



The Main Reasons for Emergency Department Visits in Cancer Patients

Kanser Hastalarında Acil Servis Başvurularının Temel Nedenleri

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Abstract

Aim: This descriptive study was conducted to investigate the main reasons for presenting to the emergency department (ED) in a university hospital among cancer patients.

Methods: This study was conducted on 243 patients between January 1, 2014 and May 15, 2014. A questionnaire form was used for data collection. Percentage values and mean scores were calculated and a chi-square test was used.

Results: The mean age of the patients was 61.33±15.33 years. The most common malignancy was gastrointestinal tract cancers. 64.6% of patients were admitted the emergency department more than once, 34.4% of those were readmitted within 0-1 days after discharge. Pain was the most common cause of admission 69.1% of patients, who were admitted to the emergency department, had recently received chemotherapy before admission. Almost all did not receive home care.

Conclusion: The most frequent emergency department admissions were among patients with progressive cancer. The reasons for emergency department visit among cancer patients, such as pain, nausea and vomiting, and high fever, indicate that post-treatment follow-up and palliative care requirements are not adequately met. We recommend that emergency care guidelines should be established to give better care to cancer patients presenting to emergency department. Furthermore, palliative care services, both at homes and in institutions, should be expanded.

Keywords: Emergency services, cancer, nursing

Öz

Amaç: Bu tanımlayıcı araştırma bir üniversite hastanesi acil servisine başvuran kanser hastalarının, başvuru nedenlerini belirlemek amacıyla yapılmıştır.

Yöntemler: Araştırma 243 hastayla, 1 Ocak 2014 ile 15 Mayıs 2014 tarihleri arasında yürütülmüştür. Veri toplama aracı olarak anket formu kullanılmıştır. Verilerin değerlendirilmesinde; yüzde ve ortalama değerleri hesaplanmış ve verilerin karşılaştırılmasında ki-kare testi kullanılmıştır.

Bulgular: Hastaların yaş ortalaması 61,33±15,33'dür. En sık kanser türü gastrointestinal sistem kanserleridir. Hastaların %64,6'sı acil servise birden fazla başvurmuş, bunların %34,4'ü 0-1 gün içinde tekrar başvurmuştur. Ağrı başvuru nedenleri arasında ilk sırada yer almaktadır. Hastaların %69,1'i acile başvurmadan kısa süre önce kemoterapi almıştır. Neredeyse tamamı (%95,9) evde bakım almamıştır.

Sonuç: Kanser hastalarından acil servise en sık başvurular ilerlemiş kanseri olanlardır. Kanser hastalarının ağrı, bulantı kusma ve yüksek ateş gibi nedenlerle acil servise başvurmaları tedavi sonrası izlem ve palyatif bakım gereksinimlerinin yeterince karşılanmadığını göstermektedir. Acil servise başvuran kanser hastalarına daha iyi bakım vermek için acil bakım rehberi oluşturulmasını, ayrıca evde ve kurumda palyatif bakım hizmetlerinin yaygınlaştırılmasını öneriyoruz.

Anahtar Sözcükler: Acil servis, kanser, hemşire

Introduction

Cancer remains an important public health problem in Turkey as it has been all over the world (1). Cancer is still known as a disease causing chronic pain, lost years of life, and premature death in spite of all the developments in the field of diagnosis and treatment. Classical methods

used in its treatment are radiotherapy, chemotherapy, surgical treatment and immunotherapy. Double or triple treatment methods are used together for some cancer types. Treatment period is long and difficult. Patients with cancer experience symptoms caused by the treatment and due to the disease itself. The most significant symptoms

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are pain, nausea, vomiting, shortness of breath, fever, weakness, and fatigue (1-3). Approximately 33%-50% of patients feel pain and it is not kept under control in more than 40% of patients (4-7). Due to the insufficiency of alternative service models for cancer patients, patients and their families are stuck between hospital and emergency department (ED) with the purpose of symptom control during the treatment period (2,3,8,9).

Individuals with chronic diseases visit ED during the exacerbation periods or due to other acute conditions independent of their chronic diseases (8). On the other hand, cancer patients visit ED for some reasons related with cancer, such as pain or other reasons, e.g. infection, undernutrition and insufficient care (8,10). In a systematic review including six prospective and 12 retrospective descriptive studies investigating ED visits for symptom assessment in adult oncology patients, it has been determined that the symptoms seen in these patients were undernutrition, constipation, diarrhea, bleeding, nausea-vomiting, fever, respiratory problems, anxiety, tiredness, pain, anuria/dysuria, infection, etc. (2). Most of the reasons directing cancer patients to ED are treatment side effects experienced after treatment (3). It has been shown that 32.5% of ED visits could be prevented (10).

