



Demographic Examination of Patients with Oncologic Diagnosis Admitted to the Emergency Department

Acil Servise Başvuran Onkolojik Tanılı Hastaların Demografik İncelenmesi

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ABSTRACT

Aim: Prolongation in the life span of cancer patients has resulted in increased number of cancer patients all over the world. However, this change is increasing the number of oncological patients admitted to the emergency departments every day. This study aimed to determine the reasons for admission to the emergency department (ED) for cancer patients and to examine the factors affecting the prognosis demographically.

Materials and Methods: Patients aged 18 years or older with clinical/pathological oncologic diagnoses, who applied to Tekirdağ Namık Kemal University Hospital Emergency Department between March 1st 2018 and August 31st 2018, were included in the study. The study was prospective and ethics committee approval was obtained prior to the study.

Results: Totally 265 patients with pathology reports for confirmed oncology diagnosis were included in the study. The most common reason was "pain" with a rate of 13.6% (n=36). Gastrointestinal system symptoms and respiratory system symptoms were the most common reasons for hospitalization in clinics and intensive care units and patients who had these symptoms died with the rates of 6.8% (n=18) and 33.3% (n=30), respectively, in clinics.

Conclusion: The most common reasons for ED visits by cancer patients are pain, nausea and vomiting, abdominal pain, and shortness of breath. Oncology patients admitted to the ED have higher needs for laboratory tests, radiological imaging and consultation, and time to be followed in the emergency services.

Keywords: Oncology, emergency, medicine

ÖZ

Amaç: Hasta bakımındaki iyileşmeler sayesinde kanser hastalarının yaşama süresindeki uzamalar tüm dünyada kanserli hasta sayısının giderek artmasına neden olmaktadır. Bununla beraber acil servise başvuran onkolojik hastaların sayısı da gün geçtikçe artmaktadır. Bu çalışma ile kanserli hastaların acil servise başvuru nedenleri ve prognozu etkileyen faktörleri demografik olarak incelenmiştir.

Gereç ve Yöntem: Çalışmaya Tekirdağ Namık Kemal Üniversitesi Hastanesi Acil Servisi'ne 1 Mart 2018 tarihi ile 31 Ağustos 2018 tarihi arasında başvuran ve klinik/patolojik/onkolojik tanısı olan 18 yaş ve üzeri hastalar dahil edildi. Çalışma prospektif olup, başlamadan önce etik kurul onayı alındı.

Bulgular: Çalışmaya onkoloji tanısı patoloji raporları ile kesinleşmiş 265 hasta dahil edildi. Olguların yaş ortalaması 60±12 yıl olup, kadınlardaki yaş ortalamasının 58±13 yıl olduğu görüldü. En sık başvuru şikayeti %13,6 (n=36) ile "ağrı" oldu. Kliniklere ve yoğun bakım ünitelerine en sık yatış nedeninin %6,8 (n=18) ile gastrointestinal sistem patolojileri ve respiratuvar patolojiler olduğu görüldü. Yatışı yapılan 90 hastadan %63,3'ünün (n=57) hastaneden taburcu edildiği ve %33,3 (n=30) hastanın ise yatırıldığı kliniklerde vefat ettiği saptandı.

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Sonuç: Onkolojik hasta gruplarının yaş ortalaması yüksek olduğu için morbiditesi ve mortalitesi diğer hasta gruplarına göre daha yüksektir. Bu sebeple bu hasta grupları acil servise diğer hasta gruplarına göre farklı şikayetlerle gelebilmektedirler. Onkolojik hastaların tetkik ve tedavilerinin daha dikkatli düzenlenmesi gerekmektedir.

Anahtar Kelimeler: Onkoloji, acil, tıp

INTRODUCTION

The number of cancer patients admitted to the emergency departments is increasing every day. There are several possible reasons for this increase. The improvement in living standards has resulted in an increase in the population aged over 65 years in parallel with an increase in the incidence of age-dependent oncological diseases. With the improvement in the quality of life, there has also been an increase in the prevalence of cancer in parallel with the increased population aged 60 years and over¹. However, with the improvements in patient care, the prolongation in the survival of cancer patients results in the increase in the number of cancer patients relatively in the society¹.

