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COVID-19 PANDEMİSİNİN PALYATİF BAKIM MERKEZİNDEKİ KANSER HASTALARI ÜZERİNDEKİ ETKİSİNİN DEĞERLENDİRİLMESİ; ÖNCESİ & SONRASI

BEFORE & AFTER: THE EVALUATION OF THE EFFECT OF THE COVID-19 PANDEMIC ON CANCER PATIENTS IN PALLIATIVE CARE CENTER

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ÖZET

AMAÇ: Kanser hastalarında COVID-19 enfeksiyonundan kaynaklanan yüksek ölüm riskine ek olarak, kanser tanısındaki gecikmeler kanser hastalarının tedavisinin gecikmesine neden olabilir. Bu çalışmada, Türkiye'de pandemi öncesi ve sonrası bir yıllık dönemler arasında kanser hastalarının tanı, evre ve prognoz gibi özelliklerindeki değişikliklerin değerlendirilmesi amaçlanmıştır.

GEREÇ VE YÖNTEM: Palyatif serviste 11 Mart 2019 ile 11 Mart 2021 tarihleri arasında palyatif tedavi alan hastaların kayıtları retrospektif olarak incelendi. Hasta dosyalarından yaş, cinsiyet, tanı, tanı tipi, tedavi tipi, palyatif servise geliş yeri ve taburculuk şekli retrospektif olarak tarandı. Tekrarlayan yatışları olan hastaların ilk yatışları değerlendirildi. Hasta kayıtları yetersiz olan hastalar çalışma dışı bırakıldı.

BULGULAR: Radyolojik olarak kanser tanısı konulan hastaların oranı artmıştır. Pandemi öncesi dönemde hastaların %9,1'inde radyolojik olarak kanser bulgusu saptanırken, pandemi sonrası dönemde bu oran %16,2 idi. Hastalar yatarak palyatif bakım öncesi aldıkları onkolojik tedavi açısından değerlendirildiğinde anlamlı fark saptandı (p=0,002). Bu fark pandemi sonrası onkolojik tedaviye uygun olmayan hastaların oranındaki artıştan kaynaklanmaktaydı.

SONUÇ: Pandeminin yeni tanı alan ve palyatif bakım hizmetlerine ihtiyaç duyan hastalar üzerinde büyük etkileri olduğunu düşünüyoruz. Bu çalışmada, pandemi sonrası dönemde radyolojik olarak kanser tanısı alan ve palyatif bakım servislerinde tedavi gören kanser hastalarında artış gözlemlendi.

ANAHTAR KELİMELER: Kanser, Kanser Hastaları, Covid-19, Palyatif Bakım, Pandemi.

ABSTRACT

OBJECTIVE: In addition to the high risk of death from COVID-19 infection in cancer patients, delays in cancer diagnosis may result in delayed treatment of cancer patients. The study aimed to evaluate the changes in the characteristics of cancer patients, such as diagnosis, stage and prognosis, between the pre-pandemic and post-pandemic one-year periods in Turkey.

MATERIAL AND METHODS: The records of patients who received palliative treatment in the palliative service between March 11, 2019 and March 11, 2021 were reviewed retrospectively. Age, gender, diagnosis, type of diagnosis, type of treatment, place of arrival to the palliative service, and way of discharge were retrospectively scanned from patient files. The first hospitalizations were evaluated in patients with recurrent hospitalizations. Patients with inadequate patient records were excluded from the study.

RESULTS: The proportion of patients diagnosed with cancer radiologically has increased. While radiological findings of cancer were detected in 9.1 percent of patients in the pre-pandemic period, this rate was 16.2 percent in the post-pandemic period. When the patients were evaluated in terms of the oncological treatment they received before inpatient palliative care, a significant difference was found (p=0.002). This difference was due to the increase in the proportion of patients who were not suitable for oncological treatment after the pandemic.

CONCLUSIONS: We believe that the pandemic had great effects on newly diagnosed patients and patients in need of palliative care services. In the present study, we observed an increase in cancer patients who were radiologically diagnosed with cancer and treated in palliative care services in the post-pandemic period.

