was significantly higher (p = 0.001) (Table 1).

Table 1. Distribution of demographic, obstetric and clinical characteristics according to Beck Anxiety Inventory Score

	Beck Anxiety Inventory Score		
	Low Median (Q1-Q3) (n=76)	Moderate/High Median (Q1-Q3) (n=24)	p
Gravidity	2 (1 - 3)	1 (1 -1)	0,000
Parity	0 (0 - 2)	0 (0 - 0)	0,001
Gestational Week	40 (39-40)	40 (39-40)	0,580
Dilatation (cm)	3 (2 - 5)	4 (1,25 - 5)	0,912
Effacement (%)	50 (30 - 60)	50 (30 - 70)	0,602
Delivery stage 1(hour)	4 (0 - 7)	6 (0,25 - 11,5)	0,186
Delivery stage 2(min)	20 (0 - 30)	17,5 (2,5 - 42,5)	0,293
Delivery stage 3(min)	7 (0 - 10)	10 (1,25 - 15)	0,195
APGAR 1. min	7 (7 - 8)	8 (7 -8)	0,423
APGAR 5. min	8 (8 - 9)	8,5 (8 - 9)	0,779
Hb (mg/dl)	-0,4 (-0,6- -0,2)	-0,95 (-1,7- -0,6)	0,000
	Low n (%)	Moderate/High n (%)	
Nulliparous	41 (53,9)	22 (91,7)	0,001#
Multiparous	35 (46,1)	2 (8,3)	
Type of delivery			
NSVD	47 (61,8)	18 (75)	0,327#
CS	29 (38,2)	6 (25)	
Induction			
Spontaneous	43 (56,6)	17 (70,8)	0,209
Oxitocyn	30 (39,5)	5 (20,8)	
Propess	3 (3,9)	2 (8,3)	
Dechirure	14 (18,4)	7 (29,2)	0,264

Episiotomy	25 (32,9)	13 (54,2)	0,103
Postpartum analgesia	45 (59,2)	18 (75)	0,248
	Low $\bar{x}$ ± SD	Moderate/High $\bar{x}$ ± SD	
Neonatal birth weight	3190,30±519,09	3131±455,69	0,621*
Prepartum Hb (mg/dl)	11,6±1,23	11,8±1,29	0,492*
Postpartum Hb (mg/dl)	11,14±1,25	10,8±1,08	0,225*
	Low Medyan (Q1-Q3) (n=76)	Moderate/High Medyan (Q1-Q3) (n=24)	
Age	26 (23 - 31,75)	21,50 (20 - 24,75)	0,001
Weight (kg)	73 (67 - 80)	73,50 (65,5 - 83,5)	0,971
BMI (kg/m$^{2)}$	28,6 (25,72- 28,6)	27,6 (24,8 - 30,1)	0,274
	Low $\bar{x}$ ± ss	Moderate/High $\bar{x}$ ± ss	
Height (cm)	161 ± 6,49	164,04 ± 7,17	0,054*
	Low n (%)	Moderate/High n (%)	
Family			
Elementary	57 (75)	14 (58,3)	0,001#
Extended	19 (25)	10 (41,7)	
Education Level			
Illiterate	7 (9,2)	1 (4,2)	
Primary school	18 (23,7)	8 (33,3)	
Secondary school	17 (22,4)	9 (37,5)	0,412#
High school	25 (32,9)	5 (20,8)	
Associate degree	3 (3,9)	0 (0,0)	
University	6 (7,9)	1 (4,2)	

Hb: Hemoglobin, NSVD: Normal spontaneous vaginal delivery, CS: Cesarian section Mann Whitney U test

*Student t-test

#Chi-square test

No significant difference was found between stage 2 delivery time, 1st and 5th minute APGAR scores of pregnant women who delivered normally with low and moderate / high anxiety level (p = 0.840; 0.225; 0.400, respectively) (Table 2)

Table 2: Comparison of the second stage of delivery and APGAR scores of the patients with normal delivery according to the Beck Anxiety score

