CLINICAL RESEARCH / KLİNİK ÇALIŞMA

EFFECTS OF CANCER AND NON-CANCER SURGERIES ON PREOPERATIVE ANXIETY SCORES OF PATIENTS

KANSER VE KANSER DIŞİ CERRAHLERİNİN PREOPERATİF DÖNEMDE HASTA ANKSİYETE SKORLARI ÜZERİNE ETKİLERİ

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Objective: About two-thirds of patients awaiting surgery show anxiety. Anxiety may be developed against surgery, anesthesia and postoperative pain are among the factors that determine level of preoperative anxiety. We hypothesized that patients undergoing cancer surgery may have higher preoperative anxiety scores.

Method: One hundred American Society of Anesthesiologists (ASA) 1-2 patients over 18 years and scheduled to have an elective surgery were recruited. Patients undergoing a cancer surgery were in Group 1 (n=50) and undergoing a non-cancer surgery were in Group 2 (n=50). One day before the surgery, all patients were analyzed using the Amsterdam Preoperative Anxiety and Information Scale (APAI) and the Spielberger State Trait Anxiety Inventory Test (STAI) to identify their anxiety scores.

Results: Both APAI and STAI scores of cancer patients were significantly higher compared to non-cancerous patients (p<0.001). In patients with malignancy, there was a significant negative correlation between APAI scores and the number of previous surgeries (p<0.001). In patients undergoing non-cancer surgery, the APAI scores of female patients were significantly higher (p=0.011). There was not a statistically significant correlation between both the APAI and STAI scores and age, sex, education level, and marital status in patients undergoing cancer surgery.

Conclusion: Both APAI and STAI scores were found to be higher in patients having cancer surgery. We are of the opinion that, anxiolytics may be useful as premedication in the preoperative period for this patient group.

KEY WORDS: Anxiety, Cancer surgery, APAI, STAI

ÖZET


Yöntem: American Society of Anesthesiologists (ASA) fiziksel durumu 1-2 olan, 18 yaşından büyük, elektif cerrahi geçirecek olan 100 hasta çalışmaya dahil edildi. Hastalar kanser cerrahisi geçiren (Grup 1, n=50) ve kanser dışı cerrahi geçiren (Grup 2, n=50) olarak 2 ayrı gruba ayrıldılar. Tüm hastaların cerrahileri 1 gün önce anestezi vizitleri arasında Amsterdam Preoperative Anxiety and Information Scale (APAI) ve Spielberger State Trait Anxiety Inventory Test (STAI) ölçekleri kullanarak preoperatif anksiyeteyi skorlara belirlendi.

Bulgular: Kanser olan grupta hem APAI hem de STAI skorları kanser olan gruptan anlamalı değerlendirilerek daha yüksek (p<0.001). Kanser cerrahisi geçiren grupta APAI skorunun daha önce geçirmiş olduğu operasyon sayısı arasında anlamlı negatif korelasyon mevcuttu (p < 0.001). Kanser dışı cerrahi geçiren grupta kadın hastalarda APAI skoru erkek hastalardan anlamalı daha yüksek (p=0.011). Kanser cerrahisi geçiren grupta APAI ve STAI skorları den yaşı, cinsiyet, eğitim seviyesi, medeni durum arassında istatistiksel olarak anlamalı bir korelasyon yoktu.

Sonuç: Sonuç olarak kanser cerrahisi geçiren hastalarda hem APAI hem de STAI preoperatif anksiyeteyi skorlarının diğer hastalardan daha yüksek olduğunu belirledik. Bu hasta grubuna preoperatif dönemde anksiyolitik ajanların premedikasyonda yeri olabileceğini kancaladıyz.

ANAHTAR KELİMELER: Anksiyete, Kanser cerrahisi, APAI, STAI

Conflict of Interest: Authors do not report any conflict of interest.

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INTRODUCTION

About two-thirds of patients awaiting surgery show anxiety (1,2). Anxiety is a phenomenon that may be developed by patients against surgery, anesthesia and death or the environment where they feel like a stranger (3). Also, levels of anxiety vary depending on various reasons. Concerns about the success of upcoming surgery, fears regarding anesthesia and postoperative pain are among the factors that determine level of preoperative anxiety (4).

Socio-demographic characteristics such as age, sex and education level; type and importance of surgery; underlying disease and patient’s expectations related to that underlying disease; previous surgeries of patient, and his/her sensitivity against stressful circumstances are some other factors affecting the anxiety level. Anxiety in the preoperative period is regarded as a natural reaction, especially in the situations where patients have none or limited experience regarding the surgical procedure. However, presence of excessive anxiety in the preoperative period may lead to pathological responses and some negative effects such as the development of preoperative tachycardia, hypertension, arrhythmia, difficulty in establishing vascular access (1), cough appearing during induction, delayed jaw relaxation, or increased need for analgesics (5), nausea-vomiting, high level postoperative pain, and extended recovery time and hospitalization (6). Therefore, diagnosis of preoperative anxiety is of utmost importance.

