

The Impact of Pre-Surgical Anxiety to the Post-Surgical Pain of Patients that will have Cholecystectomy

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Abstract

The research was conducted to determine the effects of anxiety experienced before cholecystectomy on postoperative pain. Anxiety occurs temporarily or chronically in any person and can produce emotional reactions that increase the stress experienced by the patient. Therefore, it may cause more pain in the post operative period. Because the preoperative period is a stress ful event that triggers certain emotional, cognitive and physiological responses of a patient. The research was descriptive and relationship seeking. The study sample consisted of 109 patients who had cholecystectomy surgery. The data was collected using Patient Identification Form, STAI and NRS. It's been found out that before cholecystectomy, the patients had experienced mild to moderate levels of anxiety. It's also been found out that as the preoperative state anxiety level increased, postoperative pain level decreased and as the trait anxiety level increased, postoperative pain level increased also. Perioperative anxiety is often overlooked, but is closely related to patient care. Pre-operative counseling and proper surgery training will help reduce preoperative anxiety, reduce postoperative pain, and improve the quality of care.

Key words; cholecystectomy, preoperative anxiety, postoperative pain

1. INTRODUCTION

People turn to surgery to maintain or regain their health, to prolong their lives, to increase their organ functions to their fullest, to relieve pain and to correct their physical appearances (Alli, et al, 2017).

Surgery, for a patient, also means pain, loss of independence, and a distortion in body image. Each of these aspects is perceived as a threat, and patient is overwhelmed with anxiety in the face of these threats that are directed to his/her physical and vital status (Jalali and Dehghan, 2017; Bayrak, Sagiroglu and Copuroglu, 2019). Patients are also concerned with the physical effects of the disease itself, encounters with the unknown processes that are painful, being away from their families, possibility of losing their jobs, and to be in a foreign environment (Bayrak, Sagiroglu and Copuroglu, 2019; Woldegerima, et al, 2018).

Anxiety is a feeling that is common, unpleasant, manifested by a vague sense of danger and is often seen together with autonomic symptoms. One of the most important effects of anxiety that leads to many adverse effects on organisms, is pain (Xu , Wang and Yang, 2020).

It is stated in literature that the anxiety experienced in surgical procedures, is one of the most important determinants of post-operative pain (Xu , Wang and Yang, 2020; Doan and Blitz, 2020). It is reported that the intense anxiety experienced prior to surgery in particular, increases postoperative pain and analgesic requirements and makes it difficult to control pain (Harms, 2020; Zarei, et al, 2018). Unrelieved postoperative pain, by causing many problems, adversely affects patient's comfort (Yadav, Singhal and Bharti, 2020).

As with all types of surgeries, it is clear that the anxiety experienced before cholecystectomy will also lead to many adverse post-operative effects. In addition, it is believed that the results of this research will be a guide for the nurses to provide individualized and quality care for their patients.

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2. METHOD

2.1 Study design

This research, which is descriptive and relation seeking in its nature, was done to determine the effects of the anxiety experienced prior to surgery, on the post-operative pain of the patients that had cholecystectomy.

2.1.1 Study sample

The research was carried out in the general surgery clinic of a state hospital located in the east of Turkey. The patients that were going to have cholecystectomy surgery were hospitalized by the clinic, the day before or the morning of their surgery date. The patients were given clinical information regarding the surgical process by their doctor and nurses during the preoperative process. In order to reduce/alleviate the post-operative pain, the patients, immediately after their surgeries, were given Pethidinehydrochloride (Aldolan 100 mg / 2 ml Injectable Solution Containing Ampoule, Liba Laboratories Inc. Turkey) and in the hours that followed, they were administered Dexketoprofen trometamol (Arveles 50 mg / 2 ml Injectable Solution Containing Ampoule, UFSA Pharmaceutical Industry and Trade Inc. Turkey) intravenously (IV). The population of the research consisted of all adult patients that had cholecystectomy in the clinic in question. In selecting the sample from the universe, improbable random sampling method was used. The sample consisted of people without communication problems and people that weren't diagnosed with psychiatric anxiety disorder. Considering that the patients would have a higher level of anxiety in the morning of their surgery, the ones that were admitted in the morning of their surgery date, were not included in the sample. The sample size was calculated using power analysis. It was calculated, as a result of the analysis; with an error rate of $\alpha = 0.05$, and with 80% of power, at least 86 patients were needed for the mean change of anxiety level to be 9 points. Research was completed with 109 patients.

2.2 Data collection tools

The data was collected using Patient Identification Form, State-Trait Anxiety Scale and Numerical Rating Scale (NRS).

2.2.1 Information form: With this form that was designed by the researchers, identifying characteristics of patients (age, sex, education level, marital status, residence, the monthly income status) were determined.