According to the data of the World Health Organization (WHO), cancers are the second most common reason for deaths worldwide and they were thought to be responsible for 9.6 million deaths in 2018². Globally, cancer types are the first or second common cause of premature deaths (between the ages of 30 and 69 years) in 134 out of 183 countries². The economic burden of cancer patients for countries is gradually increasing, and the total annual economic cost of cancer patients in 2010 was estimated to be 1.16 trillion USD².

Cancer is a chronic disease and cancer patients can apply to emergency services with a wide variety of complaints. These complaints can roughly be classified as conditions directly caused by the existing cancer (pain, compression, bleeding), conditions that develop due to chemotherapy treatment (tumor lysis, febrile neutropenia), and conditions indirectly caused by cancer (infectious, metabolic)³. Patients may apply to emergency services with only one or a combination of several of these above conditions. Many of these disease conditions are life threatening and require immediate diagnosis and treatment. Early diagnosis and appropriate treatment are effective in improving the comfort care of the patient⁴. The first application points of these patient groups in hospitals are frequently the emergency services. This situation increases the number of emergency service applications and intensities.

In this study, it was aimed to investigate the common reasons for admission, problems that were encountered, and demographic data of oncology patients admitted to an emergency department. Recognition of these situations will contribute to the emergency service workers' realization of the potential risks in cancer patient groups and improve the regulation of the patience approach policies.

MATERIALS AND METHODS

Before the study, the approval from Namık Kemal University Non-Invasive Clinical Research Ethics Committee was obtained (approval number: 2018/19/02/04, date: 19.02.2018).

Studied Population

Patients with clinical/pathological oncological diagnosis, aged 18 years and over, who applied to Tekirdağ Namık Kemal University Emergency Service between March 1st 2018 and August 31st 2018 and who signed the "Volunteer Consent form" were included in the study. Patients with a clinical/pathological oncological diagnosis, whose complaint at admission to the emergency service was not related to oncological disease (such as having breast carcinoma but brought to the emergency room due to a traffic accident or having lung cancer but applying due to extremity trauma etc.), were excluded from the study.

Study Protocol

The data of the patients who met the study inclusion criteria and who signed the "Volunteer Consent form" were recorded in the patient data record form. The observation and inspection data, duration of stay in the emergency service and emergency/clinical outcomes of the patients whose treatments were completed in the emergency department were analyzed on the "Hospital Information Management System" and recorded in the study form.

Clinical Outcomes of the Study

The primary endpoint of our study was to define the reasons for admission to the emergency department for patients with oncological diagnosis, and the secondary endpoint was to determine the emergency room outcomes of the patients.

Statistical Analysis

The data obtained from the study were recorded in the standard software of "Statistical Package for Social Sciences for Windows 20.0" to conduct statistical analysis. The t-test was used for the comparison of the means, and the chi-square test was used to compare the variables determined by counting.

RESULTS

Totally 265 patients with oncology diagnosis confirmed by pathology reports were included in the study. The youngest and the oldest patients were 19 and 84 years old, respectively.

52.1% (n=138) of the patients were male. The mean age of the cases was 60±12 years, and the average age in women was 58±13 years. It was found that 87.9% (n=233) of the patients were self-applied to the emergency service and 12.1% (n=32) by 112 emergency ambulance (Table 1).

The most prevalent complaints of patients were gastrointestinal system (GIS) complaints with a rate of 40.8% (n=108), followed by respiratory system complaints with a rate of 15.8% (n=42). The most prevalent symptom was "pain" with the rate of 13.6% (n=36) (Table 2).

When the cancer classifications of the patients were examined, it was determined that the most common types were GIS malignancies with the rate of 31.7% (n=84), followed by respiratory system and intrathoracic organ neoplasms with the rate of 27.5% (n=73). It was found that 61.5% (n=163) of the patients were metastatic and 85.7% (n=227) of the patients were under medical follow-up by the Medical Oncology department. It was determined that 87.2% (n=231) and 30.6% (n=81) of the studied patients were previously given chemotherapy and radiotherapy, respectively. It was determined that 46.4% (n=123) of the patients undergone oncological surgery and 74.7% (n=198) had no known family history at 1st and 2nd degree relatives (Table 3).