KEYWORDS: Cancer, Cancer Patients, Covid-19, Palliative Care, Pandemic.

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INTRODUCTION

SARS-CoV-2 is a single-stranded, spherical RNA virus with glycoprotein spikes (1). There are seven subtypes of coronaviruses that infect humans, including MERS, SARS-CoV-1, and SARS-CoV-2 (COVID-19) (2). SARS-CoV-2 targets the ciliated bronchial epithelium and alveoli via angiotensin-converting enzyme 2 (ACE-2). The virus is primarily transmitted via airborne droplets (3, 4). The most reported symptoms have been fever, cough, and shortness of breath.The leading cause of death has been linked to acute respiratory distress syndrome, myocardial injury, or renal failure (5).

After the COVID-19 infection spread to countries and continents, the World Health Organization declared the situation a pandemic and called on all countries to make plans urgently against the disease (6). The organizations related to oncology announced specific patient care recommendations for both adjuvant and palliative care (7, 8).

After the first case was reported on March 11, 2020 in Turkey, the Ministries of Health and Interior announced some regulations to the public, such as travel restrictions, social distancing, and centralized quarantine (9). Some studies showed that cancer patients experienced treatment interruptions (10, 11). Also, inpatient oncology clinics made changes in cancer care, including chemotherapy administration and palliative treatment such as transfusions or day-care services (12). In addition to cancer patients being at increased risk of death from COVID-19 infection, the interruption of the standard of care will further affect this group of patients.

The collateral damage may be related to delays in diagnostic procedures, changes in treatment schemes, and early discharge from the hospital. The definite impact of the damage will be understood in the future (13 - 15). A possible effect may be upstaging of the disease, especially from a 'curable to non-curable' state, which will be directly related to cancer mortality (16). The present study aimed to evaluate the changes in cancer patient characteristics, including diagnosis, stage, and prognosis between the pre-pandemic and post-pandemic one-year periods based on the start of the pandemic in Turkey.

MATERIALS AND METHODS

Study Populations and Design

The records of patients admitted for inpatient palliative care were retrospectively analyzed. The age, sex, diagnosis, treatment type, incoming and outgoing services, and dates were recorded. The records from March 11, 2019 to March 11, 2021 were included, in Eskişehir Osmangazi University Hospital, Palliative Care Center. In cases of multiple hospitalizations, the first admission of the patient was taken into consideration. Patients without adequate records were excluded from the study.

Ethical Committee

The study was approved by both the Turkish Ministry of Health and the Ethics Committee of Eskişehir Osmangazi University Faculty of Medicine (26.10.2021 dated and 9 numbered) and carried out following the principles of the Declaration of Helsinki and all applicable regulations.

Statistical Analysis

Statistical analyses of the study were performed using SPSS version 22.0. Descriptive data were presented as either means or medians for continuous variables, frequencies, and percentages for categorical variables. The Pearson's X2 test was used to assess the associations between categorical variables. The differences between rates were compared by the Z-test using E-PICOS.

RESULTS

There were 143 oncology patients admitted to the inpatient palliative care service in the pre-pandemic period, with a mean age of 67.5 years (min-max: 60–92 years). The total number of patients treated in the post-pandemic period was 148, with a mean age of 66.3 years (min-max: 61–93 years). The mean age of the overall population was 66.3 years. The male-to-female ratio was 58.7/41.3% and 65.5/34.5% in the pre- and post-pandemic periods, respectively ($p = 0.23$). The metastatic disease state of the patients was similar in the pre-and post-pandemic periods ($p = 0.26$). The rate of metastasis was 76.2% and 70.9% respectively. The diagnosis of the patients was similar in the pre- and post-pandemic periods, with no specific type of

cancer diagnosed after the pandemic (p = 0.72). An increased rate of patients was radiologically diagnosed with cancer after the pandemic. There was radiological evidence of cancer in 9.1% in the pre-pandemic period, while 16.2% of the patients had no tissue biopsy in the post-pandemic period **(Table 1)**. There was no difference when the patients were compared according to the incoming services (p=0.82) **(Table 2)**.