2.2.2 State-Trait Anxiety Scale: Developed in 1970 by Spielberg and friends in the US, and its validity and reliability in Turkish was established by Öner and Le Compte. The scale consists of 40 items, with the first twenty measuring the state anxiety level of the patient, and the other twenty measuring the trait anxiety level of the patient. For the Turkish version of the scale, it's been determined that reliability coefficients for the state anxiety scale shall be between 0.83 and 0.92, and for trait anxiety scale, it shall be between 0.83 and 0.87 (Spielberger, Gorsuch and Lushene, 1970; Öner and Le Compte, 1998). In this research, it's been found out that Cronbach's alpha value for state anxiety scale is 0.91, and for trait anxiety scale, it is 0.80. The points between 0-19 in the scale was evaluated as "no anxiety", between 20-39 points, as "mild level of anxiety", between 40-59 points as "moderate level of anxiety", between 60-79 points as "severe anxiety" and 80 points and over were considered as "panic" (Öner and Le Compte, 1998).

2.2.3 Numerical Rating Scale (NRS): This scale which assesses the severity of pain, is intended to explain the patient's pain by numbers. It starts with No pain (0) and goes up to unbearable pain (10 or 100). A high frequency of pain reporting was considered to be a disadvantage (Black and Matasarrin-Jacobs, 1993).

2.3 Data Collection

Data was collected by the researchers themselves. Patients were asked questions in the data collection tools and the answers were recorded. Patients were interviewed in two days for a total of 6 times. The first meeting was held one day before the operation. The aim of the research and its duration were announced to the patients in this first meeting, and data collection instruments were introduced. For the patients agreed to participate, patient identification form and state/trait anxiety scale were applied. So with this, preoperative anxiety levels of patients were evaluated. This first meeting lasted for about 20 minutes. Other interviews to assess postoperative pain levels were held after the patients came back from their surgeries, within the first half, 1st, 2nd, 3rd, 4th hours. Each post-operative pain evaluation done with NRS lasted about 5 minutes. The number of people in the room and noise levels were tried to be kept at a minimum, as it was thought that it would impact the expressions of anxiety and pain.

2.4 Statistical analysis

Data analysis was made using Statistical Package for the Social Sciences 22.0 software. Data was analyzed using number, percentage, average, standard deviation, t-tests, correlation analysis and Mann-Whitney U tests. Results were evaluated in 95% confidence interval and $p < 0.05$ significance level.

2.5 Ethical considerations

The research began after obtaining a written permit from the head of department of the clinic that the data is collected in, and the ethics. The patients were told that they were free to participate in the research or not and non-volunteers were excluded from the research.

3. RESULTS

It was measured that the average age of the patients enrolled in the study is 48.61 ± 15.56 , 68.8% of them were female, 24.8% of them were elementary school graduates, 78.0% of them were married and 65.1% of them lived in cities, and finally, 49.5% of them had incomes equal to their expenses. When some of the medical characteristics of the patients were examined, it was found out that 65.1% of them had no other medical conditions, 70.6% of them had no other surgical procedure in their lives before, and 78.9% of them actually had laparoscopic surgery before (Table 1).

The preoperative state-trait anxiety levels of patients are shown. It was determined that the state anxiety score average is 40.41 ± 5.69 (40-59 points=moderate anxiety), and trait anxiety score average is 45.54 ± 6.92 (40-59 points=moderate anxiety). A weak positive correlation was found in between State-trait anxiety scores ($p < 0.05$) (Table 2).

When postoperative pain levels of patients are examined, it's been found out that the average pain level was 7.21 ± 1.84 in the first half hour after the surgery and 2.91 ± 1.40 in the 4th hour after the surgery (Table 3).

One can see the comparison of patients' preoperative state-trait anxiety levels and postoperative pain levels. It was determined that the patients with mild preoperative state anxiety levels, experienced a statistically significant level of pain in the 1st hour after the surgery ($t=2.043$, $p=0.044$). It was also determined that the patients with mild preoperative trait anxiety levels, experienced a statistically significant level of pain in the first half hour after the surgery (MWU=642.000, $p=0.028$). There was no statistically significant relation between the postoperative pain levels of patients in the other hours checked, and preoperative state-trait anxiety levels ($p > 0.05$) (Table 4).

4. DISCUSSION

It is inevitable to see fear, anxiety and depression in hospitalized patients due to hospital processes. A surgery also causes anxiety with other negative thoughts like pain, loss of independence, distortion of body image. One of the most important influence of anxiety on the organism, pain, shows a negative impact by preventing the patient to fulfill even the simplest daily activities (Jalali and Dehghan, 2017; Bayrak, Sagirolglu and Copuroglu, 2019).

It was determined that the average state-trait anxiety levels of patients in the study were in moderate levels, 24 hours before surgery. Yadav et al. found out that patients who have laparoscopic cholecystectomy have moderate levels of state-trait anxiety levels, before surgery (Yadav, Singhal and Bharti, 2020). These research results are in line with our research results (Jalali and Dehghan, 2017, Xu, Wang and Yang, 2020). Because cholecystectomy is not a major surgical procedure, it is expected that the patients experience moderate levels of anxiety.

It was found to be statistically significant that the trait anxiety levels increased as the state anxiety levels increased in this study (Table 2). Spielberg et al. suggested that there is a positive correlation between state and trait anxiety scores, and individuals with high trait anxiety levels, also have high levels of state anxiety (Spielberger, Gorsuch and Lushene, 1970). In literature, despite the fact that state anxiety is effected by momentary incidents, it is reported that as the trait anxiety level increases, the state anxiety level increases also (Xu, Wang and Yang, 2020; Doan and Blitz, 2020).