Considering the symptoms that patients might experience during the course of treatment, close monitoring of patients will reduce the frequency of ED presentation (10-12).

EDs are providing care to larger number of patients and often overcrowded. Priority may be given to patients with accident injury, bleeding, cardiac and respiratory problems for medical intervention in the triage classification. Thus, the environment may not be very favorable for cancer patients with urgent care needs (13).

Cancer treatment is provided in the outpatient setting unless otherwise is required. Lack of home health care services for cancer patients results in ED presentations or primary care hospitals visits for cancer treatment-related problems.

Thus, this study aimed to identify the reasons for ED visits among cancer patients and to provide suggestions for the development of special services to be offered to cancer patients.

Methods

This is a descriptive study carried out with cancer patients who were admitted to the ED at a university hospital between January 1, 2014 and May 15, 2014.

The Emergency Severity Index (ESI) was used in all patients admitted to the ED where the study was carried out. The ESI is a five-level ED triage algorithm

providing clinically relevant stratification of patients on the basis of acuity and resource needs. Cancer patients are usually given the third code according to the ESI and are often taken to observation rooms or intervention unit. Intervention unit is the place where critical patients can be followed by close monitoring. At the other side, observation rooms (13 in total) are located where doctors and nurses desks are found, covered with transparent glasses, equipped with necessary instruments and separated by walls. Resuscitation/trauma, observation rooms and intervention unit are located in this section of ED. Eleven staff (three emergency medicine assistants, four nurses, one emergency medicine specialist and three attendants) usually provide emergency health services and they work in shifts. This shift plan was accepted as a standard protocol for the Emergency Department of the Medical Faculty of Gülhane.

The study included 243 participants (196 patients' relatives and 47 patients completed the questionnaire). Patients, who were not in the terminal period and who were able to communicate, were included in this study. Patients or patient's relatives who refused to participate in the study (26 patients) and those who died during the study period (14 patients) were excluded.

The data were collected by the researcher (EB) using a questionnaire (2,3,8,9,13-17). The questionnaire consisted of 21 questions (six questions on the demographic characteristics, nine about the treatment and disease, five questions about the reason and frequency of ED visits, and one question about home-care).

The data were collected by the researcher through face-to-face interviews at the ED between the hours 08:00 and 22:00. The completion of the questionnaire took about 10 minutes. The researcher met each patient after the completion of his/her emergency treatment. In the cases where the questions were not answered by the patient due to tiredness or unwillingness, the relative of the patient filled the questionnaire.

Statistical Analysis

SPSS 16.0 was used for data analysis. In addition to the descriptive statistics; a chi-square test was used for comparisons.

Results

The demographic characteristics of the participants were as follows: the average age was 61.33 ± 15.33 years and 58% of patients were older than 61 years. 56.4% were male, 51.8% were primary or secondary school graduates, and 79.8% were married. Housewives constituted the 33.3% and 43.6% were retired. 45.3% reported to have

insufficient family income. 54.3% of the patients had a comorbid disease. Hypertension was the most common complaint with the incidence of 65.9%. Gastrointestinal tract cancer was the most common cancer (34.2%); 45.7% of patients were diagnosed more than one year ago. 50.6% of patients had metastases. 84.0% received chemotherapy; 50.2% underwent surgery and 43.2% received radiotherapy. Majority of these patients (69.1%) received chemotherapy before their last visit to ED. 34.2% of patients were treated in the hospital in the past seven days before visiting ED. 59.3% of patients were not informed about the possible emergency situations that can occur after treatment. 60.6% of patients were informed only about probability of fever (Table 1). 35.4% of patients were admitted to the ED for the first time, and 28.4% visited ED five times or more. Most of the recurrent admissions were done in the past one week before data collection. The most frequently encountered reason for ED visit was pain (24.3%). 58% of patients did not consult

Table 1. Features relating to patients' health problems and characteristics of treatment		
	n	%
Comorbid diseases (n=243)		
Yes	132	54.3
No	111	45.7
Diseases (n=132)^a		
Hypertension	87	65.9
Diabetes mellitus	47	35.6
Coronary Artery disease	28	21.2
Heart failure	24	18.2
Chronic Obstructive Pulmonary disease	20	15.2
Other (chronic renal failure and cerebrovascular accident)	14	10.6
According to the cancer types (n=255)^b		
Gastrointestinal cancers	83	34.2
Respiratory system cancers	50	20.6
Urogenital system cancers	35	14.5
Endocrine system cancers	35	14.5
Hematopoietic system cancers	25	10.3
Musculoskeletal system cancers	13	5.3
Other (nervous system and skin cancers)	14	4.8
The passing time after the diagnosis of cancer (n=243)		
0-3 months	75	30.9
4-11 months	57	23.4
1 year or more	111	45.7
Metastasis status (n=243)		
Yes	123	50.6
No	120	49.4

any physician or health department before presenting to ED (Table 2).