Table 1: The type of patient diagnosis in pre- and post-pandemic periods

Type of Diagnosis	Pre-COVID-19	Post-COVID-19	p-value
Tissue Biopsy	90.9% (N=130)	83.8% (N=124)	0.68
Radiological	9.1% (N=13)	16.2% (N=24)	
Sum	100% (N=143)	100% (N=148)	

Table 2: The incoming patient source before and after the COVID-19 pandemic

	Home	ICU	Oncology	Other	Sum	p-value
Pre-Pandemic	16.8% (N=24)	26.6% (N=38)	36.4% (N=52)	20.3% (N=29)	100% N=143	0.82
Post-Pandemic	17.6% (N=26)	26.4% (N=39)	39.9% (N=59)	16.2% (N=24)	100% N=148	

ICU: Intensive Care Unit

When the patients were evaluated for the place of discharge in the pre- and post-pandemic periods, a statistical difference was found. The post-doc analysis revealed that the significance resulted from the difference between mortality rates (p=0.02) **(Table 3)**.

Table 3: Types of patient discharge before and after the pandemic

	Died	Discharged	Transferred	Sum	p-value
Pre-Pandemic	69% (N=98)	24.6% (N=35)	6.3% (N=9)	100% N=142	0.02
Post-Pandemic	54.1% (N=80)	33.8% (N=50)	12.2% (N=18)	100% N=148	

When the patients were evaluated for any oncological treatment received before inpatient palliative care, a significant difference was found (p=0.002) **(Table 4)**. The difference mainly resulted from the increased post-pandemic rate of patients who were not a candidate for oncological treatment (p<0.001).

Table 4: The evaluation of the patients for the treatment received

Treatment Status	Pre-Pandemic	Post-Pandemic	p-value
Not a candidate	17.5% (N=25)	32.4% (N=48)	<0.001
Treated	79.7% (N=114)	67.6% (N=100)	0.02
Not volunteer for treatment	2.8% (N=4)	0% (N=0)	0.04
Sum	100% (143)	100% (148)	0.002

DISCUSSION

The present study observed a post-pandemic trend for radiologically diagnosed cancer patients receiving treatment in palliative care services. There was also a significant increase in the rate of patients who did not receive any oncological treatment due to poor performance status.

While cancer is one of the comorbidities that increase the risk of and mortality due to COVID-19, delays in the diagnosis and treatment of the disease can lead to disease progression and life-threatening consequences (17). Studies have reported adverse outcomes such as that patients requiring cancer-related treatment receive inadequate healthcare services because hospitals have become COVID-19 referral hospitals and delays occur in diagnosis as patients are afraid of going to the hospital (18).

It is believed that mortality and morbidity will increase in individuals with diseases other than those caused by the virus due to complications caused by the interruptions to diagnosis and/or treatment during the Covid-19 pandemic (19). This situation was defined by the term collateral damage due to the COVID-19 pandemic. In our country, outpatient service interruptions are unavoidable in the healthcare services, including routine surgical procedures postponed due to the pandemic, as most hospitals were assigned as COVID-19 referral hospitals. Due to these changes in the delivery of healthcare services worldwide, serious problems have started to occur in the management of systemic diseases and cancer cases (20). Especially delays that may occur in the early diagnosis of cancer cases result in irreparable outcomes (21).

Our study, which reviewed pre-pandemic and post-pandemic one-year data in the palliative care service of a tertiary healthcare institution, established an increase in the rate of patients who were radiologically diagnosed with cancer, without tissue biopsy, although the difference was statistically insignificant (p=0.68). We believe that delays in hospital admissions when necessary and when patients have complaints due to travel restrictions, isolation measures, and the fear of contracting the coronavirus or delays in diagnosis due to the focus on the pandemic by the hospitals during admissions cause the patients to be diagnosed late and admitted to the palliative care service with a radiological diagnosis without a tissue diagnosis. A recent study underlined that more significant damages might occur in cancer patients not infected with COVID-19 due to interruptions in diagnostic processes, palliative care, interventional procedures, and patient follow-ups. In this study, Güven et al. reported a significant decrease in hospital admissions of patients upon the reports of the first COVID-19 cases in oncology services (22). Studies found a decline in chemotherapy adherence with the fear of COVID-19 and new restrictions and lockdowns (10).