When patients postoperative pain levels are evaluated, it was found out that the high level of pain in the first half hour after the surgery, has decreasingly fallen to a mild level in the 4th hour after the surgery (Table 3). Magdaleno et al., in their study in which they examined early pain after the laparoscopic cholecystectomy, have found that the pain is reduced in time, after the surgery (Subirana Magdaleno, et al, 2018, Kızıl Togaçand Emel Yılmaz, 2020; Lin, et al., 2016). These study results are similar to the literature findings. Decreasing levels of postoperative pain after surgeries is an expected result, and it is an important aspect in the patients' ability to fulfill daily activities and their rapid recovery.

While it was reported in the literature that low levels of anxiety before surgery caused a reduction in postsurgical pain levels (Xu, Wang and Yang, 2020; Lin, et al.,2016; Ryan, et al., 2020;ElGwadElkalashyandMasry, 2018), in this study, it was found that as the state anxiety level before surgery increases, the post-surgical pain level decreases, and as the trait anxiety level increases, the level of pain also increases (Table 4). It is considered that the average preoperative state-trait anxiety scores being in mild and moderate levels, also have an impact on results.

5. CONCLUSION

It was determined that the patients participated in this study experienced mild to moderate levels of anxiety. It was found out that as the preoperative state anxiety level increased, postoperative pain level decreased, and as the trait anxiety level increased, pain levels also increased. Although it is never done in most of the hospitals in Turkey, we suggest that the pre-operative training aimed at reducing anxiety, which is done in some hospitals in an unplanned manner, to actually take its place within nursing applications in a systematic and planned manner, and to be used to reduce pre-operative anxiety.

6. LIMITATIONS

The limitation of the research results can only be generalized to patients in this sample group. Another limitation of this study is that the sample was determined using the random sampling method.

7. RELEVANCE TO CLINICAL PRACTICE: Perioperative anxiety is often overlooked, but is closely related to patient care. Pre-operative counseling and proper surgery training will help reduce preoperative anxiety, reduce postoperative pain, and improve the quality of care.

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TABLE 1. Some Medical and Characteristic Information Regarding Patients (s=109)

Characteristics	Number	%
Mean age: 48.61±15.56		
Sex		
Female	75	68.8
Male	34	31.2
Education		
Not literate	34	31.2
Literate	10	9.2
Primary education	27	24.8
Secondary education	13	11.9
Higher education and up	25	22.9
Marital status		
Married	85	78.0
Single	24	22.0
Residence		
City	71	65.1
Town and village	38	34.9
Monthly income		
Income is less than the expenses	38	34.9
Income is equal to expenses	54	49.5
Income is more than the expenses	17	15.6
Any Additional disease		
There is	38	34.9
There isn't	71	65.1
Past experience of surgery		

Yes	32	29.4
No	77	70.6
Type of surgery		
Open	23	21.1
Laparoscopic	86	78.9

TABLE 2. Pre-operative State-Trait Anxiety Levels of Patients (s=109)

State and Trait Anxiety Levels	Mean±SS	Test
State anxiety score	40.41±5.69	r=0.298 p=0.002*
Trait anxiety score	45.54±6.92	

Abbreviations: r, Correlation; *p<0.05

TABLE 3. Postoperative Pain Levels of Patients (s=109)

Follow-up time	Postoperative Pain Level Mean±SS
1/2. hour	7.21±1.84
1.hour	5.70±1.73
2.hour	4.63±1.75
3.hour	3.77±1.68
4.hour	2.91±1.40

TABLE 4. Comparison of Preoperative and Postoperative State-Trait Anxiety Levels and Pain Levels of Patients (s=109)

Postoperative follow-up times	Preoperative State anxiety	Post-operative pain Mean±SS	Test	Pre-operative Trait Anxiety	Post-operative pain Mean±SS	Test
1/2 hour	Mild	7.33±1.74	t=0.612 p=0.542	Mild	6.33±1.85	MWU=642.000 p=0.028*
	Moderate	7.11±1.93		Moderate	7.42±1.79	
1.hour	Mild	6.08±1.60	t=2.043 p=0.044*	Mild	5.52±1.69	MWU=878.500 p=0.721
	Moderate	5.40±1.78		Moderate	5.75±1.75	
2.hour	Mild	4.91±1.73	t=1.504 p=0.136	Mild	4.42±2.06	MWU=805.500 p=0.354
	Moderate	4.40±1.75		Moderate	4.68±1.68	
3.hour	Mild	3.91±1.86	t=0.751 p=0.455	Mild	3.57±1.93	MWU=802.500 p=0.341
	Moderate	3.67±1.53		Moderate	3.82±1.62	
4.hour	Mild	2.89±1.41	t=0.142 p=0.887	Mild	2.52±1.32	MWU=741.000 p=0.148
	Moderate	2.93±1.40		Moderate	3.01±1.41	

Abbreviations: MWU , Mann Whitney U Testi,

*p<0.05