	Beck Anxiety Inventory Score		p
	Low	Moderate/High	
Delivery stage 2 (min)	32,26±19,88	33,26±21,82	0,840
APGAR 1.min	7,40±0,66	7,57±1,30	0,224
APGAR 5.min	8,38±0,58	8,52±0,95	0,400

DISCUSSION

In our study, Beck Anxiety Inventory (BAI) scores of all cases were evaluated and it was determined that 76% (n = 76) of the cases had low level, 15% (n = 15) had moderate and 9% (n = 9) had high level of anxiety. In the literature, there are studies and systematic reviews examining anxiety level during pregnancy and maternal, fetal and neonatal outcomes, there is no consensus (11). Moreover, it is difficult to validate and compare results across studies, as most studies use different rating scales and / or criteria for the diagnosis of anxiety (12). Although the prevalence of anxiety during pregnancy varies in the literature, it varies between 21% and 54% (13-16).

In a systematic review by Alder et al. in 2007, they concluded that maternal anxiety may lead to adverse maternal, fetal and neonatal consequences regardless of biochemical risks (11). In another study conducted by Andersson et al. in 2004, they claimed that antenatal anxiety disorder was associated with poor neonatal outcomes, preterm delivery and small baby for gestational age (SGA) (17). In 2005, Cheung et al. suggested that maternal anxiety level during delivery made birth control difficult (18). In our study, we did not find a significant relationship between the anxiety score of the patients and their fetal and neonatal outcomes. During the follow-up processes in the delivery room, we did not observe a significant difference between the patients' adaptation to birth. As a result of a systematic review conducted by Johnson in 2003, it was argued that maternal anxiety is not clearly related to obstetric complications. It has been emphasized that the reason for this is the lack of a standard anxiety measurement method and that complex factors may also play a role [12]. Contrary to this study, we found that the amount of bleeding during delivery of pregnant women with high anxiety levels was significantly higher.

In the study conducted by Bayrampour et al. in 2015, they argued that maternal anxiety may have different obstetric consequences, but more studies should be conducted to associate anxiety with increased cesarean delivery (19). In our study, there was no significant difference between normal delivery and cesarean rates and anxiety score. However, this may be because not all patients were selected from nulliparous patients. According to the study conducted by Dayan et al. in 2002, they concluded that maternal anxiety and depression are associated with spontaneous preterm birth (20). In our study, no comment could be made on this issue because all of the volunteer patients were in term.

In a study conducted by Dencker et al. in 2018, it was recommended to arrange a birth environment where women would feel safe and centered on them, and to prevent traumatic birth. It is associated with the fear of birth, stress, anxiety, depression, and a lack of social support. In the presence of psychiatric care and traumatic stress, prolonged delivery, increased use of epidural analgesics and obstetric complications have been reported. Nulliparous and multiparous women have similar levels of fear, but for different reasons. The most important factor in labor anxiety in multiparous women is bad labor experience (21). In a study conducted by Koelewijn et al. in 2017, they concluded that high maternal anxiety levels require more intervention during labor. Although this situation was the same in ethnic origins, it was different between nulliparous and multiparous women (22). As a result of our study, anxiety scores were found to be statistically significantly higher in nulliparous patients

compared to multiparous patients. It was thought that the reason for this might have been that the women had a previous birth experience, which decreased their anxiety scores. In addition, hemoglobin variability was higher in the group with moderate / high anxiety, mostly nulliparous patients. The reason for this was thought to be the lower anxiety scores of the multiparous patients and the increased compliance with delivery.

In our study, the number of patients was small and not all of them were selected from nulliparous women. These are the limitations of the study. However, there is no consensus in the literature on how anxiety affects the birth process. In this respect, our study contributes to the literature.

In conclusion, although we could not find a statistically significant relationship between prepartum anxiety level and fetal and neonatal outcomes in our study, the amount of bleeding was less in pregnant women with low anxiety. Additionally, we concluded that previous birth experience and maternal age affect the anxiety score. There is no consensus on this issue in the literature. Studies involving more patient populations and applying different anxiety scales together should be included in order to reach a clearer conclusion on this issue.

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