When the conditions of the patients in the emergency service were examined, it was determined that laboratory examination was requested at the time of admission to the emergency department from 91.3% (n=242) of the 265 patients included

in the study. When the outcomes of the patients were monitored in the emergency department, it was determined that 49.8% (n=132) of patients were consulted to the relevant units, 62.6% (n=166) were discharged from the emergency department and 34% (n=90) were admitted to the service and intensive care units. It was observed that 27.5% (n=73) of the patients were followed up in the emergency department for four hours or more (Table 4).

Among the patients who were admitted to clinics and intensive care units, the most common reasons for hospitalization were GIS pathologies and respiratory pathologies with 6.8% (n=18), followed by hematological problems with 5.7% (n=15). The most common reason for hospitalization was neutropenic fever in 9 patients (3.4%), followed by pain palliation in 7 patients (2.6%). It was determined that 63.3% (n=57) of the 90 hospitalized patients were discharged from the hospital and 33.3% (n=30) of the patients died in the clinics where they were hospitalized. Patients who died (23.3%, n=7) were found to be hospitalized for palliative purposes. Of the 30 patients who died, 40% (n=12) and 33.3% (n=10) were previously diagnosed with "respiratory and intrathoracic neoplasm" and "GIS malignancy", respectively. It was observed that 25% (n=8) and 34.3% (n=11) of 32 patients which were brought to the emergency room by 112 ambulance were admitted to intensive care units and to service floors, respectively.

DISCUSSION

The yearly increases in oncology cases around the world has a reflection in emergency room admission numbers, which is becoming a serious problem for the management of emergency services that are currently very busy. According to WHO data, it is estimated that the number of active cancer patients in 2020 was over 19 million and 9.9 million (17.8%) of 55.4 million deaths in the world in 2019 were caused by cancer. Moreover, this number is expected to be over 16 million in 2040⁵. Of more than 10 million newly diagnosed cancer patients within a year, 53% are men and 47% are women⁴. Kerrouault et al.⁶ found that 65% of the patients with an oncological diagnosis, who applied to the emergency department, were male and the average age was 62 years. Kocak et al.⁴ found in their study that 58% of the patients were male. In our study, we found

Table 1. Demographic characteristics of the patients

Demographic data	Result
Gender	
Male	52.1% (n=138)
Female	47.9 % (n=127)
Type of application to service	
112 emergency ambulance	12.1% (n=32)
Outpatient and self-referred	87.9% (n=233)
Average age	
Male	62±10 years old
Female	58±13 years old

Table 2. Complaints and experienced symptoms of patients

Systemic	%	n	Symptoms	%	n
GIS	40.8	108	Pain (muscle-joint, tumor)	13.6	36
General symptoms and signs [*]	35.5	94	Nausea and vomiting	13.2	35
Respiratory symptoms	15.8	42	Abdominal pain	12.8	34
Neurological symptoms	6.4	17	Shortness of breath	12.5	33

^{*}Complaints such as pain, fever, gingival bleeding, epistaxis, hematuria and others were recorded as general symptoms and signs.
GIS: Gastrointestinal system

Table 3. Oncological characteristics of patients

Cancer classification	%	n
GIS malignancy	31.7	84
Respiratory and intrathoracic neoplasm of organs	27.5	73
Neoplasm of organs	11.3	30
Hematological malignancy	10.2	27
Metastasis		
Present	61.5	163
Absent	38.5	102
Host clinic		
Medical oncology	85.7	227
Hematology	10.2	27
General surgery	1.9	5
Chemotherapy history		
Present	87.2	231
Absent	12.8	34
Radiotherapy history		
Present	30.6	81
Absent	69.4	184
Surgery history		
Present	46.4	123
Absent	53.6	142
Family history		
Present	25.3	67
At 1 st degree relatives	23.0	61
At 2 nd degree relatives	2.3	6
Absent	74.7	198
GIS: Gastrointestinal system		

that 52.1% of the patients were male, 47.9% were female, the average age was 60 years, and we found that these findings were consistent with the literature.

Siegel and Bigeraw⁷ found that the importance of palliative care in emergency services was increasing, symptoms related to pain, nausea and shortness of breath were common especially at oncology patients in the last period of their life, and these type of patients applied to the emergency services for these symptoms⁷. In our study, we found that the most common symptom was "pain" (26.4%, n=70), followed by "nausea and vomiting" (13.2%, n=35) and "shortness of breath" (12.5%, n=33). Palliation of pain in oncology patients is difficult with non-opioid drugs due to its physiopathology and needs for opioids are frequent, which can be considered as another factor that increase the frequency of hospital admissions.

