

# Evaluation Of Hospital Admissions of Cancer Patients in the Second Wave of the Covid-19 Pandemic: A Retrospective Study

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## ABSTRACT

**Introduction:** Despite advances in science and technology, one of the most important mortality problems in the world is cancer. It is stated that the prevalence of cancer has increased due to reasons such as technological innovations in diagnostic methods, easier access to health institutions, and prolongation of life expectancy.

**Methods:** This study was conducted retrospectively to evaluate some demographic characteristics of patients diagnosed with cancer and COVID-19 who were hospitalized in a pandemic hospital. Between June 2020 and March 2021, hospital and nurse observation files of 1200 patients with cancer and diagnosed with COVID-19 were examined. Research approval (2020-05/28) was granted by the ethics board of University Faculty of Medicine/Turkey.

**Results:** There were 450(37.5%) female patients. The order of comorbid diseases of the patients was first determined as hypertension (53.7%) and diabetes (52.4%). On admission, the most common symptoms of patients were (91.6%) dyspnea, (89.1%) sore throat, and (50.0%) cough. On admission, of the 1200 cancer and COVID-19 patients were 62.5% had bilateral involvement, 91.6% multiple lobular ground-glass opacity, and  $PO_2/FiO_2$  ratio mean  $254.4 \pm 143$ . In total, 37.5% patients required mechanical ventilation. Dialytic support was required for 250 (20.8% of all patients).

**Conclusion:** It stands out as a group that should be handled separately in nursing care due to both the high risk of COVID-19 infection transmission in cancer patients and the poor prognosis and high mortality when infected.

## INTRODUCTION

Despite advances in science and technology, one of the most important mortality problems in the world is cancer. It is stated that the prevalence of cancer has increased due to reasons such as technological innovations in diagnostic methods, easier access to health institutions, and prolongation of life expectancy [1-4]. It is supported by data that the majority of deaths caused by cancer worldwide are lung (19.4%), breast (11.9%) and colon (9.7%) cancers. According to the view of the World Health Organization (WHO), the number of individuals who lost their lives from cancer

was predicted to reach 12 million people in 2030 [1]. The increase in these predicted figures has emerged with the COVID-19 that emerged in March 2020.

COVID-19 is a pandemic process that affects the whole world and continues today [5-8]. Cancer patients are among the patient groups most affected by this difficult process. It is known that the immune system of cancer patients is weak due to the treatment protocols and the drugs they use [9-12]. During the pandemic process, hospitalization of cancer patients increased significantly

### Quick Response Code:



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**Received:** November 30, 2022

**Published:** December 21, 2022

**How to cite this article:** Gürcan Solmaz. Evaluation Of Hospital Admissions of Cancer Patients in the Second Wave of the Covid-19 Pandemic: A Retrospective Study. 2022- 4(6) OAJBS.ID.000531. DOI: [10.38125/OAJBS.000531](https://doi.org/10.38125/OAJBS.000531)

[13-15]. There is no clear data on how much of this increase in hospitalizations the responsibility of COVID-19 is. On the other hand, both hospitalizations and death rates increased remarkably in cancer patients during the pandemic period. In patients with cancer diagnosed with COVID-19, symptoms such as fatigue, fever, dryness, cough, loss of appetite, muscle aches, shortness of breath and inability to smell are the most common [16]. Most of these symptoms are also seen as side effects related to chemotherapy. For this reason, testing has become mandatory for cancer patients to diagnose COVID-19 [4-8]. Studies show that the mortality rate of patients with cancer increases by around 25-30% in the period of COVID-19, and 20% of patients are cancer patients in deaths related to COVID-19 [9-17]. With this study, it was aimed to determine retrospectively what the reflections of the second wave of the COVID-19 pandemic were on cancer patients.

## METHODS

### Study Design and Participants

This study was conducted retrospectively to evaluate some demographic characteristics of patients diagnosed with cancer and COVID-19 who were hospitalized in a pandemic hospital. Between June 2020 and March 2021, hospital and nurse observation files of 1200 patients with cancer and diagnosed with COVID-19 were examined. Research approval (2020-05/28) was granted by the ethics board of University Faculty of Medicine/Turkey.

### Research Inclusion and Exclusion Criteria

Being over 18 years confirmed COVID-19 based on a positive RNA test presence of ground-glass opacity in computed tomography (CT); considered compatible with COVID-19 [9,10]. Pregnant women and patient records for which sufficient patient information was not available were not included in the study.

### Data Collection

Nursing records, chest X-ray records were reviewed by the researcher for all patients from June 2020-March. Clinical data, age, gender, clinical appearance, presence of comorbidities was recorded from patient files. Researcher did not contact patients or family. The study protocol and written informed ethics committee were approved. Research approval (2020-05/28) was granted by the ethics board of University Faculty of Medicine/Turkey. No personal information of patients was collected to protect patient confidentiality and ensure confidentiality.

