



Does Anxiety Affect the Anesthesia Type Chosen by Cesarean Section Patients?

Anksiyete Sezaryen Hastaları Tarafından Seçilen Anestezi Tipini Etkiler mi?

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Abstract

Aim: The maternal anxiety associated with cesarean delivery is an important issue. We aimed to assess whether the preoperative anxiety level of obstetric patients undergoing an elective cesarean section has an effect on their decision regarding the choice of anesthesia.

Material and Method: This study included 138 patients who were scheduled for elective cesarean section. The anesthesia type was chosen by patients. Patients were divided into two groups according to their choice: general anesthesia group (n=63) and spinal anesthesia group (n=75). Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI) and Pain Catastrophizing Scale (PCS) questionnaires were completed to measure participants' psychological state. Patients were then assessed preoperatively, and demographic information was recorded.

Results: The BAI and PCS scores were significantly higher in the general anesthesia group according to the spinal anesthesia group ($p<0.05$). There was no difference between the two groups according to BDI ($p>0.05$).

Conclusion: Anxiety score was found high in patients who preferred general anesthesia. In these patients, anxiety-related measures (preoperative and postoperative period) should be taken.

Keywords: Anxiety, anesthesia, spinal, general, cesarean section

Öz

Amaç: Sezaryen doğum ile ilişkili maternal anksiyete önemli bir konudur. Elektif sezaryen hastaların preoperatif anksiyete düzeylerinin anestezi seçimine ilişkin kararlarını etkileyip etkilemediğini değerlendirmeyi amaçladık.

Gereç ve Yöntem: Bu çalışmaya elektif sezaryen planlanan 138 hasta alındı. Anestezi şekli hastalar tarafından seçildi. Hastalar seçimlerine göre iki gruba ayrıldı: genel anestezi grubu (n=63) ve spinal anestezi grubu (n=75). Katılımcıların psikolojik durumunu ölçmek için Beck Anksiyete Envanteri (BAI), Beck Depresyon Envanteri (BDI) ve Ağrı Felaket Ölçeği (PCS) anketleri dolduruldu. Hastalar preoperatif olarak değerlendirildi ve demografik bilgiler kaydedildi.

Bulgular: Genel anestezi grubunda BAI ve PCS skorları spinal anestezi grubuna göre anlamlı olarak yüksekti ($p<0,05$). BDI'ya göre gruplar arasında fark yoktu ($p>0,05$).

Sonuç: Genel anestezi tercih eden hastalarda anksiyete skoru yüksek bulundu. Bu hastalarda anksiyete ile ilgili önlemler (preoperatif ve postoperatif dönem) alınmalıdır.

Anahtar Kelimeler: Anksiyete, anestezi, spinal, genel, sezaryen



INTRODUCTION

Cesarean section is a common surgical procedure on obstetric patients and it has been increasing throughout the world. In cesarean section, although general anesthesia has many advantages, such as better hemodynamic stability and faster induction, it also has complications, such as maternal intubation failure and neonatal depression due to anaesthetic drugs. 1 Therefore, general anesthesia is preferred in cases where emergency cesarean sections and regional anesthesia are contraindicated. Regional anesthesia compared to general anesthesia has advantages such as not requiring tracheal intubation, decreased risk of aspiration, less analgesic requirement and being awake. 2

Anxiety is a subjective emotion characterized by apprehension and fear of pain. The extent and type of surgery and preoperative information are potential factors affecting perioperative anxiety. Literature has reported a higher level of preoperative anxiety in obstetric patients compared to other surgical procedures. 3

Today, the choice of anesthesia depends on the experience of the anesthetist, the obstetric causes and the wishes of the patient. The rate of general anesthesia in patients who underwent caesarean section is 46% and patient's preference is the commonest reason for choosing general anesthesia. 4 In the case of elective cesarean section patients who do not have medical necessity, we wanted to investigate whether anxiety is influential on the anesthesia preference of patients who will undergo elective cesarean section.

