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The Effects of Preoperative Detailed Information On Postoperative Pain and Anxiety In Aesthetic Nose Surgery

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ABSTRACT

Many patients who will undergo surgery experience varying degrees of anxiety and fear in the preoperative period. The aim of this study is to investigate the effects of preoperative detailed information on postoperative pain and anxiety levels in rhinoplasty surgery.
A total of 64 patients between the ages of 18-65, in ASA I-II class, and undergoing rhinoplasty surgery were included in this study. The patients were randomized into two groups as group B and group N. Patients in Group B were informed in detail about the anesthetic and surgical procedure. Only routine information was given to the patients in Group N. Preoperative anxiety levels of all patients were measured with the STAI FORM TX-1 anxiety scale. Anxiety levels were re-measured at the 3rd postoperative hour and pain levels were evaluated with the VAS score and recorded.
Preoperative anxiety levels and 3rd hour VAS scores were found to be similar in both groups. The anxiety level measured at the 3rd postoperative hour was found to be lower in the group that received detailed information, compared to the group that was not informed.
Informing patients about anesthetic and surgical procedures in the preoperative period can reduce their perioperative anxiety. In this study; we found that preoperative detailed information in aesthetic nose surgery did not affect the level of postoperative pain, but reduced anxiety levels.

Keywords: Anxiety, rhinoplasty surgery, preoperative information, postoperative pain

Introduction

It is known that 60-80% of patients experience various degrees of anxiety and fear in the preoperative period (1). Type of anesthesia, (2) previous surgical experience of the patient, personality traits, concerns about surgery, fear of pain during and after surgery, (3) not being able to wake up after surgery and fear of staying in intensive care are among the leading causes of this anxiety and fear. In addition, postoperative nausea and vomiting, lack of knowledge and experience of the anesthesiologist, absence of an anesthesiologist in the operating room, fear of injection, fear of death, inability to wake up after the operation, and fear of an unexpected situation can also cause anxiety and fear (4,5). Providing the patient with information about the procedure that will be performed by the anesthetist, who evaluates the patient in the preoperative period, may reduce the patient's anxiety and fear concerning the procedure that will be carried out. Low anxiety levels, both preoperatively and postoperatively, can positively affect recovery. It has been reported that analgesic drug consumption decreased and patient satisfaction increased in patients informed about the surgical and anesthetic procedure in the preoperative period (6). This study aims to investigate whether detailed information given in the preoperative period affects postoperative pain and anxiety levels in patients undergoing rhinoplasty surgery.

Materials and Methods

This study was conducted after receiving the approval of the Van Yuzuncu Yil University Clinical Research Ethics Committee, dated 21.01.2022 and numbered 2022/01-04, after obtaining written and verbal consent from the included cases. All participants included in the study were evaluated preoperatively in the anesthesia outpatient clinic and were informed about the study. A total of 64 patients, aged between 18-65 years, ASA risk classification I and II, literate, without any psychiatric or neurological

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disease, who did not use psychiatric drugs and chronic alcohol, who applied for aesthetic nose surgery, were included in the study.

Cases with psychiatric disease, using sedative, antidepressant, or antiepileptic drugs, problems communicating, ASA risk classification of III and above, and illiteracy were excluded from the study.

Demographic data (age, gender, marital status, educational status, occupation, anesthesia history) of the subjects who were informed about the study were recorded by questioning. Peripheral oxygen saturation (SpO_2), heart rate (HR), and noninvasive blood pressure were monitored in all patients in the preoperative waiting room, and their basal values were recorded. The patients were divided into two groups by the closed envelope method. The group given detailed information about the surgery and the anesthesia to be received was named Group B, and the group that did not receive detailed information was named Group N. In group B, anxiety levels were measured following detailed information, whereas in group N, anxiety levels were measured without detailed information using the State-Trait Anxiety Inventory (STAI FORM TX-1) (7). After the patients were informed about the VAS score, they were taken to the operating room. After introducing the anesthesia and surgical team, all patients underwent standard ASA monitoring with a routine electrocardiogram (ECG), noninvasive blood pressure (NIBP), and peripheral oxygen saturation (SpO_2). General anesthesia induction was performed with 2 mcg/kg fentanyl (Fentaver 0.5 mg/10 mL, Haver Pharma, Istanbul, Turkey), 3 mg/kg propofol (Propofol 1% Fresenius, Fresenius Kabi Medicine, Austria), and 0.6 mg/kg rocuronium (Esmeron 50 mg/5 ml, Merck Sharp Dohme, Netherlands) after premedication with midazolam and endotracheal intubation was performed. Anesthesia was maintained with a mixture of 50% O2 + 50% medical air + 6% desflurane. Intraoperative systolic blood pressure (SBP), diastolic blood pressure (DBP), mean blood pressure (MBP), HR, and SpO_2 values of the patients were recorded during the operation. Intraoperative infusion of 0.01-0.1 mcg/kg/min remifentanil (OPIVA 2 mg iv lyophilized powder, Tüm-Ekip İlaç, İstanbul/Turkey) was initiated. A total of 15 mg/kg paracetamol (Parol 10 mg/ml vial, Atabay Kimya, Istanbul/Turkey) and 1 mg/kg tramadol HCl (Tramosel 100 mg/2 ml ampoule, Haver Pharma, Istanbul/Turkey) were administered to all patients before the operation was completed. Patients who were extubated after surgery were taken to the recovery room. Patients with an Aldrete Recovery Score of 8-10 were sent to the surgical service. At the 3rd postoperative hour, the STAI FORM TX-1 questionnaire was repeated to measure the level of state anxiety, and the VAS score was recorded.

