

The relationship between anxiety and satisfaction level in women who had cesarean section with spinal or general anesthesia

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Abstract

Objective: Although regional anesthesia is frequently used in cesarean section, patient satisfaction and comfort can change with the anesthesia method preference. Our aim is to determine the level of anesthesia satisfaction in women with cesarean surgery with Spinal (SA) and General anesthesia (GA) and to examine its relationship with anxiety level.

Material and Methods: In this prospective observational cohort study, 144 pregnant women who were admitted to the Obstetrics and Gynecology Clinic between January 2019 and April 2019 were included. Demographic information of the pregnant women including age, height, weight, gestational history and education level were recorded. Hospital Anxiety and Depression Scale (HADS), preoperative anxiety levels and which anesthesia method they preferred were questioned and recorded.

Results: 72 SA and 72 GA patients were included in the study. Age, BMI (Body mass index), obstetric history, preoperative HADS were similar in both groups ($p > 0.05$). Patients with SA were significantly higher satisfaction level than those who had cesarean with GA ($p = 0.000$). Anxiety level during cesarean was correlated positively with preoperative HADS ($p = 0.001$, $p = 0.005$, respectively). First analgesia requirement didn't differ in both group ($p = 0.409$).

Conclusion: The satisfaction score founded higher in those who were cesarean with SA. Evaluating anxiety levels of patients and providing support before surgery will increase postoperative comfort.

Key words: Anesthesia, Anxiety, Cesarean, Satisfaction, Spinal

Introduction

Caesarean is the most common obstetric operation in the world. During the procedure, the health and satisfaction of the mother and baby and pain management in the postoperative period show a close relationship with the selected anesthesia technique. The choice of anesthesia for any cesarean section varies depending on many factors about urgency of the surgery and the desire of the anesthesiologist, surgeon and the patient (1). Anesthesiologists should always choose the method that is the safest and most comfortable for the mother, the least depressant for the newborn and the most suitable working conditions for the obstetrician. For this reason, American Association of Anesthesiologists prioritizes regional anesthesia instead of general anesthesia (2).

Spinal anesthesia (SA) is the most used type of regional anesthesia during cesarean.

Faster, bilateral, small doses of drug compared to epidural anesthesia are minimally risky for maternal toxicity and fetal drug transfer is almost non-existent. Epidural anesthesia is less preferred due to its slower onset and lack of numbness at sacral levels, higher doses of medication, and prolonged exposure to fetal medication. Besides, regional anesthesia has been shown to result in cardiovascular collapse or seizures, especially in patients with anxiety (3). General anesthesia (GA) is not preferred in the first place due to the drug transfer to the fetus, relaxation and bleeding in the uterus, and changes in drug distribution due to physiological changes in pregnancy and an increase in cardiac output. Despite this, patient may prefer general anesthesia instead of regional anesthesia due to complications occurring during or after anesthesia, as well as conditions such as discomfort from the procedure, position and neuroaxial block, need for urgent operation, and high anxiety level.

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In this case, the anesthesiologist should determine the anesthesia method by taking into account every condition (1).

The level of anxiety among pregnant women is very variable between 11-80% (4,5). Previous studies indicated that surgery has negative effects on pregnant women, and also preoperative anxiety has been shown to have a negative effect on anesthesia, surgery, postoperative recovery and perception of pain (6,7).

A good anesthetic technician should ensure maternal comfort, fetal and newborn well-being and postoperative pain management (8). Although regional anesthesia has been increased in the cesarean operation in recent years, patient satisfaction and comfort differ in studies (9,10).

However patient satisfaction is a subjective criterion, it is the only one method that can be feedback from the patient for health services. Our aim in this study is to determine the level of anesthesia satisfaction in patients with cesarean surgery with SA and GA and to examine the relationship of patients with anxiety level.

Material and Methods

Setting and Study Population

For this prospective observational cohort study, 186 pregnant women who applied to our Hospital's Obstetrics and Gynecology Clinic between January 2019 and April 2019 for elective cesarian section were included in the study.

