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Evaluation of preoperative anxiety in cancer patients: Experience of a single center

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Abstract

Anxiety disorder is observed in half of the patients in the preoperative period. Psychological disorders are also frequently observed in cancer patients and need to be supported. The aim of the present study is to determine the level of preoperative anxiety in patients with malignant and benign diagnoses who were planned for elective surgery and to reveal its relationship with socio-demographic data. A tertiary hospital-based cross-sectional study was conducted in the general surgery clinic between June 1, 2021- March 31, 2022, on 158 patients who underwent elective surgery. Participants were evaluated in two groups depending on their diagnosis; the cancer group and the benign group. The socio-demographic data were recorded and the level of anxiety was determined by the Beck Anxiety Inventory (BAI). The median age of participants was 55 (19-78) years. There were 72 (45.6%) patients in the cancer group and 86 (54.4%) patients in the benign group. There was no significant difference in age, gender, marital status, job, level of income, and family cancer history between the two groups. There were significant differences between the groups in level of education, and previous surgical history ($p=0.035$, and $p=0.037$, respectively). BAI scores of the cancer group and control group were 10.5 (0-35) and 5 (0-49), respectively ($p<0.001$). The level of anxiety in the cancer group was also significantly higher than in the benign group ($p<0.001$). Cancer patients have more anxiety during the preoperative period than patients who were with benign diseases. We believe that previous surgical history and education level are other factors that affect anxiety.

Keywords: Cancer, preoperative anxiety, anxiety scale, risk factors, surgery

Introduction

Preoperative anxiety is defined as an uncertain, restless mood after sympathetic, parasympathetic and endocrine stimulation of the body and the exact causes of which are generally not specific and unknown [1]. It is known that approximately 50% of the patients have anxiety that requires preoperative support [2]. The level of this anxiety may be variable according to age, gender, marital status, education level, pain threshold, and type of surgery [3,4]. Psychiatric disorders are more likely to be seen in cancer patients and the most common psychiatric disorders are major depression and anxiety disorders [5,6]. Cancer diagnosis may cause extra anxiety in patients due to death fear, pain, deformity and especially loss of organ, and this anxiety may have negative effects on postoperative treatment [7].

Various scales have been used to determine preoperative anxiety levels. However, the Beck Anxiety Scale (BAI) is one of the best scale because it minimizes the overlapping of anxiety with depression, includes short questions, and is applicable easily [8,9].

The aim of present study is to determine the level of preoperative anxiety in patients with malignant and benign diagnoses who were planned for elective surgery and to reveal its relationship with socio-demographic data.

Material and Methods

Patients

A tertiary hospital based cross-sectional study was conducted in the general surgery clinic between June 1, 2021- March 31, 2022, on 158 patients. Ethical approval was obtained from the Institutional Clinical Research Ethics Committee (decision number: 22 date: 17/06/2021). The principles of the Helsinki Statement have been followed. All participants signed a written informed consent form. Participants were evaluated in two groups depending on their

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diagnosis the cancer group and the benign group. Patients with previously diagnosed with cancer and will be operated for cancer disease were included in the cancer group. Patients who will be operated for benign disease and had not any chronic disease were included in the control group.

Eligibility criteria

The inclusion criteria for the study were as follows: (1) patients aged 18 years older; (2) patients with physical condition status I–III according to the American Society of Anesthesiologists risk classification (ASA); (3) patients who were planned for elective surgery and had general anesthesia; (4) patients with malignant or benign diagnoses without any chronic diseases. The exclusion criteria for the study were as follows: (1) patients who underwent emergency surgeries; (2) patients aged 18 years younger; (3) patients with altered consciousness; (4) patients having a diagnosis of anxiety, depression, or any other cognitive disorders or using medication which affects the mood; (5) patients who were not able to speak Turkish.

Data collection and anxiety assessment

Data were collected by using a questionnaire median of 12.5 days (3-19) prior to scheduled surgery, in the outpatient clinic. The questionnaire consisted of two subparts. The first part consisted of sociodemographic parameters (diagnosis, age, gender, marital status, job, level of education, level of income, surgical history, family cancer history). The second part consisted of Turkish version of BAI [8]. BAI consists of 21 questions and each question is scored between 0 to 3 points. The level of anxiety was determined according to BAI score as follows: no anxiety=0-7 points, mild anxiety=8-15 points, moderate anxiety=16-25 points, and severe anxiety=26-63 points.