Statistical Data Analysis: In the study, the STAI score was accepted as the primary characteristic, and the difference in STAI score between the groups was predicted to be 35-40%. With a margin of error of 5% and a power of 80%, the standard effect size was determined to be 0.73, and 30 patients were planned to be admitted to each group. Considering the possibility of measurement errors, a study was planned with 32 + 32 cases. In the descriptive statistics of the data, mean, standard deviation, median lowest, highest, frequency, and ratio values were used. The Kolmogorov–Smirnov test measured the distribution of the variables. In the analysis of independent quantitative data, independent sample t tests and Mann–Whitney U tests were used. In the analysis of independent qualitative data, the chi-square test was used, and when chi-square test conditions were not met, the Fischer test was used. The SPSS 28.0 program was used in the analysis.

Results

The mean age of the 64 patients included in the study was 25.8 ± 6.8 years. The average BMI was 22.7 ± 3.7. The demographic characteristics of the groups, such as age, gender, height, weight, BMI, ASA scores, marital status, education status, and occupational groups they worked for, were similar. There was also no statistically significant difference between the groups in terms of smoking rates, drug use history, and anesthesia history ($p > 0.05$) (Table 1).

When the groups were compared in terms of STAI scores, both groups' preoperative STAI scores were similar ($p=0.330$). However, the postoperative 3rd-hour STAI score was significantly lower in the informed group than in the noninformed group ($p = 0.038$). Postoperative 3rd-hour VAS scores were similar in both groups ($p = 0.177$) (Table 2).

There was no statistically significant difference between both groups in preoperative heart rate, preinduction, and postinduction 1. min, 5. min, 10. min, 15. min, 20. min, 25. min, 30. min, 40. min, 50. min, 60. min, 75. min, 90. min, 105. min, 120. min and postextubation 1. min heart rates ($p > 0.05$). In the group with detailed information,

Table 1. Demographic Data of the Cases

		Group N				Group B				p	
		Mean±SD/n-%			Median	Mean±SD/n-%			Median		
Age (year)		26.4	±	6.7	24.5	25.2	±	6.9	24.0	0.408	m
Gender	Female	21		65.6%		17		53.1%		0.309	X^2
	Male	11		34.4%		15		46.9%			
Height (cm)		165.8	±	8.0	166.0	168.9	±	10.1	169.0	0.169	t
Weight (kg)		63.6	±	9.9	63.0	63.8	±	13.0	62.5	0.940	t
BMI		23.2	±	4.0	23.0	22.2	±	3.4	21.8	0.291	t
ASA Score	I	19		59.4%		12		37.5%		0.080	X^2
	II	13		40.6%		20		62.5%			
Marital status	Married	8		25.0%		4		12.5%		0.200	X^2
	Single	24		75.0%		28		87.5%			
Educational Status											
Primary school		2		6.3%		3		9.4%		0.545	X^2
Middle school		9		28.1%		5		15.6%			
High school		15		46.9%		16		50.0%			
Associate degree		1		3.1%		0		0.0%			
University		5		15.6%		8		25.0%			
Profession											
Unemployed		2		6.3%		6		18.8%		0.800	X^2
Housewife		4		12.5%		2		6.3%			
Student		12		37.5%		11		34.4%			
Officer		4		12.5%		3		9.4%			
Self employment		10		31.3%		10		31.3%			
Smoking	(-)	20		62.5%		17		53.1%		0.448	X^2
	(+)	12		37.5%		15		46.9%			
Medication	(-)	32		100.0%		29		90.6%		0.238	X^2
	(+)	0		0.0%		3		9.4%			
Anesthesia History	(-)	21		65.6%		19		59.4%		0.606	X^2
	(+)	11		34.4%		13		40.6%			

