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Anxiety Levels and Quality of Recovery Score-15 Assesment of Women Undergoing Cesarean Section

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Anxiety Levels and Quality of Recovery Score-15 Assesment of Women Undergoing Cesarean Section

Sezaryenlerde Anksiyete Düzeyleri ve Postoperatif Qor-15 Değerlendirilmesi

ABSTRACT

Objective:

The aim of this study to investigate the preoperative and postoperative anxiety levels in women undergoing ceserean section and the factors affecting their postoperative quality of life.

Material and Methods:

One hundred twenty patients aged between 18-45, who applied to our hospital between October 2017 and March 2018 and who had undergone cesarean section were included in this study. "Quality of Recovery Score-15" (QoR-15) scale was used to evaluate the healing quality of our patients, and " The State-Trait-Anxiety Inventory" (STAI) scale was used to evaluate the preoperative and postoperative anxiety levels of the patients.

Results:

There was no statistically significant difference between the STAI levels of the preoperative period by age groups ($p>0,05$), but the average of postoperative STAI levels of the 31-35 age group was found to be significantly higher than the group aged over 35 years old ($p=0,037$; $p<0,05$). The average Quality of Recovery Score-15 scores of 31-35 age group was found to be significantly higher than the group aged 30 or below ($p:0,001$, $p<0,01$). The pain scores of the General Anesthesia group were significantly higher than the Combined Spinal Epidural Anesthesia group ($p<0,01$).

Conclusions:

Preoperative and postoperative anxiety had no effect on postoperative recovery score in pregnant women who had undergone elective cesarean section. In the 31-35 age group, the high levels of postoperative anxiety were attributed to high second birth rates, hence increased responsibilities to their families. However, it was concluded that this anxiety did not affect the postoperative quality of life, probably because of previously obtained neonatal care experience.

Key Words:

Cesarean Section, Anxiety Tests, Quality of Recovery

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ÖZ

Amaç:

Sezaryen ile doğum yapan kadınların ameliyat öncesi ve sonrası kaygı düzeylerini, bu kaygının nedenlerini araştırmak ve bu hastaların postoperatif yaşam kalitelerini etkileyen faktörlerin belirlenmesidir.

Gereç ve Yöntemler:

Bu çalışmaya Ekim 2017-Mart 2018 tarihleri arasında hastanemize başvuran ve sezaryen uygulanan 18-45 yaş arası 120 hasta dahil edildi. Hastalarımızın iyileşme kalitesini değerlendirmek için "Quality of Recovery Score-15" (QoR-15) ölçeği, hastaların ameliyat öncesi ve sonrası kaygı düzeylerini değerlendirmek için "Durumluk-Sürekli-Kaygı Envanteri" (STAI) ölçeği kullanıldı.

Bulgular:

Yaş gruplarına göre ameliyat öncesi dönem STAI düzeyleri arasında istatistiksel olarak anlamlı fark bulunmadı ($p>0,05$), ancak 31-35 yaş grubunun ameliyat sonrası STAI düzeyleri ortalaması 35 yaş üstü gruba göre anlamlı olarak yüksek bulundu ($p=0,037$; $p<0,05$). Otuz bir – Otuz beş yaş grubunun ortalama Quality of Recovery Score-15 puanları 30 yaş ve altı gruba göre anlamlı olarak yüksek bulundu ($p:0,001$, $p<0,01$). Genel Anestezi grubunun ağrı skorları, Kombine Spinal Epidural Anestezi grubuna göre anlamlı olarak yüksekti ($p<0,01$).

Sonuç:

Elektif sezaryen uygulanan gebelerde preoperatif ve postoperatif anksiyetenin postoperatif derlenme skoruna etkisi yoktu. Otuz bir – Otuz beş yaş grubunda ameliyat sonrası kaygı düzeylerinin yüksek olması, yüksek ikinci doğum oranlarına ve dolayısıyla ailelerine karşı sorumlulukların artmasına bağlanmıştır. Ancak bu kaygının postoperatif yaşam kalitesini etkilemediği, muhtemelen daha önce yenidoğan bakım deneyimine sahip olunduğu sonucuna varıldı.

Anahtar Kelimeler:

Sezaryen, Anksiyete testleri, İyileşme kalitesi

INTRODUCTION

Ceseran section is one of the most common surgeries performed for obstetric patients. Regional or general anesthesia techniques are preferred according to the patient's indication (1).

There are many reasons for preoperative and postoperative anxiety in patient's undergoing by cesarean section. Preoperative anxiety is an uncomfortable mood before surgery, an emotional response to a potential challenge, causing complications like tachycardia, increased blood pressure, and decreased tissue pressure, leading to chronic pain and depression (2). In addition to pregnancy-related changes there are concerns such as pain due to surgery, not being able to wake up from anesthesia, and prematurely waking up during surgery (3, 4). The degree of anxiety affects surgery, anesthesia, and the quality of postoperative recovery (5).