Statistical analysis

The normality of the distribution of continuous variables was assessed via the Kolmogorov-Smirnov test. Continuous variables were described as median (minimum-maximum) and the statistical comparisons were conducted by Mann-Whitney U test. Categorical variables were given as frequency (percentage) and were compared with the Chi-Square test or the Fisher's Exact test, as appropriate. A p value < 0.05 was defined as significant. IBM SPSS Statistics for Windows, version 25.0 (IBM Corp., Armonk, N.Y., USA) was used for statistical analyses.

Results

Among the 158 patients, there were 86 (54.4%) participants in the benign group, and 72 (45.6%) in the cancer group. Colorectal cancer was the most common malignancy 16.5% (n=26), followed by breast cancer 13.3% (n=21), esophageal-gastric cancer 6.3% (n=10), pancreatic cancer 5.7% (n=9), hepatobiliary cancer 1.9% (n=3), and thyroid cancer 1.9% (n=3). The median age of 158 patient was 55 (19-78). Among them, there were 67 (42.4%) males and 91 (57.6%) females. Descriptive and clinical characteristics of the entire study group were shown in Table 1.

There was no significant difference in terms of age, gender, marital status, job, level of income, and family cancer history between two groups. There were significant differences between the groups in

level of education, and previous surgical history (p=0.035, and p=0.037, respectively). The median BAI scores of the cancer group and benign group were 10.5 (0-35) and 5 (0-49), respectively (p<0.001). The ratios of patients with no anxiety were 23 (31.9%) and 55 (64.0%) while the ratios of patients with severe anxiety were 13.9% (n=10) and 2.3% (n=2) in the cancer group and benign group, respectively (p<0.001 for both) (Table 2).

Table 1. Descriptive and clinical characteristics of the participants (n=158)

Descriptive characteristics	n (%)
Age, median (min-max)	55 (19-78)
Gender	
Male	67 (42.4%)
Female	91 (57.6%)
Marital status	
Single	21 (13.3%)
Married	137 (86.7%)
Job	
Health-care professional	6 (3.8%)
Others	152 (96.2%)
Level of education	
Illiterate	34 (21.5%)
Primary school	88 (55.7%)
Middle-High school	15 (9.5%)
University	21 (13.3%)
Level of income (TL)	
<1500	40 (25.3%)
1500-3000	50 (31.6%)
3000-5000	46 (29.1%)
>5000	22 (13.9%)
Previous surgical history	
Yes	80 (50.6%)
No	78 (49.4%)
Family cancer history	
Yes	55 (34.8%)
No	103 (65.2%)
Cancer type	
Colorectal cancer	26 (16.5%)
Breast cancer	21 (13.3%)
Esophageal-Gastric cancer	10 (6.3%)
Pancreatic cancer	9 (5.7%)
Hepatobiliary cancer	3 (1.9%)
Thyroid cancer	3 (1.9%)
Benign	86 (54.4%)

Table 2. Results and comparison of demographic characteristics and level of anxiety

	Cancer group (n=72)	Benign group (n=86)	p value
Age, median (min-max)	55.5 (32-78)	55 (19-78)	0.206
Gender			
Male	27 (37.5%)	40 (46.5%)	0.254
Female	45 (62.5%)	46 (53.5%)	
Marital status			
Single	7 (9.7%)	14 (16.3%)	0.227
Married	65 (90.3%)	72 (83.7%)	
Job			
Health-care professional	3 (4.2%)	3 (3.5%)	1.000
Others	69 (95.8%)	83 (96.5%)	
Level of education			
Illiterate	16 (22.2%)	18 (20.9%)	0.035
Primary school	41 (56.9%)	47 (54.7%)	
Middle-High school	2 (2.8%)	13 (15.1%)	
University	13 (18.1%)	8 (9.3%)	
Level of income (TL)			
<1500	21 (29.2%)	19 (22.1%)	0.067
1500-3000	27 (37.5%)	23 (26.7%)	
3000-5000	19 (26.4%)	27 (31.4%)	
>5000	5 (6.9%)	17 (19.8%)	
Previous surgical history			
Yes	43 (59.7%)	37 (43.0%)	0.037
No	115 (40.3%)	121 (57.0%)	
Family cancer history			
Yes	30 (41.7%)	25 (29.1%)	0.098
No	128 (58.3%)	133 (70.9%)	
BAI score, median (min-max)	10.5 (0-35)	5 (0-49)	
Level of anxiety			
No anxiety	23 (31.9%)	55 (64.0%)	<0.001
Mild anxiety	28 (38.9%)	21 (24.4%)	
Moderate anxiety	11 (15.3%)	8 (9.3%)	
Severe anxiety	10 (13.9%)	2 (2.3%)	

TL Turkish lira, BAI beck anxiety inventory Level of anxiety was determined according to BAI score as follow: no anxiety =0-7 point, mild anxiety =8-15 point, moderate anxiety =16-25 point, severe anxiety =26-63 point.