SD: Standard deviation, ^{m} Mann-Whitney U test, $^{X^2}$ chi-square test, ^{t} t test sample, BMI: Body Mass Indeks, ASA: American Society of Anesthesiologists

the 5-min HR after extubation was significantly lower than that in the group without information ($p = 0.008$) (Figure 1).

When the groups were compared in terms of systolic, diastolic, and mean blood pressures and SpO_2, there was no statistically significant difference between both groups in preoperative, preinduction, postinduction 1st, 5th, 10th, 15th, 20th, 25th, 30th, 40th, 50th, 60th, 75th, 90th, 105th, 120th, 1st and 5th minutes after extubation ($p > 0.05$). However, in Group B, SpO_2 values at the 25th and 90th minutes after induction were significantly higher than those in Group N ($p = 0.036$, $p = 0.046$) (Figure 2-3).

Discussion

The main finding of this study is that detailed preoperative information about the surgical procedure and the anesthesia method to be applied reduces anxiety levels. However, we found that it did not affect the level of postoperative pain.

Table 2. Comparison of Groups In Terms of STAI Scores and VAS Scores

	Group N (n=32)				Group B (n=32)				p	
	Mean±SD			Median	Mean±SD			Median		
STAI										
Preoperative	39.4	±	9.7	38.5	36.9	±	8.4	36.0	0.330	m
Postoperative 3rd. hour	32.6	±	9.4	31.5	28.3	±	9.1	24.5	0.038	m
VAS										
Postoperative 3rd. hour	3.6	±	2.0	4.0	2.9	±	1.8	3.0	0.177	m

STAI: State-Trait Anxiety Inventory, VAS: Visual Analog Scale, [m] Mann-Whitney U test, SD: Standard Deviation

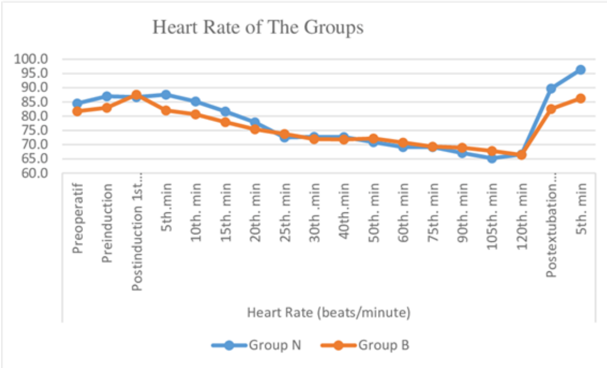

Fig.1. Comparison of The Heart Rate of The Groups

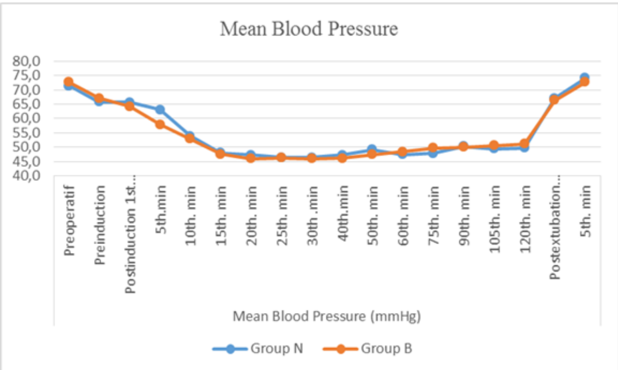

Fig.2. Comparison of mean blood pressure values of the groups

Concerns about both surgery and anesthesia are known to lead to preoperative anxiety (8). Providing detailed information to patients about why and how a procedure is performed in the preoperative period has been reported to reduce anxiety levels and analgesic requirements and increase (6) patient satisfaction (9). In the literature, the STAI FORM TX-1 test is considered the gold standard test for measuring anxiety. It was reported by Tasdemir et al. in a study published in 2013 that verbal information reduced anxiety levels in patients during anesthesia and surgery (11). Jlala et al. reported that informing patients undergoing procedures under regional anesthesia through a video

