

Preoperative anxiety in patients selecting either general or regional anesthesia for elective cesarean section

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Abstract

Background and Aims: We aimed to measure the frequency of preoperative anxiety in patients undergoing elective cesarean section (CS) and its impact on patients decision regarding the choice of anesthesia.

Material and Methods: This cross-sectional study included 154 consecutive patients, who were scheduled for elective CS. Visual analog scale (VAS) for anxiety was the study tool, and VAS ≥ 50 was considered as significant anxiety. Enrolled patients were interviewed by the primary investigator the day before the surgery and their VAS score and choice of anesthesia technique either general anesthesia (GA) or regional anesthesia (RA) were recorded. Additional data included demographics, parity, educational status, previous anesthesia experience and source of information.

Results: Preoperative anxiety (VAS ≥ 50) was seen in 72.7% of patients, which was significantly higher ($P < 0.005$) in patients selecting GA (97.18%, $n = 71/154$) as compared to those selecting RA (51.81%, $n = 83/154$) for elective CS. Statistically significant association of anxiety ($P < 0.005$) was seen with age < 25 years, nulli and primiparous, higher education status, previous anesthesia experience and source of information from nonanesthetist.

Conclusion: Patients scheduled for elective CS were found to have high frequency of anxiety (72.7%), and GA was observed to be the choice of anesthesia technique in anxious patients.

Key words: Anxiety, cesarean section, general anesthesia, regional anesthesia

Introduction

Patients scheduled for surgery experience varying levels of anxiety, due to factors like, cultural diversity, type of surgery, previous anesthesia experience, and preoperative information.^[1,2] Previous studies have reported anxiety of being awake during surgery as one of the most common reasons for choosing general anesthesia (GA),^[3,4] but whether higher level of preoperative anxiety influences patient's decision to refuse regional anesthesia (RA) needs to be determined.

Literature has reported a higher level of preoperative anxiety in

obstetric patients compared to general surgical population.^[5,6] Cesarean section (CS) is one of the most common surgical procedures performed on obstetric patients, and RA is the preferred technique of anesthesia in terms of risk and benefits for both mother and fetus. In modern obstetric anesthesia practice, percentage use of RA for CS has become a marker of quality.^[7] Unfortunately, in our setup there is still a high rate (46%) of GA in patients undergoing CS and patient's preference is found to be the commonest reason for choosing GA.^[8] Therefore, the hypothesis of this study is based on the presumption that a high preoperative anxiety level among parturient scheduled for CS can affect their decisions to prefer GA as the choice of anesthesia technique.

It is essential to determine if anxiety influences the choice of anesthesia among women, in order to take measures to reduce the level of anxiety. This will allow parturients to make a rational decision regarding the choice of anesthesia.^[7]

The primary objective of the study was to determine the frequency of anxiety in patients selecting GA or RA for CS. The secondary objective was to determine the factors associated with anxiety in patients selecting either GA or RA.

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Material and Methods

After approval from the hospital ethics committee, this cross-sectional study was conducted in obstetric wards from April 01, 2011 to May 31, 2011. Those included in the study were American Society of Anesthesiologists I and II female patients (age between 18 and 45 years) undergoing elective CS who were able to make their own decision for selecting GA or RA. The exclusion criteria included patients not willing to participate in the study, with known psychiatric illness, a history of taking any antianxiety or antidepressant medications, language barrier, having absolute or relative contraindication for either GA or RA, bad obstetric history, complicated pregnancy or having congenital fetal anomaly.

Primary investigator visited the patients one night before the surgery between 18:00 h and 22:00 h. The study participants were detailed about the purpose of the study and were familiarized with visual analog scale for anxiety (VAS scale). A written informed consent was taken prior to the study. Data collection proforma was comprised of two sections, the first section contained the demographic details of the participants and the other section was based on VAS for measuring anxiety by showing a 100 mm straight line, with a zero on the left side indicating no anxiety, and 100 on the right side indicating maximum anxiety. Participants were asked to mark the line below with a vertical stroke to show how anxious they felt at the moment. VAS ≥ 50 was taken as the presence of anxiety.^[9] Patients then were asked about their source of information regarding anesthesia techniques and their choice of anesthesia for scheduled CS.