Quality of Recovery 15 (QoR-15) scale is a shorter postoperative QoR score developed from QoR-40 (6). QoR-15 scale was used in our study to evaluate the healing quality of our patients, as it is as sensitive as QoR-40 in terms of validity, applicability and sensitivity and can be filled in a short time.

Various scales have also been developed to determine the degree and causes of preoperative anxiety (7). One of the most common anxiety scales in medicine is "State-Trait-Anxiety Inventory" (STAI).

In our study, we aimed to investigate the preoperative and postoperative anxiety levels of pregnant women who deliver by cesarean section, the causes of this anxiety; and to determine the factors that affect the postoperative quality of life of these patients.

MATERIALS and METHODS

Following the approval of the ethics committee (Yeditepe University Hospital 06.12.2017 No:757), the study was carried out in accordance with the Research and Publication Ethics and the Principles of the Helsinki Declaration, and the purpose and scope of the study were explained to the participants and their informed consent was obtained. Our study was conducted on 120 patients aged between 18-45, who were at least primary school graduates and who applied to our hospital between October 2017 and March 2018. Pregnant women with known psychiatric and neurological disorders; patients who have a poor obstetric history or prenatally diagnosed congenital fetal anomaly, and patients with maternal gestational disease were excluded from this study.

Pregnant women who visited the anesthesia clinic for preoperative evaluation 1-3 days prior to cesarean section and who wanted to participate in the study were asked to fill out the questionnaire given by the anesthesiologist after the preoperative anesthesia examination. This questionnaire included age, education level, profession, previous pregnancies, preferred anesthesia type and STAI scale. Twenty-four hours after the cesarean section, the patients were visited by the anesthesiologist in the Obstetrics and Gynecology deparment were asked to fill out the STAI scale and the QoR 15 scale, which evaluates the postoperative quality of life.

Statistical Evaluation

IBM SPSS Statistics 22.0 software was used for statistical analysis. While evaluating the data, the suitability of the parameters for normal distribution was evaluated by Saphiro Wilk's test and the parameters were found to be suitable for normal distribution. In addition to descriptive statistical methods (Average, Standard Deviation), One-way ANOVA test was used as well for the comparison of

quantitative data and Post-Hoc Tukey HSD test was used to determine the group that caused the difference. Student t test was used for comparisons between two groups. Significance was accepted as p<0.05.

RESULTS

One hundred twenty cases were included in this study; 53 (44.2%) from the General Anesthesia group and 67 (55.8%) from the Combined Spinal Epidural Anesthesia group. Fourty six (38.3%) of the cases were 30 years old or younger, 37 (30.8%) were between 31-35 years old and 37 (30.8%) were over 35 years old. When the education levels were evaluated, it was seen that 13 (10.8%) cases were high school graduates and 107 (89.2%) cases were university graduates. The number of patients by age groups and preoperative and postoperative STAI scores according to age and education status are shown in Table I.

While there is no statistically significant difference between the STAI levels of the preoperative period by age groups (p>0.05), there was a statistically significant difference between the STAI levels by age groups in the postoperative period (p<0.05). As a result of the Post-Hoc Tukey HSD test performed to determine which group the difference originated from, the average of 31-35 age group was found to be significantly higher than the group over 35 years old (p=0.037; p<0.05). There is no statistically significant difference between the other age groups in terms of STAI assessment (p>0.05) (Table I).

In the comparison made according to the educational status, there was no statistically significant difference between the preoperative and postoperative STAI levels (p>0.05) (Table I).

Table I. Pregnancy numbers in different age groups, preoperative and postoperative STAI scores according to age and education status

Age	Second pregnancy (%)	STAI Preoperative (Mean±SD)	STAI Postoperative (Mean±SD)	[2]p
≤ 30	8 (%19)	42,9 ±5	44,7±4,9	**0,062**
31-35	21 (%50)	44,8±5,5	45,8±4	**0,403**
>35	13 (%31)	42,4 ± 4,7	43 ± 5	**0,394**
n	42			
[1]p		**0,106**	**0,046***	
Education				
High School		43.23±5.08	43.0±6.11	**0.904**
University		43.36±5.15	44.77±4.61	**0.023***
[2]p		**0.930**	**0.208**	

[1]Oneway ANOVA test [2]Paired Samples t test *p<0.05

There was no statistically significant difference between age groups in terms of pain, physical independence, and psychological support scores (p>0.05).

There was a statistically significant difference between Physical Comfort scores by age groups (p<0.01). As a result of Post-Hoc Tukey HSD test which was used to determine which group the difference originated from; The average of the 31-35 age group was found to be significantly higher than the 30 or older group (p:0.001, p<0.01). There is no statistically significant difference between other age groups (p>0.05).