Inclusion criteria: women aged 18-40, who completed 37 weeks, elective cesarean and planned to participate in the study. Among the exclusion criteria; having a psychological disease, having emergency access to cesarean, presence of chronic disease (hypertension, diabetes, rheumatological disease), gestational hypertension, preeclampsia, eclampsia, gestational diabetes, having previously had abdominal operation, morbid obesity (Body mass index (BMI) ≥ 40 kg / m²) and not request to participate in the study.

Demographic information of the pregnant women including age, height, weight, gestational history and education level were recorded. The BMI was computed as weight in kilograms divided by the height squared (m²). In the last control before cesarean day, Hospital Anxiety and Depression Scale (HADS) was applied to the patients. HADS consisted of 14 questions. The first 7 questions were about anxiety, the next 7 were about depression. Each question was scored between 0-3, over 10 values were considered significant for anxiety and values over 7 were considered significant for depression (5).

Secondly, preoperative anxiety levels were questioned. For the level of anxiety, they were asked to give a number between 0-10 and noted. Afterwards, which anesthesia method they preferred was asked.

Rapid sequence induction with ropivacaine and fentanyl for spinal anesthesia, thiopental and succinylcholine for general anesthesia followed by inhalation of sevoflurane

and nitrogen oxide and oxygen in the anesthesia department.

Postoperative analgesia, nonsteroidal anti-inflammatory (NSAI) and / or paracetamol were preferred. At the postoperative 24th hour, the degree of satisfaction from anesthesia and the time of first analgesia were questioned. Four parameters were determined as bad, moderate, good and very good for the levels of satisfaction with anesthesia. Finally, a total of 144 patients with 72 spinal anesthesia, 72 general anesthesia were included in the study.

Ethics statements

Approval of Karabuk University Clinical Researches Ethics Committee (approval date: 04.01.19, decision no: 2019-14/4) was obtained prior to the study. All patients were informed about the study objectives in details and gave verbal and written consent. The study was conducted in accordance with the Declaration of Helsinki.

Statistical analysis

Data obtained in the study were statistically analyzed using SPSS 23.0 (Statistical Package for Social Sciences, SPSS Inc., Chicago, IL, USA) package software. Kolmogorow-Smirnov test was used to determine whether the data were suitable for normal distribution.

Student's t-test was employed to compare normally distributed data, and the Mann-Whitney U-test was used for data that were not distributed normally. The Chi-square test was used to determine for categorical variables. Pearson correlation analysis was used to determine the relationship between HADS score and anxiety. $P < 0.05$ values were considered as statistically significant.

Results

186 elective cesarean patients were evaluated during the study period. 42 patients were excluded from the study because of didn't meet the inclusion criteria or were removed from follow-up. Finally, a total of 144 patients who were cesarean with 72 spinal anesthesia and 72 general anesthesia were included in the study.

The average age of the study group was 31.54 ± 4.92 . Most of them (82.4%) were housewife and secondary school education (70.42%). Age, BMI, obstetric history, HADS levels of patients who were cesarean with SA and GA were similar in both groups ($p > 0.05$) (Table 1).

Preoperative anxiety level and first analgesia requirement were similar in both groups ($p=0.37$, $p=0.409$). Satisfaction level in cesarean patients with SA was significantly higher than those with GA group ($p = 0.000$) (Table 2, Table 3). According to the correlation analysis, the level of anxiety during cesarean was positively correlated with the level of HADS ($p = 0.001$, $p = 0.005$) (Table 4).

Table 1. Demographic data and Hospital Anxiety and Depression Scale of patients with cesarean section with spinal and general anesthesia

	Spinal anesthesia (n=72)	General anesthesia (n=72)	P values
Age (years)	31.72± 4.51	31.37±5.17	0.66
BMI (kg/m ²)	28.64±3.99	28.74±4.10	0.88
Gravida (n)	2.81±1.05	2.64±0.91	0.28
Parity (n)	1.40±0.64	1.40±0.63	0.75
Live birth (n)	1.35±0.59	1.34±0.60	0.86
Abort (n)	0.4±0.85	0.27±0.60	0.29
Anxiety level (HADS-A)	5.2±2.27	5.34±2.4	0.79
Depression level (HADS-D)	5.45±2.42	5.77±2.46	0.43

BMI: Body mass index, HADS: Hospital Anxiety and Depression Scale, Mean and standart deviation, p<0.05 significant.