It was based on the previous study in which anxiety among the obstetric population was reported in the range of 73.3-86%.^[3,9] A total of 154 pregnant women were needed to estimate the anticipated rate of anxiety of 73.3% within 7% level of precision with 95% confidence interval. All statistical analysis was performed using Statistical Packages for Social Science version 19 (SPSS Inc., Chicago, IL, USA). Mean and standard deviation were computed for age of the patients. Frequency and percentage were computed for age categories, educational level, occupation, source of information, parity, previous experience of anesthesia, type of anesthesia and anxiety score and analyzed by the Chi-square test. Logistic regression was also applied to compute odd ratio with 95% confidence interval for the association of factors leading to anxiety and choice of anesthesia of the patients and association between various factors and prevalence of anxiety. The $P \leq 0.05$ was considered as significant.

Results

During the study period, a total of 157 elective CS were scheduled in our obstetric unit. Out of them 154 patients were enrolled, who consented to be a part of the study and fulfilled the inclusion criteria. The characteristics of the patients' population in terms of age, education level, occupation, parity, previous anesthesia experience, source of information and choice of anesthesia are presented in Table 1. The majority of the study patients were housewives, with graduate level of education, having previous anesthesia experience and received information from an anesthetist. Overall rate of anxiety was observed in 72.7% (112/154) patients. Rate of anxiety was significantly high in patients of GA group as compared to RA group (97.2% [69/71] vs. 51.8% [43/83]; $P < 0.01$) as shown in Figure 1.

A statistically significant association with preoperative anxiety (VAS ≥ 50) was observed with factors like age < 25 years, working women, nulli and primiparous, no previous anesthesia experience, having previous anesthesia experience under

Table 1: Patient characteristics in terms of age, education, occupation, parity, previous exposure, source of information and choice of anesthesia

Characteristics	Frequency	Percentage
Age in years (n=154)		
≤25	33	21.42
26-30	65	42.20
31-40	56	36.36
Education level (n=154)		
Matric and below matric	7	4.5
Intermediate	47	30.5
Graduate	100	64.9
Occupation (n=154)		
Healthcare professional	6	3.9
Nonhealthcare professional	30	19.5
Housewife	118	76.6
Parity (n=154)		
Nulliparous	29	18.8
Primiparous	72	46.7
Multiparous	53	34.4
Type of anesthesia in last surgery (n=125)*		
General anesthesia	79	63.2
Regional anesthesia	46	36.8
Source of information (n=154)		
Anesthetist	89	57.8
Obstetrician	20	13.0
Family members	41	26.6
Brochure/internet	04	2.6
Choice of anesthesia (n=154)		
General anesthesia	71	46.1
Regional anesthesia	83	53.9

*29 cases were new with no previous exposure of anesthesia

GA and those having their source of information from nonanesthetists as presented in Table 2.

On further analysis, it was found that anxious patients had a statistically significant association ($P < 0.05$) with factors like nulli and primiparous, having previous anesthesia under GA and getting information from nonanesthetists [Table 3].

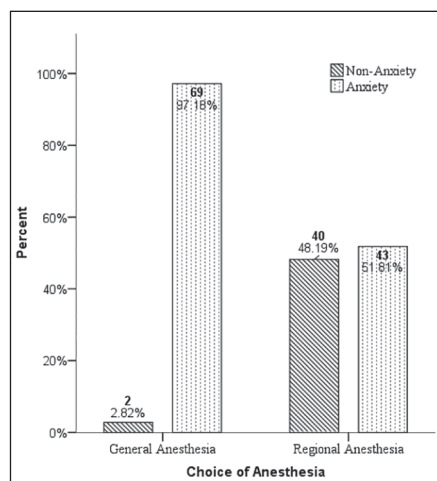


Figure 1: Comparison of incidence of anxiety between patients with general and regional anesthesia (97.18 vs. 51.81%; $P = 0.0005$; odds ratio = 32.09 95% confidence interval: 7.37-139.62)