There was a statistically significant difference between Emotional Status scores by age groups (p<0.01). The Post-Hoc Tukey HSD test revealed that the average of the 31-35 age group was significantly higher than the 30 or older group (p=0.001; p<0.01). There was no statistically significant difference between other age groups (p>0.05).

There was a statistically significant difference between the QnR 15 Total scores by age groups (p<0.01). According to the Post-Hoc Tukey HSD test conducted to determine which group the difference originated from, the average of 31-35 age group was found to be significantly higher than the group of 30 or below (p:0.001, p<0.01). There was no statistically significant difference between other age groups (p>0.05) (Table II).
There was no statistically significant difference between patient groups by educational status in terms of Physical Comfort, pain, Physical Independence, Psychological Support, Emotional Status and total QnR-15 scores (p>0.05) (Table II).

Table II. QoR-15 scores according to age and education status

	Physical comfort	Pain	Physical independence	Psychological support	Emotional status	QoR Total
Age			**Mean±SD**			
<30	31.43±8.52	13.93±3.72	10.13±5.27	16.7±2.9	32.63±5.5	104.83±16.57
31-35	37.51±6.38	14.62±3.81	12.27±4.56	16.51±3.52	36.68±4.42	117.59±13.47
>35	35±6.61	14.41±3.19	9.78±5.25	15.27±3.81	35.08±5.18	109.54±14.66
p	**0.001****	**0.671**	**0.073**	**0.136**	**0.002****	**0.001****
Education						
High school	33,5 ± 5,8	15 ± 3	18 ± 5,7	15,8 ± 4	36 ± 4	113 ± 12
University	34,5 ± 8	14,2 ± 3,6	10,4 ± 5	16,3 ± 3,4	34,5 ± 5,5	110 ± 16
p	**0,669**	**0,360**	**0,135**	**0,633**	**0,329**	**0,482**

[1]Student test [2]Paired Samples t test **p<0.01

In the evaluation between general anesthesia and combined epidural spinal anesthesia groups, there was no statistically significant difference between both preoperative and postoperative STAI levels (p> 0.05 and >0.05; (Table III). Similarly, the change in postoperative STAI levels compared to preoperative STAI levels in both general anesthesia group and combined epinal epidural anesthesia group was not statistically significant (p>0.05).

There was no statistically significant difference between patient groups who had different types of anesthesia in terms of Physical Comfort, Physical Independence, Psychological Support, Emotional Status and QnR Total scores (p>0.05).

There is a statistically significant difference between Pain scores of different types of anesthesia (p<0.01). The scores of the General Anesthesia group were significantly higher than the Combined Spinal Epidural Anesthesia group (Table III).

Table III. Preoperative and Postoperative STAI scores and QoR-15 according to anesthesia type

STAI	General Anesthesia	Combined Spinal – Epidural Anesthesia	[1]p
	Mean±SD	Mean±SD	
Preoperative	43.03±4.89	43.59±5.32	**0.555**
Postoperative	44.0±4.56	45.04±4.95	**0.237**
[2]p	**0.279**	**0.069**	
QoR-15			
Physical comfort	35.34±8.1	33.67±7.37	**0.241**
Pain	15.34±3.04	13.46±3.77	**0.004****
Physical independence	10.91±5.39	10.51±4.94	**0.674**
Psychological support	15.62±3.81	16.66±3.04	**0.101**
Emotional status	35.15±5.2	34.22±5.43	**0.346**
QoR Total	112.36±16.52	108.52±15.26	**0.190**

[1]Student test [2]Paired Samples t test **p<0.01

No statistically significant correlation was found between QnR and preoperative and postoperative anxiety (p>0.05) (Table IV).

Table IV. Correlation between preoperative and postoperative anxiety and QoR-15

STAI	QoR-15	p value	n
	Pearson correlation		
Preop STAI	,104	,260	120
Postop STAI	,129	,162	120

DISCUSSION

It is important to determine the degree and causes of anxiety and the factors affecting the postoperative quality of life in pregnant women who are scheduled for elective cesarean delivery. Because, unlike other surgeries, besides the physiological, anatomic and psychological changes related to pregnancy, the condition of the mother after the operation and the presence of the newborn affect the postoperative quality of life (8).

The degree of preoperative and postoperative anxiety also affects postoperative recovery (9). The most commonly used scale in medicine to determine the level and causes of anxiety is STAI. This scale was developed by Spielberger et al. in 1964 (10). In our study, we used the STAI scale to determine the level of preoperative and postoperative anxiety.

