Original Article

Did COVID-19 anxiety cause a delay in the patients' decision to be operated on for lung malignancy?

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ABSTRACT

Background: With the COVID-19 pandemic, "corona anxiety and phobia" negatively affect people in various fields which can lead patients to delay even their lung cancer operations. It was investigated whether the reason was COVID-19 phobia in patients who wanted to postpone lung surgery, and it was aimed to evaluate the COVID-19 anxiety scores in these patients.

Materials and Methods: Between April 2020 and January 2022, the data of patients who were recommended to be operated on due to lung malignancy, but who reported that they wanted to postpone the surgery were analyzed retrospectively. The patients were contacted by phone and questioned whether the reasons for the postponement were the COVID-19 pandemic. The patients were evaluated in the context of the "Coronavirus Anxiety Scale (CAS)" and their anxiety scores and reasons for delay were analyzed with CAS scores.

Results: Of the 122 patients who were recommended to be operated on due to lung malignancy, 90 were operated on, while 32 patients (26.2%) postponed the operation. The mean surgery delay time was 11.59 ± 7.13 months, it was detected that the mean anxiety score was 2.47 ± 2.46 (0-9) points. The average anxiety score of those who answered "no" to the questionnaire was 0.79 points, those who answered "partially" had 2.69 points, and those who answered "yes" were 6.60 points. The CAS score was significantly higher in patients who reported that they postponed their surgeries mainly due to COVID-19 ($p < 0.001$).

Conclusions: Higher levels of coronavirus anxiety were detected in patients who reported that they postponed lung surgery due to COVID-19.

Keywords: coronaphobia, coronavirus anxiety, delay, lung cancer, surgical treatment

Introduction

The new type of SARS-CoV-2 epidemic, which emerged in Wuhan, China in December 2019 and spread in a short time in all regions, was defined as a "Coronavirus-19 or COVID-19 pandemic" by WHO in March 2020 [1,2]. Over the past 24 months, more than 500 million people are reported to have been infected, and more than six million to have died from COVID-19. Although most of the people all over the world are fully or partially vaccinated, the threat to humanity of the COVID-19 pandemic due to variant viruses continues.

As of January 20, 2020; the date on which COVID-19 was reported to be transmitted from person to person, strict quarantine measures began to be taken in all countries, especially in China. Negative psychological effects were observed as a result of the decrease in economic and social mobility with the introduction of home isolation rules [3]. Fear of being infected and dying, as well as the fear of not being able to find resources for basic needs and access to health services, emerging as an anxiety and phobia associated with COVID-19 [4,5]. In the context of COVID-19 being a specific source of anxiety, the "Coronavirus Anxiety Scale" (CAS) was developed to demonstrate its measurability [6]. The Turkish validation of the CAS also carried the strong psychometric properties of the test [7].

When isolation rules became a part of life, people had a dilemma about applying to the hospital for basic health problems. When the patients for whom an operation decision was made, were called at the appropriate time, and called for hospitalization, they began to state that they wanted to postpone their surgeries for varying periods or plan them when the pandemic ended (although it is known that there is an indefinite time frame).

In the study, it was aimed to evaluate the correlation with CAS in patients who were recommended to be operated for lung malignancies, but who gave up or postponed their admission to the hospital due to COVID-19 anxiety.

Materials and Methods

Patients with a diagnosis or suspicion of lung malignancy are listed in the thoracic surgery service. Considering the availability of the clinic and the risk to the patient, patients are called to the service by calling for hospitalization at the appropriate time. Patients who were called for surgery between April 2020 and January 2022, but who postponed their hospitalization for any reason (gave up hospitalization / reported that they were undecided), were documented. Cases with the diagnosis of psychiatric disorders excluded from the study. Patients were called by phone and asked whether the reason for the postponement or cancellation of hospital admission was related to COVID-19 (Yes/partly/no). The patients were then evaluated in the context of CAS. The CAS consists of five questions, each scored from zero to four (Table 1). High scores between zero and 20 points are correlated with the patient's COVID-19 anxiety. The information about whether the patients were vaccinated against COVID-19 and if so, how many doses were recorded. For this study local ethics committee approval was obtained (Approval decision 22-5T/44).

Table 1. Coronavirus Anxiety Scale [6,7].