Discussion

The study showed an overall high level of anxiety in patients scheduled for elective CS, as 72.2% of the patients had a VAS ≥ 50 , which is consistent with previous studies reporting high level of anxiety in obstetric patients.^[5,6] High levels of anxiety in CS patients can possibly be due to the fear of surgery, added to the anxiety of pregnancy. Holmes and Rahe in their social readjustment rating scale have ranked pregnancy 12 out of 43 “Life’s most stressful experiences,” while surgery (personal injury or illness) is ranked 6th place in this scale.^[10] Therefore, patients undergoing CS, belong to the susceptible group of patients having high level of preoperative anxiety.

This study has shown an association between preoperative anxiety and selection of GA, as high level of anxiety was found in patients selecting GA as compared to those opting for RA ($P < 0.05$). Previous studies have shown that patients who are unable to cope with the additional challenges of being awake during surgery request GA.^[3,11] In addition, fear of regional block not working and needle phobia are additional causes of anxiety preventing patients to choose RA.^[12] Consequently, preoperative anxiety due to multiple reasons can affect the patient’s choice of anesthesia.

Table 2: Association between various factors and prevalence of anxiety (n=154)

Factors	Anxious n = 112 (72.7%) (%)	Nonanxious n = 42 (27.2%) (%)	P	OR	95% CI
Age groups (years)					
≤25	28 (84.8)	5 (15.2)	0.04*	3.11	1.03-9.32
26-30	48 (73.8)	17 (26.2)	0.25	1.56	0.72-3.41
31-40	36 (61.3)	20 (35.7)		Reference	
Education level					
Matric and below matric	4 (57.1)	3 (42.9)	0.37	0.49	0.10-2.35
Intermediate	35 (74.5)	12 (25.5)	0.85	1.08	0.48-2.38
Graduate	73 (73)	27 (27)		Reference	
Occupation					
Working women	31 (86.1)	5 (13.9)	0.04*	2.83	1.02-7.86
Housewife	81 (68.6)	37 (31.4)		Reference	
Parity					
Nulli and primiparous	81 (80.2)	20 (19.8)	0.005*	2.87	1.38-5.98
Multiparous	31 (58.5)	22 (41.5)		Reference	
Previous surgery					
Obstetric	79 (67.5)	38 (32.5)		Reference	
Nonobstetric	6 (75)	2 (25)	0.66	1.44	0.27-7.48
None	27 (93.1)	2 (6.9)	0.01*	6.49	1.46-28.74
Type of anesthesia in last surgery					
Regional anesthesia	22 (47.8)	24 (52.2)		Reference	
General anesthesia	63 (79.7)	16 (20.3)	<0.01*	4.29	1.93-9.53
No previous surgery	27 (93.1)	2 (6.9)	<0.01*	14.72	3.13-69.28
Source of information					
Anesthetist	54 (60.7)	35 (39.3)		Reference	
Nonanesthetist	58 (89.2)	7 (10.8)	0.0005*	0.18	0.07-0.45

Data are presented as n (%), Row-wise percentages were computed. OR = Odds ratio; CI = Confidence interval

Table 3: Association of factors with choice of anesthesia in anxious patients (n = 112)