Patients admitted to palliative services are mainly referred by oncology clinics, intensive care units, and home care services. Considering the pre-pandemic and post-pandemic one-year periods, our study established no difference in the places referring the patients to the palliative care service (p=0.82). This might be due to the continuation of the treatment of non-COVID-19 patients in our hospital, which did not only serve as a COVID-19 referral hospital.

When the patients were evaluated for the place and type of discharge before and after the pandemic, the rate of mortality was found to be 69% and 54.1% in the pre-pandemic and post-pandemic periods, respectively. This might be because the transfer of our patients to intensive care units and other clinics was 12% higher in the post-pandemic period than in the pre-pandemic period (6.3%). Another reason might be that the higher rate of discharge to home in the post-pandemic period (33.8%) than in the pre-pandemic period (24.6%). The post hoc analysis revealed a difference in the type and place of discharge between the pre-pandemic and post-pandemic periods, which was considered the reason for the significance.

Concerning metastases, our study patients had similar findings in the pre-pandemic and post-pandemic periods (p=0.26). There was no difference in cancer types (p=0.72).

A significant difference was established between patients who received and who did not receive oncological treatment before admission to the palliative care service (p=0.002). The difference mainly resulted from the post-pandemic increase in the rate of patients who were not candidates for oncological treatment. In oncological treatments, it is extremely important to administer the planned chemotherapy without delay for the efficacy of the treatment. Studies demonstrated that delays in chemotherapy for any reason adversely affected patient survival (11). Although we know the problems of cancer and COVID-19 patients, cancer patients can be seriously affected by this course, even if they do not have COVID-19 (22). The study conducted by Karacin et al. in Turkey determined that the fear of COVID-19 was the third most common reason for chemotherapy delays. During the COVID-19 pandemic, additional personnel and resources were allocated to healthcare services, while the routine controls of cancer patients were somehow postponed and interrupted (11). We believe that patients are diagnosed late and thus not eligible for treatment or interventional procedures as a result of delaying admission to the hospital when they have many complaints due to difficulties in accessing healthcare services and the fear of COVID-19 infection. Also, interruptions might have occurred in interventional procedures due to the increased workload of radiology clinics during the COVID-19 pandemic.

The operational changes in the outpatient clinic services, which are considered the places of diagnosis in healthcare facilities, upon the COVID-19 pandemic might have caused interruptions in the diagnostic stages. This, in turn, may cause delays in cancer diagnosis and the presentation of an advanced-stage disease at the time of diagnosis. Breast cancer and gastro-

intestinal cancers can be diagnosed in the early stages without any symptoms, while lung cancers are often diagnosed in the advanced stages through symptoms. Due to the lockdowns and operational changes in hospitals and institutions in the early days of the pandemic, cancer screening procedures are significantly reduced and even halted, which may be another reason. Similarly, the postponement of all elective endoscopy and mammography admissions at the beginning of the pandemic might have also affected the diagnosis of cancer or the non-receipt of treatment in our study (22).

Limitations of the study had retrospective nature which made data quality low. The data used was hospital based which may lack other hospitals pathology and radiology datas but this handicap was considered to be equal for both pre- and post-pandemic period. The study may not have power to evaluate whole country cause every province had different infection and vaccination rates.

We believe that the pandemic had great effects on newly diagnosed patients and patients in need of palliative care services. In the present study, we observed an increase in cancer patients who were radiologically diagnosed with cancer and treated in palliative care services in the post-pandemic period. We also observed a significant increase in the number of patients who could not receive any oncological treatment due to poor performance.

A post-pandemic trend was observed in radiologically diagnosed cancer patients treated in palliative care services. There was also a significant increase in the proportion of patients who did not receive any oncologic treatment due to poor performance status.

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