Almost all the patients (95.9%) did not receive health care at home. 51.8% of patients, who had received chemotherapy, visited ED three times or more. There was no statistically significant difference in treatment methods between patients who visited ED ($p>0.05$). Patients with metastases who visited ED three times or more (60.2%) and 40% of patients who presented to the ED three times or more were diagnosed with cancer in the past three months. There was a statistically significant difference in time elapsed between patients with newly diagnosed and metastatic cancer ($p<0.05$) (Table 3).

Discussion

It is known that most of the ED visits are preventable. In a study carried out in Akdeniz University (14), it was

Table 1. Continue		
Type of treatment (n=444)^a		
Chemotherapy	204	84.0
Surgical treatment	122	50.2
Radiotherapy	105	43.2
Immunotherapy	13	5.3
The last received treatment (n=243)		
Chemotherapy	168	69.1
Other treatments except chemotherapy ^c	75	30.9
The most recent treatment time		
1 day ago	34	14
2-7 days ago	54	22.2
8 days to 1 month ago	75	30.9
2 months-1 year ago	43	17.7
Over 1 year	37	15.2
Informational status of patients about emergency states (n=243)		
Informed	99	40.7
Not informed	144	59.3
Informed situations (n=99)^a		
Fever	60	60.6
Nausea and vomiting	51	51.5
Pain	23	23.2
Fainting	8	8.1
Diarrhea	7	7.1
Shortness of breath	6	6.1
Loss of balance	5	5.1
Other situations ^d	10	10.1

^a: "n" is folded because patients have multiple chronic diseases, ^b: "n" is folded because patients have multiple cancer types, ^c: Other treatments except chemotherapy: Radiotherapy, surgical treatment, immunotherapy, ^d: Other situations: palpitation, inability to urinate, hemorrhage through the urine tract, constipation, hemorrhage through the mouth

claimed that 47% of the reasons for ED presentation were not due to serious causes. In their study, Yaylacı et al. (9) reported that 81% of ED visits were oncology-related. ED visit is upsetting for cancer patients and their relatives. Setoguchi et al. (18) defined benchmark measures of quality of cancer care at the end-of-life. One of them was the proportion of patients who had >1 ED visit. In a study

by Yıldırım and Tanrıverdi (19), it was reported that 60% of cancer patients visited ED at least once within one month before death.

Non-communicable diseases (cardiovascular diseases, cancers, chronic asthma, and diabetes) are the top cause of death in Turkey as in the world (20,21). In a study by Barbera et al. (15), it was found that the frequency of ED visit was higher in patients with comorbid diseases than in those without any comorbid disease (15).

It has been reported that the most common comorbid diseases in cancer patients were diabetes and hypertension, similar to that in the current study (Table 1) (10,22,23). Cancer patients with comorbid diseases have poorer survival compared to those without comorbidities (24).

Mayer et al. (13) reported 13 raw chief complaints for ED visits one of them being cancer. Cancer patients visit ED mostly for symptoms related with cancer treatment and this constitutes 5.6% of all ED visits (10).

In our study, it was determined that approximately half of the patients received the diagnosis one year ago or before and half of them had metastases. Presentation to ED may be an indication of far metastases clinically in patients with gastrointestinal and lung cancer (3).

Table 2. The frequency and causes of patient admission to emergency

	n	%
The number of emergency department visits in the past year (n=243)		
1	86	35.4
2	23	9.5
3	42	17.2
4	23	9.5
5 and more	69	28.4
The duration between the previous and last admission in the repeated admissions (n=157)		
0-1 days	54	34.4
2 days -1 week	36	22.9
1 week to more	67	42.7
Current reason for admission (n=243)		
Pain	59	24.3
Nausea and vomiting	40	16.5
Shortness of breath	38	15.6
Fever	29	11.9
Weakness	22	9.1
Other complaints ^a	55	22.6
Previous reason for admission (n=157)		
Pain	53	33.8
Nausea and vomiting	25	15.9
Shortness of breath	22	14.0
Fever	15	9.6
Weakness	14	8.9
Other complaints ^b	28	17.8
Previous applications to another institution or person before admission to emergency (n=243)		
No application	141	58
Admitted to the oncology doctor	39	16
Contacted the family doctor or clinic	38	15.7
Received telephone counseling	25	10.3