### Statistical Analysis

Categorical data were described as continuous data as median with interquartile range (IQR) and percentages (%). All statistical analyzes were performed using SPSS Statistics version 22.0 software.

## RESULT

Characteristics of cases are shown in Table 1, COVID-19 and cancer patients had included in this study. The mean age was 72.18±12.72 (52-87) years in patients. There were 450(37.5%) female patients. The order of comorbid diseases of the patients was first determined as hypertension (53.7%) and diabetes (52.4%). On admission, the most common symptoms of patients were (91.6%) dyspnea, (89.1%) sore throat, and (50.0%) cough. On admission, of the 1200 cancer and COVID-19 patients 62.5% had bilateral involvement, 91.6% multiple lobular ground-glass opacity, and PO<sub>2</sub>/FiO<sub>2</sub> ratio mean 254.4±143. In total, 37.5% patients required

mechanical ventilation. Dialytic support was required for 250 (20.8% of all patients).

## DISCUSSION

**Table 1:** Cancer and COVID-19 patients (n=1200).

Variable	N*(%)
Age median years (mean±SD)	72.18±12.72 (52-87)
<b>Gender</b>	
Female	450(37.5%)
Male	750 (62.5%)
PaO <sub>2</sub> (mean±SD)	272.3±4.75
Mechanical ventilation	900(75.0%)
<b>Comorbidities</b>	
Hypertension	630(53.7%)
Diabetes	620(52.4%)
CVD	300(25.0%)
COPD	490(42.4%)
<b>Symptoms and Signs*</b>	
Fever	570(47.5%)
Cough	600(50.0%)
Fatigue-weakness	150(12.5%)
Sore throat	1070(89.1%)
Headache	520(43.3%)
Dyspnea	1100(91.6%)
Myalgia or arthralgia	120(10.0%)
<b>Chest CT Findings*</b>	
Unilateral pneumonia	340(28.3%)
Bilateral pneumonia	750(62.5%)
Multiple mottling and ground-glass opacity	1100(91.6%)
PO <sub>2</sub> / FiO <sub>2</sub> ratio (mean±SD)	254.4±143
Mechanical ventilation	450(37.5%)
<b>Treatment of AKI</b>	
Conservative treatment	950(79.2%)
Dialysis dependent	250(20.8%)

n\*: More than one answer was given, and percentages were taken from n; COVID-19: Coronavirus 2019; COPD: Chronic Obstructive Pulmonary Disease; CVD: Cardiovascular Diseases; CT: Computed Tomography

This study was conducted retrospectively to evaluate some demographic characteristics of patients diagnosed with cancer and COVID-19 who were hospitalized in a pandemic hospital. This study was found that male patients had a higher incidence of disease COVID-19 than female. The mean age of the patients was found to be 72.18±12.72 (52-87), and previous studies on COVID-19 are similar to these findings. Also, the majority of patients included in the study were hypertensive diabetic and CVD (Table 1), which was consistent with recent reports [4-9]. Thus, it can be said that COVID-19 is more common in elderly male patients with hypertension diabetes CVD.

The clinical data showed that fever, dyspnea, cough, and fatigue were the most common symptoms in patients. The most common symptoms in cancer patients with COVID-19 were dyspnea, sore throat and cough (Table1). These symptoms are also common in other influenza and other respiratory viruses [18-20]. In this study, 62.5% of COVID-19 and cancer patients had bilateral pneumonia with the feature of multiple mottling and ground-glass opacity on CT images (Table1). The results of the study are similar to our findings. These radiological findings provide evidence why patients with COVID-19 pneumonia can breathe better in the supine position rather than on their back in nursing care [7,8]. Large-scale studies are needed to understand which positions are better for patients with impaired renal function. As in many respiratory tract virus infections, the WBC and neutrophil counts vary in our study [11,19]. Mechanical ventilation is used for 37.5% of the patients in this study. In some studies, it was determined that mechanical ventilation was used at rates similar to ours [5-20].

### Limitations and Further Research

This study has a few limitations. The small sample size, the inability to access the necessary information in some patient files, and the study was conducted from a single center.

### CONCLUSION

COVID-19 and cancer are one of the severe diseases. As the disease progresses, differences in laboratory results and radiological findings may indicate that some complications have developed. It stands out as a group that should be handled separately in nursing care due to both the high risk of COVID-19 infection transmission in cancer patients and the poor prognosis and high mortality when infected. In this process, the process of cancer patients with COVID-19 in the pandemic can be closely followed and changes in standard nursing care can be integrated immediately according to the conditions.

### DATA AVAILABILITY STATEMENT

The datasets generated and analysed during the current study are not publicly available because this study is part of a larger study.

### STUDY FUNDING

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

### ACKNOWLEDGMENT

The author thanks the staff of Hospital/Turkey.

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