Table 2. Relationship between anxiety, satisfaction level, and first analgesia demand in patients with spinal and general anesthesia group

	Spinal anesthesia (n=72)	Genel anesthesia (n=72)	P values
Preoperatif anxiety level	5.31±2.21	5.65±2.37	0.37
Satisfaction level	2.56±0.69	1.92±0.78	0.000
First analgesia requirement (minutes)	90.07±49.50	83.02±50.6	0.409

Mean and standart deviation, p<0.05 significant

Table 3. Satisfaction levels in spinal and general anesthesia group

	Spinal anesthesia (n=72)	General anesthesia (n=72)	P values
Satisfaction level	(n,%)	(n,%)	
0	1 (% 1.4)	4 (% 5.3)	0.000
1	3 (% 4.3)	14 (% 18.7)	
2	23 (% 33.3)	41 (% 57.7)	
3	40 (% 58)	16 (% 21.3)	
4	2 (% 2.9)	0 (% 0)	

p<0.05 significant.

Table 4. Preoperative anxiety and first analgesia requirement relation of the study population with Hospital State Anxiety Score

	Preoperatif Anxiety level	First analgesia requirement
Anxiety level (HADS-A)	R:0.262 P:0.001	R:-0.74 P:0.389
Depression level (HADS-D)	R:0.235 P:0.005	R:-0.061 P:0.474

HADS: Hospital Anxiety and Depression Scale, Pearson correlation analysis, p<0.05 significant.

Discussion

In this study, we found that the level of satisfaction in patients who were cesarean with SA was significantly higher than GA. We also found that the preoperative HADS correlated with the anxiety score during cesarean. However, we did not find any significant difference between the applied anesthesia techniques and the need for first analgesia requirement.

In previous studies, there is no definitive evidence about which method of anesthesia is more convenient. Two types of regional anesthesia, spinal and epidural, are often used in cesarean operation. The advantages are a being awake mother at birth, minimal risk of neonatal depression (11),

as well as less risk of deep vein thrombosis, pulmonary embolism, kidney failure, postoperative pneumonia and myocardial infarction. For these reasons, postoperative morbidity and mortality were observed lower than general anesthesia (12). Spinal anesthesia is the most preferred method in the regional anesthesia. This is the process of injecting some local anesthetic into the cerebrospinal fluid. It was reported that the need for postoperative analgesia, length of hospital stay, cardiac problems, and rates of venous thromboembolism was lower in SA than GA (13). However, in some studies, spinal anesthesia has been associated with postoperative back pain, dissatisfaction, and rejection (14).

On the other hand, known disadvantages of general anesthesia for cesarean section are difficult intubation due to pregnancy, delayed gastric emptying, possible awareness before surgery and a more depressed baby. However, general anesthesia is the fastest technique required in emergencies cesarean such as severe bleeding, uterine rupture, placental abruption, placenta previa, fetal distress, and cord prolapse. As a result, the anesthesia method to be selected during cesarean may vary depending on multiple factors including fetus, mother, obstetrician and anesthesiologist. The anesthetist should select suitable type of anesthesia for providing health and satisfaction of the mother and baby.