MATERIAL AND METHOD

After study approval was obtained from the Gaziosmanpasa University Clinical Research Ethics Committee (17-KAEK-076), the study was registered at www.clinicaltrials.gov (NCT03213262). This study included 138 consecutive patients, who were scheduled for elective cesarean section between July 2017 and September 2017. The study was conducted in accordance with the Declaration of Helsinki. Pregnant women aged 18 to 40 years, scheduled for elective cesarean surgery and with American Society of Anesthesiologists physical status II (ASA II) were included in this prospective study. Exclusion criteria were non-elective surgery, psychiatric (baseline anxiety and depression) or neurologic disorder, obstetric complications including antepartum haemorrhage, contraindication for spinal anesthesia or general anesthesia. Written informed consent was obtained from all patients. The anesthesia type was chosen by patients. Patients were divided into two groups according to their choice: general anesthesia group (n=63) and spinal anesthesia group (n=75).

There are different methods for evaluating preoperative anxiety and depression, and we used Beck Anxiety Inventory (BAI) and Beck Depression Inventory (BDI) questionnaires in

this study. BAI and BDI are rated on a 4-point scale ranging from 0 to 3, and the total scores range from 0 to 63. BAI score is interpreted to indicate minimal or no anxiety (range 0–9), mild anxiety (10–18), moderate anxiety (19–29) and severe anxiety (30–63). BAI was developed as a measure for dividing between anxiety and depression. 5 Ulusoy et al. validated the Turkish version of this questionnaire. 6 It is used to obtain an assessment of anxiety independent of depression. 7 BDI developed by Beck et al., is a 21-item self-reporting questionnaire for evaluating the severity of depression of an individual. 8 The BDI score is classified into minimal depression (range 0–13), mild depression (14–19), moderate depression (20–28) and severe depression (29–63). 9 The questionnaire used in this study was validated previously by Hisli. 10 The Pain Catastrophizing Scale (PCS), created by Sullivan et al., is used to measure the degree of individual pain catastrophizing and consisting of three subgroups (helplessness, magnification, and rumination). 11 Suren et al. validated the Turkish version of questionnaire. 12 We used these three questionnaires to assess the relationship between anxiety and anaesthesia preference.

An anaesthesiologist visited the patients one night before the surgery, gave information with written (standardized text explaining advantages/disadvantages of general versus regional anaesthesia) and verbal expressions about anaesthesia, and then asked to complete questionnaires including BAI, BDI and PCS. After being informed, patient's anaesthesia preferences were recorded in the surgical room at the operation day. This study was conducted by two experienced anaesthesiologists.

The demographic information of both groups was recorded first. The anxiety levels of the general anaesthesia and spinal anaesthesia groups were evaluated with BAI, BDIs and PCSs in the preoperative period.

Statistical analysis

A total of 138 participants was required to find a significant difference after calculating the sample size using the formula ' $n=t^2.p.q/d^2$ ', where t was 1.96 with a degree of freedom of 0.05. p was accepted as an estimated value of 10%, in which anxiety affected the anaesthesia type; q was accepted as an estimated value of 90%, in which anxiety did not affect the anaesthesia type. d , the type 1 error, was accepted as 0.05.

Descriptive data were presented as mean (\pm SD) for the continuous variables, median (range) for the ordinal variables, and numbers (frequencies) for the categorical variables. The one-sample Kolmogorov-Smirnov test was used to assess the normality of the distribution. Independent samples t -tests were used to compare data among groups. All statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) software version 20.0 (SPSS Inc., Chicago, IL, USA). p -value less than 0.05 was considered statistically significant.

RESULTS

A total of 138 participants undergoing cesarean section were evaluated in this study: 63 with general anesthesia and 75 with spinal anesthesia. The socio demographic characteristics of the respondents are shown in **Table 1**. The mean age of participants with general anesthesia was 29.88 ± 4.76 , while the mean age for participants with spinal anaesthesia was 30.17 ± 5.22 ($p=0.73$). When the education levels, pregnancy weeks, previous surgery, number of pregnancies of the groups were examined, no statistical difference was found between the groups ($p>0.05$).