As it is a subjective phenomenon, it is hard to analyze anxiety (7); however, anxiety should be analyzed with an objective, reliable and comprehensive method in order to obtain reliable results. Although there is a possibility that preoperative anxiety result in negative effects, preoperative anxiety scales cannot be used routinely in preoperative patient visits due to various reasons including time-limitation (8).

Anxiety scales applied in the preoperative period give patients the opportunity to express how and what they feel. Additionally, these scales ensure preoperative patient evaluation to be performed electively by enabling the identification of patient groups that need anxiolytic medications. Previous studies have proven that the Amsterdam Preoperative Anxiety and Information Scale (APAIS) is a reliable scale for analyzing preoperative anxiety (9-12).

Sample size calculation: It was assumed that APAIS and STAI scores would show at least 4 units of variation between the two groups and the standard deviation would be 7. When we calculated the standard effect size as 0.57, and accepted alpha 0.05 and beta 80%, 49 would be enough for each group. The SPSS 20.0 program was used for the analysis. The average, standard deviation, ratio and frequency values were used in descriptive data of statistics. Data distribution was examined with the Kolmogorov-Smirnov Test. While the Mann-whitney U
Test was used for the analysis of the quantitative data, the Chi-Squared Test was used for the analysis of qualitative data, and the data which could not meet the Chi-Squared conditions was analyzed with the Fischer Test.

RESULTS

One hundred patients undergoing cancer and non-cancer surgeries were included in the study. None of the patients were excluded for the study. There was no significant difference between the patients regarding their demographic characteristics (Table I). Both APAIS and STAI scores of cancer patients were significantly higher compared to non-cancerous patients (p<0.001, Table II).

There was not a statistically significant correlation between the APAIS score and sex, education level and marital status in the group undergoing cancer surgery (Table III). In the same group there was a significant negative correlation between APAIS score and the number of previous surgeries (r: -0.546, p<0.001 in cancer group and r: 0.157, p: 0.275).

In patients undergoing non-cancer surgery, no significant correlation could be documented between APAIS score and age and number of former operations. In the same group the APAIS scores of female patients were significantly higher than scores of male patients (p=0.011). In that group, APAIS scores did not show a significant difference related to education level and marital status (Table III).

We could not find any significant correlation between STAI scores and sex, number of former operations, education level and marital status in the group having cancer surgery. Within the group having non-cancer surgery, no significant correlation was found between STAI scores and sex, number of operations, range of education, and marital status (Table IV). Number of operations did not differ between cancer and non-cancer surgery groups (r: 0.043, p: 0.767 in cancer group and r: 0.220, p: 0.225 in non-cancer group).

DISCUSSION

In the present study, we utilized APAIS and STAI scores and age, number of former operations, education level and marital status (mean±SD) to compare cancer and non-cancer surgery groups. APAIS and STAI scores were significantly higher in cancer patients compared to non-cancerous patients (p<0.001, Table II).

Table II. The comparison of APAIS and STAI scores (mean±SD)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Cancer surgery mean±SD</th>
<th>Non-cancer surgery mean±SD</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>APAIS</td>
<td>17.62±5.51</td>
<td>12.90±4.18</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>STAI</td>
<td>45.96±4.26</td>
<td>37.86±6.49</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Table III. Correlation between APAIS scores and age, sex, number of former operations, education level, marital status (mean±SD)

<table>
<thead>
<tr>
<th>APAIS</th>
<th>Cancer surgery</th>
<th>Non-cancer surgery</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>18.18±6.07</td>
<td>0.613</td>
<td>14.79±4.53</td>
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<tr>
<td>Male</td>
<td>17.33±5.27</td>
<td></td>
<td>11.74±3.55</td>
</tr>
<tr>
<td>Marital Status</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>19.56±8.08</td>
<td>0.420</td>
<td>13.14±3.63</td>
</tr>
<tr>
<td>Married</td>
<td>17.20±4.81</td>
<td></td>
<td>12.86±4.30</td>
</tr>
<tr>
<td>Education</td>
<td>Primary school graduate</td>
<td>17.65±4.85</td>
<td>0.951</td>
</tr>
</tbody>
</table>

Table IV. Correlation between STAI scores and age, sex, number of former operations, education level, marital status and type of surgery