How often have you experienced the following activities over the last 2 weeks?	Not at all	Rare, less than a day or two	Several days	More than 7 days	Nearly every day over the 2 last weeks
1	I felt dizzy, lightheaded, or faint, when I read or listened to news about the coronavirus.	0	1	2	3	4
2	I had trouble falling or staying asleep because I was thinking about the coronavirus.	0	1	2	3	4
3	I felt paralyzed or frozen when I thought about or was exposed to information about the coronavirus.	0	1	2	3	4
4	I lost interest in eating when I thought about or was exposed to information about the coronavirus.	0	1	2	3	4
5	I felt nauseous or had stomach problems when I thought about or was exposed to information about the coronavirus.	0	1	2	3	4
Column Totals		____ +	____ +	____ +	____ +	____ +
Total Score ____					

Statistical Analysis

IBM SPSS Statistics 25.0 Program was used. The conformity of the numerical variables to the normal distribution was examined using the Shapiro-Wilk (n < 50) test. Numerical variables were given as mean and standard deviation and (min-max). Mann-Whitney-U test was used since the comparison of the two groups in terms of numerical variables could not be compatible with the normal distribution.

The Kruskal-Wallis Test was used because the normal distribution was not suitable for comparison of more than two groups in terms of numerical variables. Categorical variables were given as numbers and percentages. The relationship between categorical variables was examined using Pearson Chi-square and Fisher's exact Chi-square tests. The relationship between numerical variables was examined by Spearman correlation analysis. The significance level of $p < 0.05$ was be accepted for all hypotheses.

Results

Of the 122 patients who were recommended to be operated with a pre-diagnosis of lung malignancy, 90 were operated, while 32 patients (26.2%) postponed the operation. Among this patient group, seven patients were operated in the later period. 20 (62.5%) of the 32 patients were female and 12 (37.5%) were male. The mean age was calculated as 57.3 ± 15.9 (22-82) years. Seven of the patients (21.8%) were operated on, albeit with a delay. In non-operational patients, between enrollment in the operation list and calling patients for the study were considered a delay period. The mean delay time was 11.59 ± 7.13 (1-25) months. When the anxiety scores were examined, a mean score of 2.47 ± 2.46 (0-9) was found.

When the parameters that could affect the anxiety scores were analyzed, the mean score of COVID-19 anxiety was 2.10 ± 2.38 (0-9) points in women and 3.08 ± 2.57 (0-9) points in men. Gender difference was not found to be significant in terms of COVID-19 anxiety.

To the question of whether the reasons for postponing their surgeries were related to COVID-19, 14 people (43.8%) said "no"; 13 people (40.6%) "partially"; 5 people (15.6%) answered "yes". The mean anxiety score of those who answered "No" was 0.79 ± 1.12 (0-3); the mean score of those who answered "partially" was 2.69 ± 1.43(0-6); and the average score of those who answered "yes" was 6.60 ± 2.30 (4-9) points. The COVID-19 anxiety score was significantly higher in patients who postponed their surgeries mainly because of the pandemic and partially because of the pandemic, compared to those who postponed their surgeries for other reasons ($p < 0.001$) (Table 2).

No correlation was found between anxiety scores and latency times. The majority of those included in the study were patients for whom surgery was recommended due to an undiagnosed lung nodule (n=30, 93.75%). Of the two diagnosed patients, one was squamous cell carcinoma, and the other was unsub typed non-small cell lung carcinoma (NSCLC). The patient with a diagnosis of squamous cell carcinoma answered "no" to the question of whether the reason for the postponement was related to COVID-19, while her/his anxiety score was zero. The patient with NSCLC answered "partially" to the question of whether the reason for postponement was due to COVID-19, and her/his anxiety score was two. It was thought that the patients might have postponed the surgery by considering the possibility of the undiagnosed lesions being "benign", but the patient group was not suitable for comparative statistical analysis.

Ten patients (31.25%) did not want to share their vaccination status or information could not be obtained. When 22 patients whose vaccination information could be accessed were evaluated, four patients (18.18%) were not vaccinated, and 13 patients (59.09%) were vaccinated at three or more doses.

Table 2. Demographic data and Anxiety Scores.			
Gender	n (%)	anxiety score (mean±std.dev.)	p
Female	20 (62.5)	2.10	
Male	12 (37.5)	3.08	0.129
Age			
≥ 65	15 (46.8)	2.13±2.7	
< 65	17 (53.2)	2.76±2.7	0.756
Is the reason for delay is Covid-19?			
No	14 (43.8)	0.79±1.12	No vs. partially (0.016*)
Partially	13 (40.6)	2.69±1.43	No vs. yes (< 0.001*)
Yes	5 (15.6)	6.60±2.30	Partially vs. yes (0.101)
*Abbrev.; Std.dev.: Standard deviation; vs.: Versus; *: Statistically significant*			

Discussion

It is known that having an oncological disease is a predisposing factor for psychiatric disorders [8]. The susceptibility of cancer patients to psychiatric diseases such as depression, stress disorder and generalized anxiety decreases the quality of life by adding to somatic pathologies [9]. In a study, it has been shown that patients diagnosed with lung cancer are under the risk of anxiety up to 37% and depression up to 44% [10].