^a: Other complaints: loss of appetite, visual hallucinations, seizures, hemoptysis, palpitations, abdominal swelling, rectal hemorrhage, hypoglycemia, loss of balance, inability to urinate, constipation, body rash, convulsions, slurred speech, hematuria, diarrhea
^b: Other complaints: hematuria, diarrhea, loss of appetite, seizures, hemoptysis, palpitations, slurred speech, rectal bleeding, hypoglycemia. Cough, loss of balance, inability to urinate, constipation, body rash

Table 3. Distribution of metastasis status, the last received treatment and the passing time after the diagnosis of cancer according to numbers of admission to emergency (n=243)

	Number of admissions					
	One admission (n=86)		Two admission (n=23)		Three and more admission (n=134)	
	n	%	n	%	n	%
The last received treatment						
Chemotherapy	63	37.5	18	10.7	87	51.8
Other treatments except chemotherapy ^a	23	30.7	5	6.6	47	62.7
$\chi^2=2.695$; $p=0.260$						
Metastasis status						
Yes	42	34.1	7	5.7	74	60.2
No	44	36.7	16	13.3	60	50.0
$\chi^2=4.995$; $p=0.082$						
The passing time after the diagnosis of cancer						
0-3 months	32	42.7	13	17.3	30	40.0
4-11 months	20	35.1	4	7.0	33	57.9
1 year or more	34	30.6	6	5.4	71	64.0
$\chi^2=13.797$; $p=0.008$						

^a: Other treatments except chemotherapy: radiotherapy, surgical treatment, immunotherapy, chi-square likelihood ratio

Most of the patients presenting to ED have gastrointestinal or respiratory tract cancer and this result is compatible with the literature (3,19,25). The main complaints of cancer patients vary according to the type of cancer. While respiratory complaints in patients with lung cancer are more common, complaints in other patients include pain, respiratory and gastrointestinal problems (16). In a study by Kocak et al. (8) carried out with cancer patients who visited the ED in a university hospital within the first three months of the year 2007, it was found that most of the patients had lung cancer and respiratory problems. In a study by Baser et al. (26) including patients with lung cancer presenting to ED, it was determined that the presenting complaint was dyspnea in 62% of patients, cough in 29%, chest pain in 22%, palpitation in 18%, fever in 13%, and neurological findings in 11% of patients. In a systematic review including six prospective and 12 retrospective descriptive studies carried out by Vandyk et al. (2), it was determined that the most common cancer treatment- or disease-related symptoms were febrile neutropenia, infection, pain, fever, and nausea/vomiting. In our study, the main reason for ED visits was pain as in the studies by Yaylacı et al. (9) and Barbera et al. (15).

In the literature, pain is the chief reason for ED visits in cancer patients (3,9,10,27). It was stated by Vallerand et al. (4) that there was a positive correlation between metastasis and pain level. In our study, it was found that the most common reason for ED visit in cancer patients was pain (24.4%) similar to that in other studies. As these findings show that pain management in cancer patients should be more effective and the staff of ED should be equipped to manage pain. In addition, it would be wise to refer cancer patients presenting with pain to the related departments for the assessment of metastasis.

It has been reported that at least 10% of individuals who frequently visit ED were cancer patients (10,15-17). It was determined by Minami et al. (16) in a study conducted with lung cancer patients that 1/3 of patients presented to ED for the first time, others visited ED twice or more within one week in after hours on weekdays, weekends, or holidays. We evaluated the whole study group based on 24-hour period in our study, not as an after hours protocol like in the study by Minami et al. (16), we found that 1/3 of cancer patients (34.4%) repetitively visited ED within 0-1 days. This finding highlights the insufficiency of ED for cancer patients.

Pain is an important factor which decreases the quality of life (28). Pain management centers in Turkey mostly exist in university hospitals and metropolitan cities. Pain management centers are the places where the pain control

methods are applied to patients by a multidisciplinary team. Invasive methods are also used in these centers with pharmacological methods. Frequent presentation to EDs is due to the fact that the number of pain centers is limited and pain management in patients with cancer is not sufficient.

In the current study, other common reasons, such as nausea-vomiting, fever and tiredness, were found to be the problems that cancer patients face frequently (Table 2). In their study, Bozdemir et al. (3) reported that pain, shortness of breath, and nausea-vomiting were the most frequent complaints in patients visiting ED. Another symptom is weakness seen in late stage-cancer cases and after medical treatment cures (29).