Factors	General anesthesia (n = 69) (%)	Regional anesthesia (n = 43) (%)	P	OR	95% CI
Age groups (years)					
≤25	16 (57.1)	12 (42.9)	0.31	0.59	0.21-1.64
26-30	28 (58.3)	20 (41.7)	0.29	0.61	0.24-1.53
31-40	25 (69.4)	11 (30.6)		Reference	
Education level					
Matric and below matric	2 (50)	2 (50)	0.52	0.52	0.07-3.92
Intermediate	19 (54.3)	16 (45.7)	0.61	0.62	0.27-1.41
Graduate	48 (65.8)	25 (34.2)		Reference	
Occupation					
Working women	53 (65.4)	28 (34.6)	0.18	0.56	0.24-1.31
Housewife	16 (51.6)	15 (48.4)		Reference	
Parity					
Nulliparous	12 (42.9)	16 (57.1)	0.02*	0.26	0.09-0.78
Primiparous	34 (64.2)	19 (35.8)	0.34	0.62	0.23-1.66
Multiparous	23 (74.2)	08 (25.8)		Reference	
Previous surgery					
Obstetric	54 (68.4)	25 (31.6)		Reference	
Nonobstetric	2 (33.3)	4 (66.7)	0.10	0.23	0.04-1.35
None	13 (48.1)	14 (51.9)	0.06	0.43	0.18-1.05
Type of anesthesia in last surgery					
Regional anesthesia	7 (31.8)	15 (68.2)		Reference	
General anesthesia	49 (77.8)	14 (22.2)	<0.01*	7.5	2.6-21.9
No previous surgery	13 (48.1)	14 (51.9)	0.25	1.99	0.62-6.43
Source of Information					
Anesthetist	17 (31.5)	37 (68.5)		Reference	
Nonanesthetist	52 (89.7)	6 (10.3)	0.005*	0.053	0.019-0.15

Data are presented as n (%), Row-wise percentages were computed, Nonanesthetist: Obstetrician/family members/brochure/internet

Despite RA being the recommended technique for CS, it is contraindicated in cases when there is a patient refusal. In our institution, patient's refusal for RA is one of the major reasons for the failure to achieve the internationally recommended rate of RA for CS.^[8,13,14] Other investigators have also cited maternal request as the chief reason for GA especially in elective CS.^[15,16]

The average age of patients presenting for CS in our hospital during this study was 29.18 ± 4.46 years, and a correlation was observed between age <25 years with anxiety that is consistent with previous studies.^[5,17,18] However, the study conducted by Domar *et al.*, has failed to show age as a determinant of preoperative anxiety.^[19] Another factor related to high anxiety in obstetric patients could be female sex as previous studies have reported a high level of anxiety in the female gender.^[18-21] Yet some studies failed to show any correlation of anxiety with female sex.^[22,23]

As per the findings, educated patients were more anxious as compared to less educated but the difference was not statistically significant. The literature also shows conformity of high levels of anxiety among educated patients due to their

awareness of complications.^[5,6,19,21] However, other studies contradict the association between anxiety and education.^[18,23]

The study findings and literature state that nulliparous patients tend to have a high level of anxiety.^[18,20,21] While, Thorp *et al.* reported that previous experience does not reduce preoperative anxiety.^[24]

A significant association of anxiety was found in patients having previous surgery under GA, who preferred to have GA again. Kindler *et al.*, found higher scores of anxiety in patients with previous negative experience.^[18]

In this study, patients receiving information from other than anesthetist were more anxious, and majority of them opted for GA. Studies have shown that the source of information from family/friends and misconceptions related to anesthesia are the top most reasons for patients refusing RA.^[12,25] This misinformation could also be the source of anxiety influencing patients' decision. In contrast patients, receiving information from anesthetist were less anxious, and majority of them selected RA. Previously reported literature has shown that a preoperative visit by an anesthetist alone

was almost as effective in reducing anxiety as compared to the combination of the preoperative anesthetic visit and premedication.^[26] Ngan Kee *et al.*, concluded that anesthetist do influence the decision of patients and can encourage them for RA.^[27]

The study has few limitations for instance the indication for CS was not observed, which could influence the level of anxiety among parturient. However, factors like bad obstetric history, complicated pregnancy and patients having congenital fetal anomaly, were among the exclusion criteria of the study. In addition, the satisfaction score among parturients choosing either GA or RA was not measured, but could have reflected patient's satisfaction in relation to the choice of anesthesia technique.

Conclusion

This study has clearly indicated that anxiety was one of the reason for refusing RA in our patient population, therefore specific measures to reduce anxiety in these patients could help us in achieving the international target for RA in CS patients. It is suggested that every patient coming for elective CS should be assessed for the presence of anxiety in their routine preoperative anesthesia assessment and patients found to have a high level of anxiety should be scheduled for an additional counseling session from an anesthetist. This measure helps to reduce the anxiety level and assists in making a rational decision regarding their choice for anesthesia technique.

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