Table 1. Preoperative anxiety in patients selecting either general or spinal anesthesia for elective cesarean section

	General anesthesia	Spinal anesthesia	p
Age	29.88±4.76	30.17±5.22	0.73
Pregnancy weeks	37.12±1.30	37.26±0.97	0.45
Previous surgery			
Obstetric	43	42	0.51
Non-obstetric	3	8	0.61
None	17	25	0.59
Number of pregnancies	3.2±2.1	4.1±1.9	0.27
Education of level			
Matric and below matric	8	11	0.49
Intermediate	27	28	0.40
Graduate	28	36	0.42

BAI, BDI and PCS results according to different anesthesia types were presented in **Figure 1,2,3**. The mean BAI value was found to be 18.12 ± 10.41 in patients preferring to undergo general anesthesia and 13.92 ± 9.05 in patients preferring to undergo spinal anesthesia ($p=0.013$)(**Figure 1**). The mean BDI value was found to be 10.17 ± 6.67 in the general anesthesia group and 8.74 ± 8.00 in the spinal anesthesia group ($p=0.255$)(**Figure 2**). The mean PCS values of the groups were 23.58 ± 12.93 in the general anesthesia group and 19.25 ± 11.19 in the spinal anesthesia group ($p=0.039$)(**Figure 3**).

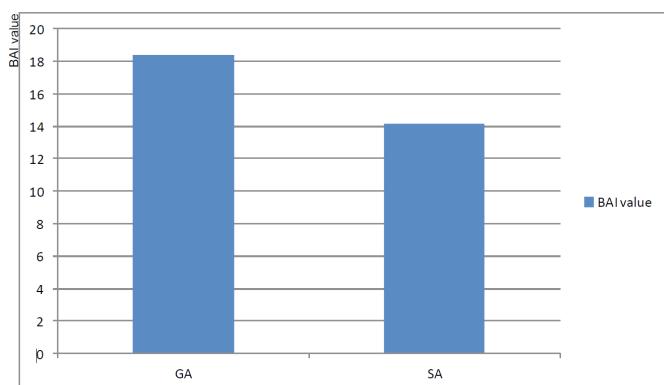


Figure 1. Mean BAI values of the groups
GA, general anesthesia; SA, spinal anesthesia; BAI, Beck Anxiety Inventory. Independent samples t test. $p=0.013$.

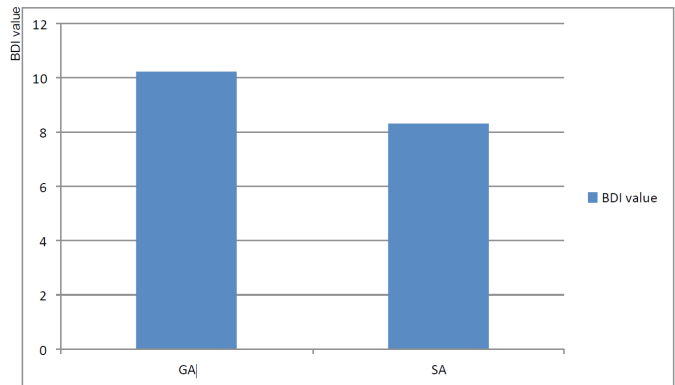


Figure 2. Mean BDI values of the groups
GA, general anesthesia; SA, spinal anesthesia; BDI, Beck Depression Inventory. Independent samples t test. $p=0.255$

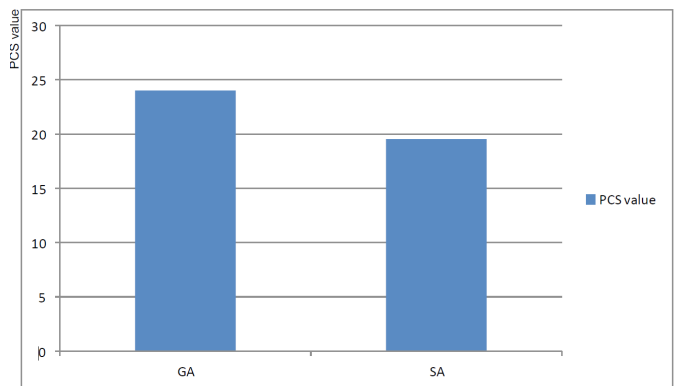


Figure 3. Mean PCS values of the groups
GA, general anesthesia; SA, spinal anesthesia; PCS, Pain Catastrophizing Scale. Independent samples t test. $p=0.039$

DISCUSSION

In this study, we determined that anxiety is influential in general anesthesia preference, demonstrated by the level of preoperative maternal anxiety in patients undergoing elective cesarean section and its significant association with the chosen anesthesia.