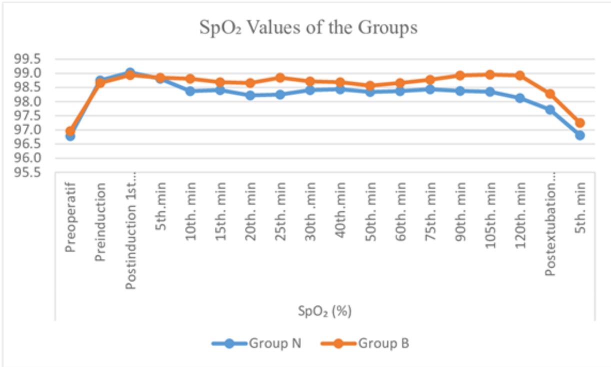

Fig.3. Comparison of the SpO2 of The Groups

demonstration reduced patients' anxiety (1). Our study determined the preoperative STAI score to be 36.9±8.4 in the group with detailed information and 39.4±9.7 in the group without detailed information. However, this difference was not statistically significant. The STAI score measured at the 3rd postoperative hour was 28.3±9.1 in the group with detailed information and 32.6±9.4 in the group without detailed information. In the group with detailed information, the STAI score measured at the 3rd postoperative hour was significantly lower ($p = 0.038$) than that in the other group. Our study found that detailed preoperative information reduced postoperative anxiety scores, which is consistent with previous studies.

When the demographic characteristics of the patients were examined, age, gender distribution, height, weight, BMI values, ASA scores, marital status, and education status were similar in both groups. There was no statistically significant difference between the groups regarding smoking rates, drug use history, and anesthesia history.

According to some studies investigating the relationship between preoperative anxiety and patient characteristics, age and female sex have a significant effect on preoperative anxiety. It has been suggested that because women are more comfortable expressing their anxiety and are more affected by family distancing, their anxiety is also higher (3,12,13). Badner et al. stated that female patients had a higher STAI score (12). Moerman et al. reported that anxiety was significantly higher in women than in men (14). In studies examining the relationship between age and preoperative anxiety, it has been reported that age does not affect the level of preoperative anxiety (12,14,15). In their study, Calvin et al. found that anxiety levels prior to surgery were similar for patients of different ages (16). Meanwhile, Ramsay reported that anxiety scores were higher among middle-aged patients, as they had greater responsibilities toward their families (17). Grabow et al. reported higher preoperative anxiety levels in young people, and Shevde et al. reported lower preoperative anxiety levels in elderly individuals (18, 19). In our study, patients in both groups had a homogeneous distribution regarding age and sex. We found that detailed preoperative information reduced anxiety levels regardless of age and gender.

In our study, there was no statistically significant difference between the two groups in terms of preoperative hemodynamic data. However, in the group with detailed information, the heart rate at the 5th minute after extubation was statistically ($p=0.008$) significantly lower than that in the other group. We think this decrease in HR may be due to lower anxiety levels in the informed group. In the group with detailed information, SpO2 values at the 25th and 90th minutes after induction were significantly higher than in the other group, but this elevation was not found to be clinically significant.

It has been stated in some studies that anxiety is associated with postoperative pain, postoperative pain also increases in patients with high anxiety levels, and analgesic consumption amounts increase accordingly. In their study, Guz et al. found a correlation between pain and anxiety levels (20). Tasdemir et al. reported that STAI scores and VAS scores were correlated, and patients who underwent surgery with high anxiety scores had higher pain scores in the postoperative period (11). However, Yılmaz et al. stated that preoperative and postoperative anxiety levels did not affect postoperative analgesic need and postoperative pain levels (21). Our study determined that the VAS scores measured in the third postoperative hour were 2.9 ± 1.8 in the group with detailed information and 3.6 ± 2.0 in the group without detailed information. However, this difference was not statistically significant. We found similar results to other studies indicating that anxiety does not affect postoperative pain levels.

The anxiety levels of the patients were not measured before they were given the information. Therefore, we could not determine how much the information we provided reduced preoperative anxiety. We considered this as a limitation of our study.

During the preoperative period, many factors related to anesthesia and surgical procedures can cause anxiety in patients. In this study, informing the patients about the surgical procedure and the anesthesia method to be applied reduced their anxiety levels. However, it did not affect the level of postoperative pain. We believe that informing, which has no cost and is important in patient-physician communication, can affect the treatment process positively by reducing the anxiety of the patients.

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