The most common treatment method for cancer is chemotherapy (30). In our study, most of the patients received chemotherapy (84%). In a study by Ahn et al. (31) carried out in an ED unit for cancer with eighteen beds in Korea, it was found that 5.502 patients visited the unit in 2010 and, it was determined that 90.8% of patients were receiving chemotherapy. The most common side effects of chemotherapy are weakness, fatigue, nausea-vomiting, poor appetite, diarrhea, constipation, alopecia, weight loss, mouth sores, insomnia, and muscle pain (15,22,32,33). Patients visit ED due to chemotherapy-related complications (34). In a study by Livingston et al. (35), the most common ED discharge diagnoses were neutropenia, nausea-vomiting and dehydration, abdominal pain and fever, respectively. In a study by Courtney et al. (36) including patients who were admitted to ED due to febrile neutropenia, it was determined that 75% of patients were undergoing chemotherapy during the study (36). In a study by Gultekin and Boztas (34), it was determined that ED visits were more common in patients receiving chemotherapy. It has been determined that most of the ED visits were during the treatment and repetitive presentations occurred during chemotherapy (10,16). In a study by Tsai et al. (10), it was determined that two third of ED visits were among patients receiving chemotherapy. There was no difference between patients treated with chemotherapy and other treatments methods in the last year in terms of the number of ED admission ($p>0.05$). The findings of this study are similar to those in the literature as 69.1% of patients received chemotherapy before presenting to ED (10).

EDs are the health units for the management of acute problems. They are not sufficient for cancer treatment (13). Cancer patients often experience delays in time to being seen by a physician in EDs. Priority may be given to those with accident injury, bleeding and cardiac and

respiratory problems in the triage classification. Febrile neutropenia which is a life-threatening complication of chemotherapy may end up with sepsis, septic shock and death. Infections occurring due to neutropenia are a risk for patients who are delayed in ED (36).

On the other hand, there are some observations related to the attitudes of health professionals: reluctance to use strong opioids by physicians, administration of analgesics after lengthy delays, and not performing a formal pain assessment using a pain scale (37). In their study, Jain et al. (37) reported that 65% of 100 cancer patients presenting to ED due to pain reported severe pain and 35% moderate pain. They found that only five of 88 patients with severe pain were fully adherent to prescribed analgesics. In addition, only four patients were prescribed a strong opioid despite severe pain.

It is important to increase the quality of life of patients with chronic diseases as well as expanding life expectancy. Palliative nursing applications are useful in increasing quality of life (24). Palliative care institutions and home-care facilities are limited in Turkey (38,39), while home-care nursing facilities are common in many European countries. A study in Spain assessed the different nursing models and cancer patients' quality of life and it was determined that the physical and mental status of patients who received nursing care at their home were satisfactory (40).

Study Limitations

Since some cancer patients who were admitted to the ED could not answer the questions, the interviews were performed with the primary caregivers. This can be considered as a limitation of the study. The fact that the work was done in an ED was another limitation of the research.

Conclusion

The symptoms in cancer patients increase their frequency of ED visits and, negatively affect their quality of life (41). Nurses at EDs should rapidly identify the primary requirements, provide safety for the patients in ED and make them feel relaxed (3,42). They should assess the reasons for presentation and inform the patients and their relatives in order to prevent the repetitive applications (41). They should refer the patients to the related department in order to meet their nursing requirements. Timely and accurate triage and qualified nursing care may increase the quality of life and safety of patients in EDs. In addition, a guideline for emergency admission and nursing care of cancer patients is necessary.

Especially, oncology and palliative care teams should make an appropriate discharge plan in collaboration with

primary care services (home health care and family health care) in order to improve patients' coping with cancer and its symptoms and to prevent repetitive ED admissions.

In this respect, chemotherapy nurses should have the responsibility to guide the patients during the chemotherapy process. Patients and patients' relatives should be trained about the side effects and what they will do in case. Emergency care guidelines should be established to give better care to cancer patients admitted to ED. If home health care and hospice care services come common in Turkey, the frequency of ED visits may accordingly decrease. We also suggest that palliative care services should be expanded to include both home care and hospice care.

Ethics

Ethics Committee Approval: Ethical approval (50687469-1491-2725) was received from Institutional Review Board of the University of Health Sciences, Gülhane Training and Research Hospital for this study.

Informed Consent: It was taken.

Peer-review: Internally peer-reviewed.

Authorship Contributions

Concept: E.B., Y.K. Design: E.B., Y.K. Data Collection or Processing: E.B. Analysis or Interpretation: E.B., Y.K. Literature Search: E.B., Y.K. Writing: E.B.

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