It has been shown that COVID-19 infections course in patients with lung malignancies are mortal compared to the population and patient population with non-pulmonary malignancies [11]. An analysis of patients who contracted COVID-19 after lung surgery found that resection of five segments or more was closely associated with death. The incidence of severe COVID-19 was higher in damaged lungs [12].

Health-related anxieties may increase or decrease depending on many variables, and both conditions may cause problems [13]. Increased anxiety during the pandemic may result in frequently applying to health institutions or refraining from going to health institutions even when needed [14]. In a study in which a positive correlation was found between hospital anxiety and corona phobia, psychiatric support and encouraging strategies were suggested to prevent the interruption of treatment processes of cancer patients [15]. Psychological counseling has been shown to reduce depression and anxiety scores [16].

When Fujita et al. evaluated lung cancer patients who were in the medical treatment process, they reported that 9.1% of the patients experienced disruption and delay in treatment due to the pandemic [17]. The fact that most of the patients postponed the treatment voluntarily suggested that the anxiety of COVID-19 was higher than expected. While the delay of treatment is requested, even if it is medical; considering that possible complications can be extremely mortal, it seems understandable that patients want to postpone their surgeries.

While it has been reported in the literature that women have higher COVID-19 anxiety scores, gender was not found as a determining parameter in our study [18].

Since the first vaccine was administered in Turkey in January 2021, 52 million people (52%) received a double dose, and 26 million (42.5%) received three doses (Republic of Turkey Ministry of Health Covid-19 Vac-cination Information Platform, March 2022). The fact that cancer patients feel more vulnerable to COVID-19 and want to be protected from the disease has increased vaccination rates [19]. In our study, 18 (81.81%) of the patients (n = 22) whose information could be accessed were vaccinated and thus reported that they felt partially safe compared to before vaccination. Statistically significant analysis of the anxiety score difference between vaccinated and unvaccinated was not possible, as there were only four unvaccinated subjects.

Although the results showed that COVID-19 anxiety could be effective in delaying patients who were planned for lung resection, the study had some limitations. Since it was unethical to invite patients to the hospital only for inclusion in the study, telephone communication was preferred. The fact that the Likert-type scale in CAS could not be shared visually with the patients may have created a deficiency. Answering the questions face-to-face made it necessary for us to feel and repeat whether the patients understood the questions with sharp clarity.

In the pandemic conditions, economic concerns as well as health anxiety may have been effective in delaying surgeries. Using the "COVID-19 Phobia Scale (C19P-S)" which is developed by Arpaci et al and which includes psychological, psychosomatic, economic, and social questions, could have provided wider research. However, this scale consisted of 20 questions and it was thought that it would be difficult to get a healthy answer over the phone when the duration of the survey was extended [20].

In a study in which COVID-19 related treatment delays were investigated including urology patients, it was found that postponing surgery in urooncology patients increased anxiety and depression scores [21]. While fighting a pandemic that primarily affects the lungs; planning for surgery due to or suspected lung cancer is a major source of stress for patients. Patients who are afraid of the pandemic enter an indefinite waiting period. It has been reported that delayed treatment procedures result in more complications in patients receiving medical treatment [22,23]. Whilst non-malignant elective surgeries were held up during the pandemic, we did not postpone oncological surgical interventions due to the possibility of increase in the stage of malignancy. When patients who are included in the lobectomy plan are delayed, extended resections may come to the fore due to the advanced disease. The average delay of almost one year in our study suggests that some of these patients may have lost their

chance of operability. While leaving the decision to have the surgery or postpone it to the patient, it seems important to clearly explain the complications that may be encountered in both situations [24].

In conclusion, it was observed that the COVID-19 anxiety scores were high in patients who voluntarily postponed the operation due to lung cancer in the last one and a half years. Considering the delayed surgical treatment of these patients, we can predict that we will encounter high complication rates when the pandemic slows down. Comprehensive studies are needed to objectively state the extent to which delays affect the progression of lung cancer. We are of the opinion that psychological support, vaccination procedures, and access to accurate information in order to cope with the anxiety of COVID-19 in patients with high-risk lung cancer or suspected can reduce complications due to delays.

Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding

The authors received no financial support for the research and/or authorship of this article.

Ethics approval

Approval was obtained from the Local Ethics Committee of Ege University (Approval Decision 22-5T/44).

Authors' contribution

SKA; design and writing the paper, TMEO; collecting and processing data, TIK; critical review, UC; conceptualize and supervision; AO; critical review.

Acknowledgement

We would like to thank Mr. Cüneyt Evren, M.D for sharing the "Coronavirus Anxiety Scale" that forms the basis of our study.

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