The relationship between anxiety and age is contradictory in studies. Demir et al. did not find a significant relationship between anxiety score and age in their study (11). In our study, no significant relationship was found between age and preoperative STAI. However, Shafer et al. determined that the anxiety level was lower in older ages (12). In our study, the postoperative anxiety level of 31-35 years old was higher than the patients over 35 years old. The high rate of anxiety in this age group was attributed to the higher number of previous pregnancies compared to other groups, hence increased responsibilities to their families (13).

In their study, Domar et al. observed that anxiety increased with increasing education level, but this finding was not statistically significant (14). In our study, 89% of the cases were university graduates and there was no significant relationship between education level and anxiety.

There are few studies that determine the correlation between anesthesia type and preoperative anxiety levels. In the study conducted by Erdem et al. on patients undergoing general anesthesia and regional anesthesia, no statistically significant difference was found between groups in mean scores of STAI (15). When the STAI scores of our study were examined, no significant difference was detected, similar to the results of the study conducted by Erdem et al.

Postoperative recovery is a process with multiple dimensions that may differ depending on the patient's and physician's perspective. While aiming to shorten the length of hospital stay; assessment tools have been developed to optimize the physical, nociceptive, emotional, and cognitive states of patients (16). These tools have been shown to be sensitive in determining clinically important differences in postpartum obstetric surgery patients (17).

Myles et al. developed the QoR-40 questionnaire, which evaluates the recovery quality, consists of 40 questions including 7 questions related to psychological support, 5 related to physical independence, 7 related to pain, 12 related to physical comfort, and 9 related to emotional state (18).

Stark et al. introduced the QoR15, the short form of QoR-40, in their studies (19). This scale is a 15-question postoperative QoR scale that includes 2 items related to psychological support, 2 items related to physical independence, 2 items related to pain, 5 items related to physical comfort, and 4 items related to emotional state. In their study, they found out that most patients were able to complete the questionnaire in less than 3 minutes. Hence, we used the QoR-15 in our study scale because it took less time and was equally effective.

Ciechanowicz et al. did not find a significant relationship between maternal age and postoperative healing quality in their study, which they evaluated postpartum cesarean patients with modified QoR-11 (20). In our study, physical comfort, emotional status and total QoR-15 scores were found to be higher in the age group of 31-35 compared to the age group of 30 and below. It is reasonable to attribute this difference to the fact that patients between the ages of 31-35 are more likely to be multiparous (50%) than those aged 30 and under (8%) and probably be more experienced in newborn care.

Açıkel et al. reported the QoR-40 score to be higher in patients with regional anesthesia in their study on cesarean section (21).

In our study, no significant relationship was found between anesthesia groups and QoR-15 score. We have linked this to the reason that patient-controlled analgesia was applied to both groups and to the low pain scores as a result of frequent pain visits.

Another study did not find a relationship between QnR-40 and education level in their studies determining the factors affecting the postoperative QoR-40 level. Similar results were obtained in our study (22).

In a study conducted in the United Kingdom, anxiety and recovery scores were evaluated and it was shown that anxiety levels were high in preoperative women and decreased significantly in the postoperative period (23). In the same study, it was concluded that preoperative anxiety had no effect on recovery scores, but postoperative anxiety levels were correlated with recovery scores. In our study, no relationship was found between preoperative and postoperative anxiety levels and recovery scores. We attributed this to the fact that our study was conducted on pregnant women and that the stress before and after surgery was well managed in the postoperative period thanks to successful pain control and the presence of a newborn.

A limitation of this study is that all interviews with participants were conducted in a single hospital. Therefore, surgical conditions, anesthesia preoperative and postoperative management and analgesic appeared to be homogeneous formal women enrolled in this study, which may have contributed to the good results of study. Further evaluation and validation are required in hospitals that serve patients with different characteristics. In addition, QoR15 do not include items such as neonatal care.

CONCLUSION

Our study revealed that preoperative and postoperative anxiety had no effect on postoperative recovery score in pregnant women who had undergone elective cesarean section. In the 31-35 age group, we attributed the high levels of postoperative anxiety to high second birth rates, hence increased responsibilities to their families. However, it was concluded that this anxiety did not affect the postoperative quality of life, probably because of previously obtained neonatal care experience.

Ethics Committee Approval:
This research complies with all the relevant national regulations, institutional policies and is in accordance the tenets of the Helsinki Declaration, and has been approved by the İstanbul Yeditepe University Ethical Committee (approval number: 2017/757).

Informed Consent:
All the participants' rights were protected and written informed consents were obtained before the procedures according to the Helsinki Declaration.

Author Contributions:
Concept – M.Y; Design – M.Y., ; Supervision – Ö.K; Resources – M.Y, M.Y., B.N.A.H; Materials – M.Y; Data Collection and/or Processing – M.Y, M.Y.; Analysis and/or Interpretation – B.N.A.H Literature Search – M.Y Writing Manuscript – M.Y. Critical Review - Ö.K.

Conflict of Interest:
The authors have no conflict of interest to declare.

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