Anxiety present in patients in the preoperative period is due to many causes. Personality traits or surgical and anesthetic concerns may induce anxiety. Studies that investigated anxiety levels in the preoperative period found that the incidence of preoperative anxiety ranges from 60% to 80%.¹³

Surgery is a stressful process, even for people without anxiety disorders, as patients are confronted with the possibility of pain, loss of power or death.¹⁴ Although there are studies to measure the preoperative anxiety level and to elucidate its causes¹⁵, there are very few studies investigating the level of preoperative anxiety regarding general and spinal anesthesia. In the study conducted by Akyildiz et al., the level of anxiety was higher in patients who underwent spinal anesthesia.¹⁶ In this study, no meaningful reason was explained to explain the difference between the groups. However, a study performed by Maheshwari et al. showed that patients who preferred general anesthesia rather than regional anesthesia had higher anxiety level. This study demonstrated that the rate of anxiety was

found 61.60% and 38.40% in general and regional anesthesia, respectively. 17 This difference was associated with informing patients in the GA group by non-anesthesiologists. The BAI level of patients who chose general anesthesia was higher than the ones who chose spinal anesthesia in our study.

The BDI can be attributed to the medical illness (e.g. difficulties with concentration and fatigue).¹⁸ In this study, there was no difference between the general and spinal anaesthesia groups when they were evaluated according to BDI, and the BDI values of the two groups were interpreted as minimal range.

Investigation of the relation between anxiety, pain of fear of pain is very complex. A study performed by Martin et al. found that anxiety sensitivity is the only major predictor of fear of pain after the exception of sex and age. ¹⁹ Furthermore, pain catastrophizing, a negative mental state emerging during an actual or anticipated painful experience, is one of the psychological predictors of pain. ²⁰ Pain catastrophizing contains fear of pain, pain helplessness and negative thoughts such as depression, anxiety and worry. Higher values show greater catastrophizing. ²¹ As mentioned previously, fear of pain correlates with anxiety which closely associated with pain catastrophizing. In our study, the PCS score was found higher in patients received general anesthesia compared to spinal anesthesia. This outcome confirmed the higher anxiety levels in patients with general anesthesia.

Surgery and anesthesia may provoke more fear and worry in women with pregnancy whose planned to undergo cesarean section. The most common reason for choosing general anesthesia is fear of being awake during spinal anesthesia. ²² A study conducted in pregnant women undergoing cesarean section in Nigeria found that reasons for refusal of regional anesthesia included fear of seeing or hearing during surgery and fear of needle placement. ²³ In the same study conducted by Bukar et al., caesarean section patients mostly preferred general anesthesia, and fear of being awake, anxiety, wants to be asleep, do not want to feel pain, fear of nightmares and do not even want to see the theatre were the most common reasons. In the similar study, patients that want to know what is going on and fear of not waking up from general anesthesia were shown as some reasons for preference of regional anesthesia. ²⁴ In this context, women with pregnancy would prefer general anesthesia to avoid their fear and worry about surgery and anesthesia, however the choice of regional anesthesia is associated with their curiosity. In relation, the higher anxiety and pain catastrophizing levels in women with pregnancy underwent general anesthesia suggested the same conclusion as indicated by Bukar et al. that fear and worry could be the trigger point for this outcome.

Limitations of the study

This study has some limitations. First, the general anxiety and depression scores of the patients were examined, however predisposing factors for anxiety were not evaluated. Second, the population of the study was selected from a local area which restricts the generalizability of the study outcomes.

CONCLUSION

This study revealed that the anxiety level is higher in patients who prefer general anesthesia or anxiety is one of the reasons for refusing regional anesthesia. This can be especially considered in the follow-up of patients preferring general anesthesia. Preoperative visual and written information may help assist in the fight against anxiety and in making regarding their choice of anesthesia technique.

ETHICAL DECLARATIONS

Ethics Committee Approval: After study approval was obtained from the Gaziosmanpasa University Clinical Research Ethics Committee (17-KAEK-076), the study was registered at www.clinicaltrials.gov (NCT03213262).

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

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

Financial Disclosure: The authors declared that this study has received no financial support.

Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

Note: This article was presented in the International Hippocrates Congress on Medical and Health Sciences, Turkey on 1-3 March 2019 as oral presentation.

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