The most common type of cancer encountered in the emergency department was reported to be lung cancer in

Table 4. Features of emergency service applications

	%	n
Laboratory examination		
Present	91.3	242
Absent	8.7	23
Radiological examination		
Present	66.8	177
Absent	33.2	88
Consultation prompt		
Present	49.8	132
Absent	50.2	133
Emergency service outcome		
Discharge from the emergency service	62.6	166
Admission to the service	27.2	72
Admission to the intensive care unit	6.8	18
Voluntarily leave of the emergency service	2.6	7
Referral to another hospital	0.8	2
Duration of follow-up in emergency department		
0-1 hours	4.9	13
1-2 hours	25.3	67
2-3 hours	21.1	56
3-4 hours	21.1	56
>4 hours	27.5	73

studies of Swenson et al.¹ (16%) and Yaylacı et al.⁸. In their study, Işıkber⁹ reported that the most common type of cancer was GIS tumors in the applications followed by lung cancer in the second order. In our study, we found that GIS malignancies were ranked first with a rate of 31.7% (n=84), followed by "respiratory system and intrathoracic organ neoplasms" with a rate of 27.5% (n=73).

In their study, Yaylacı et al.⁸ found that the most common complaint was pain and the second most common complaint was shortness of breath. In our study, we found that the most common complaint was pain, followed by nausea and vomiting, and then by dyspnea.

Işıkber⁹ reported in their study that 36% of the cases were metastatic at admission stage. Çoban³ reported in their study that 72% of patients were metastatic at the time of admission. In our study, we found that 61% of the cases were metastatic at the time of admission, which we associated this high value with the status of tertiary healthcare institution, admitting advanced and complicated cases.

Barrett and Hamilton¹⁰ reported in their study that 23% of lung cancer cases were hospitalized urgently. In our study, we found that 28 (38.3%) of 73 patients diagnosed with "neoplasm of respiratory and intrathoracic organs" were hospitalized in service and intensive care units. We associated

this high rate of hospitalization with the approach that the respiratory problems were the leading causes of mortality and morbidity in patients and therefore physicians had a lower hospitalization threshold for hospitalization.

Işıkber⁹ examined the emergency service outcomes of the patients and reported in their study that 70% of the patients were discharged from the emergency service and 23% were hospitalized. In our study, we observed that 62% of the patients were discharged from the emergency department, and 34% were admitted to the service and intensive care units. In other studies, hospitalization rates in the general patient population in tertiary emergency services were found to be reported between 12% and 13%^{11,12}. This shows that the hospitalization rate of oncology patients is high, compared to all admissions, due to the difficulty of pain palliation in cancer patients and the difficulty of home care for cancer patients.

Study Limitations

The limitation of this study should be considered when interpreting our results. First, the present study is a prospective study with relatively small sample size. Second, limited parameters were examined in a limited time period in this study. Therefore, our results should be verified in multi-center prospective longitudinal studies with larger sample size.

CONCLUSION

For many cancer patients, emergency services are the entrance point to the hospitals. Frequent applications of these patients increase the intensity in the emergency services. Morbidity and mortality of these patient groups are higher compared to other patient groups. Due to this reason, oncological patients should be investigated more detailed in emergency departments. Separating oncological patients from other groups of patients in the emergency rooms in a section may be useful to achieve this target. Multi-center studies with more detailed data on wider populations will be more beneficial and guiding.

Ethics

Ethics Committee Approval: This study was approved by the Tekirdağ Namık Kemal University Non-Invasive Clinical Research Ethics Committee was obtained (approval number: 2018/19/02/04, date: 19.02.2018).

Informed Consent: Informed consent was obtained from all subjects involved in the study.

Peer-review: Externally and internally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: M.N.E., R.M.Y., Concept: H.Ş., S.B., Design: H.Ş., S.B., M.Ç., Data Collection or Processing: S.B., M.N.E., N.B., S.Ö., Analysis or Interpretation: S.B., N.B., M.Ç., S.Ö., R.M.Y., Literature Search: S.Ö., R.M.Y., Writing: H.Ş., R.M.Y.

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