In our study, although the level of HADS was similar in the SA and GA groups, we found that the satisfaction rate in the spinal anesthesia group was significantly higher than the general anesthesia group. Satisfaction varies depending on the patients' expectations, physical, mental health and cultural position. The relationship between anesthesia technique and patient satisfaction differs in studies. Similar to our study, Siddiqi et al. found that the satisfaction was higher in SA than GA (9). Fassoulaki et al performed spinal and general anesthesia during the cesarean operation at different times in the same patients. Accordingly, spinal anesthesia was found to be associated with lower Visual analog scale (VAS) score, less hospital stay, and higher satisfaction score than general anesthesia (15). Dharmalingam et al. reported that spinal anesthesia satisfaction as 97%. The causes of dissatisfaction were insufficient anesthesia or spinal anesthesia failure and the rate of rejection for spinal anesthesia in the future was 8% (16). Kumar et al. reported that patients were more satisfied with SA regardless of anxiety (17). Belay et al. stated, in a cross-sectional study, the satisfaction of patients with SA was 62% and 82% of the patients declared that they would prefer SA again in the next cesarean. The patients who refused spinal anesthesia responded as fear of post-spinal headache, back pain, unconsciousness during operation, and infant voice. Belay founded that the full statement of the anesthetist about the procedure to be performed is very important for the patient's decision (18). In one study where they included women who had cesarean section under general anesthesia within 5 years and scheduled to have elective cesarean section under spinal anesthesia questioned the anesthesia satisfaction rates. They founded satisfaction was 68% in those who were cesarean with SA and 24.4% in those who were cesarean with GA. However, in this study, there was no difference between anesthesia techniques and anxiety level (19). On the contrary, according to a Cochrane review involving 29 studies in 2012, in terms of satisfaction with the anesthetic technique, more women who underwent general anesthesia compared to the group undergoing epidural and spinal anesthesia stated that they would use the same technique for CS in their next pregnancy. Also, in this review, there was no significant difference in the first and fifth minutes Apgar score of ≤ 5 and neonatal resuscitation with oxygen (10). Although there are differences between studies, it is seen that SA is higher satisfaction score than GA. Moreover, mothers experiences in their first cesarean also affect their other births. In a prospective study, 96% of patients who had cesarean with

regional anesthesia were shown to prefer regional anesthesia in their next cesarean section, 3% were unstable and 1% preferred general anesthesia (20). In contrast, in a retrospective study, only 20% of patients preferred general anesthesia and stated that the biggest reason for this was maternal desire (21).

In this study, it was observed that the anxiety level during surgery was high in patients with higher HADS. Similarly, in the previous studies, the level of anxiety before elective cesarean was quite high and they reported that this was related to unmet expectations (22). Jjala et al reported that being awake during cesarean was a stress factor in women, and haven't working the regional block or needle phobia was defined as the main reason for not selecting regional anesthesia (23). Maheshwari et al. founded high anxiety as 72% of patients with elective cesarean section. This difference was significant in those who were <25 years of age, working women, nulliparous, and those with previous anesthesia was GA. They explained the reason for fear of anxiety or surgery during pregnancy (24). The biggest anxiety factor seen in the studies was the fear that something would go wrong during birth (25), fear of birth (7) and cesarean, that is, the possibility of having surgery (26). There was no decrease in anxiety in the study, where video cesarean narration or information was provided by the healthcare worker to reduce the anxiety of pre-cesarean pregnant (19,27). But Kumar et al. showed that communicating during surgery or seeing the baby reduced the level of anxiety in patients (19). It is seen that women who experience anxiety during their pregnancy also have high stress during cesarean. This can change patients' anesthesia preferences and even affect postoperative comfort and indirect pain perception and breastfeeding status.

In this study, the first analgesia requirement was longer in patients with cesarean with SA than GA, but no significant difference was observed between them. Inal et al. found the severity of pain higher in the first 12 hours in patients with general anesthesia and higher preoperative anxiety score. However, there was no difference in terms of analgesic need in both groups (28). Gorkem et al. found that high anxiety score was an independent risk factor for post-cesarean painkiller use (29). In this study, preoperative anxiety scores were similar in both groups, so there was no difference in terms of pain relief needs. High preoperative anxiety may affect patients' anesthetic technical selection in relation to the level of intraoperative anxiety. Patients who are mostly afraid of surgery during cesarean are sometimes anxious about anesthesia technique. Often, this anxiety in patients is ignored. Anxiety level of preoperative pregnant is very closely related to satisfaction after surgery. Fear of feeling surgery is often to prevent the choice of spinal anesthesia. The expectations of the patients are also important in determining the anesthesia technique they will meet.

Limitations

The prospective planning and the randomization between the groups are strengths in this study. But it was conducted in a single center and included a relatively small number of

patients. In addition, it evaluates the satisfaction levels of patients from spinal and general anesthesia in the short term. With long-term prospective studies, patient satisfaction and preferences can be revealed more clearly.

Conclusion

In this study, the satisfaction level was significantly higher in patients with cesarean with spinal anesthesia compared to general anesthesia. Preoperative anxiety affected the anesthesia selection of the patients. Providing counseling about the procedure and the process before cesarean section will decrease the anxiety during and after the surgery and choosing a personal anesthesia will increase the comfort and satisfaction of the patients.

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