<table>
<thead>
<tr>
<th>STAI</th>
<th>Cancer Surgery</th>
<th>Non-cancer Surgery</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>46.76±4.42</td>
<td>0.343</td>
<td>39.37±5.10</td>
</tr>
<tr>
<td>Male</td>
<td>45.55±4.18</td>
<td></td>
<td>36.94±7.14</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>46.67±3.24</td>
<td>0.588</td>
<td>36.86±3.80</td>
</tr>
<tr>
<td>Married</td>
<td>45.80±4.47</td>
<td></td>
<td>38.02±6.85</td>
</tr>
<tr>
<td>Education</td>
<td>Primary school graduate</td>
<td>45.78±4.29</td>
<td>0.626</td>
</tr>
<tr>
<td>High school/university graduate</td>
<td>46.46±4.29</td>
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<td>36.31±4.80</td>
</tr>
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</table>
Anxiety indexes for patients having adult cancer surgery, but preoperative anxiety scores were found to be higher in patients undergoing cancer surgery. Moreover, as in previous related studies both indexes were found to be correlated with each other in the present study (1,3).

Previous studies have examined preoperative anxiety in patients undergoing surgery for breast cancer (18) or neurosurgical cancer (9). However, this study notably differs from previous studies: to the best of our knowledge, this is the first study comparing anxiety scores of cancer and non-cancerous patients. While the study population comprised patients diagnosed with malignant tumors, patients diagnosed with benign tumors were not recruited in the study. In short, the present study included only major surgeries. Therefore, anxiety scores were found to be higher in this study compared to other similar studies (4,9).

In this study, we identified two factors that affected patients’ anxiety scores. One of them is sex, and the other is the number of surgeries undergone by the patient. Mean APAIS score of female patients was significantly higher than male patients in the non-cancerous patients’ group. However, we did not observe such a situation within cancer patients. Similarly some other studies reported a positive correlation between female gender and anxiety (11,19). Also, there was a negative correlation in the cancer group between the APAIS scores and number of previous operations. This situation which could not be identified with the STAI scale may be because of the fact that patients have fear and worry about the issues that they have limited information or experience. On the other hand, no difference could be documented between the groups of cancer and non-cancerous patients regarding level of education, marital status or surgery type.

Many patients everyday experience anxiety related to surgery and anesthesia. As preoperative anxiety may result in various negative results such as postoperative pain, analgesic consumption, incidence of nausea- vomiting or extension in hospitalization period, it is important to identify it routinely. However, the fact that conducting surveys takes time, it leads to limitations in their application. The present study compared the results of a 6-item short survey with a 20-item long survey, but neither of the surveys had superiority to the other regarding the identification of patient anxiety level. Therefore, we are in the opinion that the APAIS scale which takes shorter time and is easier to complete may be more appropriate for operating rooms or ward environments where there is always an intensive patient circulation. Because anesthetists mostly allocate limited time to preoperative patient visits and generally could not make time for a query regarding patient anxiety within that period.

The study in which Laufenberg-Feldmann et al. (8) examined preoperative anxiety has indicated that there is a positive correlation between importance of surgery and patient’s anxiety level. In their study, Laufenberg-Feldmann et al.(8) discussed the issues that patients’ medical conditions are not considered, patients undergoing cancer surgery may be expected to have higher levels of fear and that fear may affect patient’s anxiety level. As all the patients included in the study underwent major operations, we did not need to make a separate evaluation regarding the importance of surgery. However, the results of the study verified our hypothesis proposing that patients undergoing cancer surgery may develop higher levels of anxiety. Additionally, in the scope of the study patients were interviewed in the services one day before the surgeries. Moreover, it has been reported earlier that patients show the highest level of anxiety in the morning of surgery, i.e. just before the operation takes place (20).

The reasons of preoperative anxiety reported in previous studies include basically patients’ fears of having problems during emergence from anesthesia, the possibility of failure in surgical procedure, damage to body, losing self-control or death as a result of anesthesia or surgery (2,14). Considering the patients scheduled to have cancer surgery, the most important reasons of anxiety were fear of death and the possibility of failure in the procedure. Almost all of the patients (98%) had given high scores to the item stating ‘I feel myself safe’. Patients with low anxiety scores mostly trusted on the surgeon that would perform the surgery, therefore, that trust may have decreased the fear they had against anesthesia and resulted in lower anxiety scores. As the hospital where the study was conducted is a university hospital, patients had the idea that what can be done would be done here in the best way possible. We considered that such an idea may have had a role in decreasing the anxiety levels of patients.

One of the limitation of the study was that anesthesia type performed for the surgery was not recorded. This may be one of the factors affecting the depth of anesthesia.

**Conclusion**

In conclusion, both APAIS and STAI preoperative anxiety scores were found to be higher in patients having cancer surgery as compared to the others. We are of the opinion that, anxiolytics can be used as premedication in the preoperative period for this patient group.
REFERENCES