Discussion

Preoperative anxiety has been associated with hospitalization, anesthesia, and type of surgery. Uncertainty is one of the most important reasons for anxiety before surgery [10]. In this study, we investigated the relationship between preoperative anxiety and socio-demographic factors in cancer patients and other patient groups.

Dogar et al. [11] found anxiety, depression, or both in approximately half of the 60 cancer patients. The rate of those with anxiety only

was found at 23.3%. In our study, the rate of moderate and severe levels of anxiety in cancer patients was 29.1%. Pandey et al. [12] investigated the factors affects to anxiety and depression in cancer patients. It has been reported that high social status affects anxiety and the female gender also affects depression. In our study, there was no difference between the groups in terms of gender and education level. Besser et al.[13] found that marital status, age and gender did not have an effect on anxiety. These results are parallel to our study. In another study, it was reported that systolic arterial pressure and diastolic arterial pressure significantly decreased with preoperative education about the surgical intervention in female cancer patients. Also according to BAI was also shown anxiety levels decreased from moderate to mild [14]. In our study, previous surgical history was significantly different between the two groups. We think this difference may be associated with more preoperative education and surgical experience in cancer patients.

In a study using multivariate analysis, preoperative anxiety and postoperative complications were compared in outpatient cancer patients. It was observed that the rates of postoperative upper gastrointestinal disorder symptoms, reoperation on the same day, and overnight hospital stay were significantly higher in patients with preoperative anxiety [15]. Aydogan et al. [16] examined BAI scores preoperatively in cancer and control groups, similar to our study. The mean BAI scores were 13.01 ± 10.47 in cancer patients, and 8.55 ± 7.02 in the control group, and there was a significant difference between the groups ($p=0.003$). At the same time, a positive correlation was found tendency to anxiety in cancer patients. ($p<0.001$, $r=0.582$). In a study comparing the preoperative anxiety of patients undergoing breast cancer and cosmetic breast surgery using The State-Trait Anxiety Inventory (STAI), the anxiety level in patients with cancer was significantly higher than in the cosmetic group. (42.3 ± 7.7 vs 38.0 ± 8.2 ; $p=0.046$) [17]. Parallel to the literature, there was a significant difference in BAI scores between cancer and control groups in our study.

In a controlled randomized study investigating the effect of short interviews preoperatively, the cancer patients were evaluated in two groups as high-risk and low-risk for the development of anxiety. These two groups were randomly separated into two more groups as were interviewed and were not. Patients who developed anxiety at postoperatively 12th months were significantly lower in the interviewed group in the high-risk for the development of anxiety (OR:0.54, 95% CI:0.29-1.00, $p=0.005$). There was no significant difference between the groups in patients with low-risk for the development of anxiety (OR:1.50, 95% CI:0.51-4.43, $p=0.47$) [18].

The treatment algorithm for benign and malignant diseases was changed after the Coronavirus disease-19 (COVID-19) [19]. In a study, it was observed that patients with colorectal cancer were operated on at an advanced stage in the COVID-19 pandemic period. It was attributed to the delayed presentation of patients due to the fear of COVID-19 [20]. In a similar study, it was found that patients with acute appendicitis presented more complicated in the COVID-19 period from the non-COVID-19 period [21].

This study has some limitations. First, limited number of participants. Second, although all patients were selected from surgical oncology, the variety of cancer was large and tumor stages were not evaluated. Third, the duration of surgery is heterogeneous.

Fourth, from the time of diagnosis to the duration of surgery was not evaluated. Fifth, the source of anxiety was completely unknown due to this study was conducted during the COVID-19 pandemic period. Therefore we think that these limitations may affect anxiety.

Conclusion

In conclusion; cancer patients have more anxiety in the preoperative period than who patients were with benign diseases. We believe that previous surgical history and education level are other factors that affect anxiety. There is a need for prospective studies with more homogeneous samples, comparing preoperative and postoperative anxiety levels, and investigating which effective preoperative education technicals such as short conferences, brochures, videos, and social media.

Conflict of interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical approval

Ethical approval was obtained from the Institutional Clinical Research Ethics Committee (decision number: 22 date: 17/06/2021).

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