Original Article

An Evaluation of Old Age Cancer Patient Characteristics in Emergency Department Focused on a Retrospective Population-Based Study

Acil Serviste Yaşlı Kanser Hastaları Özelliklerinin Retrospektif Popülasyon Temelli Bir Çalışmada Değerlendirilmesi

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ABSTRACT

Introduction: As the population ages, the number of elderly cancer patients is increasing dramatically, and these patients are visiting emergency departments (ED) at an increasing rate. We aim to evaluate the demographic findings, clinical features, mortality, and factors affecting mortality in old age cancer patients who visit ED.

Material and Methods: The patients were divided into three groups according to age groups: 65-74 years old, 75-84 years old, and 85 years and older. A retrospective analysis and evaluation of demographic findings (age, gender), comorbidity, number of ED visits, chief complaints, tumor localization, stage of cancer, metastasis status, treatment status, hospitalization, morbidity, and factors affecting mortality were evaluated across the groups.

Results: 142 (52%) of 273 patients were in the 65-74 age group, 77 (28.2%) were in the 75-84 age group, and 54 (19.8%) were in the 85 and over age group. 60 (33%) patients died in the ED. Patients aged 85 and over had higher mortality ($p<0.001$). The tumor location had no impact on mortality ($p>0.05$). Patients with neurologic and cardiovascular system problems as a chief complaint had higher mortality ($p<0.001$, $p<0.001$, respectively). Patients with metastatic disease had higher mortality than patients with early-stage and locoregional disease ($p<0.01$, $p<0.001$, respectively). Untreated patients had higher mortality ($p<0.001$).

Discussion and Conclusion: Old age cancer patients who visited the ED had different characteristics in the age groups. These patients had high mortality, and factors affecting mortality have been identified.

Keywords: Oncology, mortality, emergency department

ÖZET

Giriş ve Amaç: Nüfus yaşlandıkça, yaşlı kanser hastalarının sayısı çarpıcı biçimde artmakta ve bu hastalar artan bir oranda acil servislere (AS) başvurmaktadır. Bu çalışmada AS'e başvuran yaşlı kanser hastalarında demografik bulguları, klinik özellikleri, mortalite ve mortaliteye etkileyen faktörleri değerlendirmeyi amaçladık.

Yöntem ve Gereçler: Hastalar yaş gruplarına göre 65-74 yaş, 75-84 yaş ve 85 yaş ve üstü olmak üzere üç gruba ayrıldı. Gruplar arasında demografik bulgular (yaş, cinsiyet), lomorbidite, AS'e geliş sayısı, baş şikayetleri, tümör lokalizasyonu, kanser evresi, metastaz durumu, tedavi durumu, hastanaye yatış, mortalite ve mortaliteyi etkileyen faktörler retrospektif olarak değerlendirildi.

Bulgular: Çalışmaya alınan 273 hastanın 142 (%52) 65-74 yaş grubunda, 77 (%28,2) 75-84 yaş grubunda, 54 (%19,8) 85 ve üzeri yaş grubunda idi. AS'te metastatik hastalığı olan 60 (%33) hasta öldü.

First Received: 19.03.2022, Accepted: 30.05.2022 doi: 10.5505/aot.2022.48753

85 ve üzeri yaş grubu hastalarda mortalite, diğer gruplara göre daha yükek idi (p<0.001). Tümör lokalizasyon ile mortalite açısından fark bulunmadı (p>0.05). Baş şikayeti nörolojik ve kardiyovasküler sistem sorunları olan hastalarda mortalite daha yüksekti (sırasıyla p<0.001, p<0.001). Metastatik hastalığı olan hastalarda mortalite erken evre ve lokal hastalığı olanlara göre daha yüksek idi (sırasıyla p<0.01, p<0.001). Tedavi edilmeyen hastalarda mortalite daha yüksek idi (p<0,001).
Tartışma ve Sonuç: AS'e başvuran yaşlı kanser hastalarının yaş gruplarında farklı özelliklere sahip olduğu gözlendi. Bu hastalarda mortalite yüksekti ve mortaliteyi etkileyen faktörler belirlendi.

Anahtar Kelimeler: Onkoloji, mortalite, acil servis

Introduction

Human lifespans have been extended, and the global population has aged as a result of improved living circumstances, advances in medical research, and treatments. This increase in the elderly population, which is defined as the silver (gray) tsunami, is manifesting at an alarming rate in terms of health and also in socio-economic areas [1].

Prolongation of life expectancy leads to increased exposure to environmental carcinogens and an increased accumulation of genetic changes that may lead to tumor formation [2]. The incidence of cancer formation increases with aging [3]. In addition, the 2030, the proportion of aged 65 and older adults is expected to rise to 70% [4].

Cancer patients, as is well known, visit the emergency department (ED) more often than the general population, and the ED plays a crucial role in the management and care of these patients [5,6]. However, given the fast-paced clinical setting of the ED, these patients provide challenging situations for ED staff to manage, and there are not enough studies on the characteristics of these patients [5].

The increasing rate of old age cancer patients visiting the ED has very different characteristics compared to other cancer patients in the population. Various physical and psychological dysfunctions associated with aging is observed with these patients and should be taken into account [7]. Understanding the characteristics of elderly cancer patients in ED has critical importance in managing their symptoms, increasing their quality of life, and reducing morbidity.

We aim to evaluate the demographic findings, clinical features, mortality, and factors affecting mortality in old-age cancer patients who visit ED.

Materials and Methods

This study was approved by the hospital's ethics committee (Decision No:60/24, Date: 25/02/2019).

The medical records of cancer patients aged 65 and over who presented to the ED between January 1, 2014, and January 1, 2020, regardless of whether they were followed-up on in the hospital's oncology department, were evaluated retrospectively from the hospital's electronic system. The exclusion criteria were as follow: (1) the patients with a hematological malignancy diagnosis; (2) lack of hospital records; (3) patients brought to the hospital dead; and (4) the cancer patients admitted with trauma.

Patients were divided into three groups according to age groups: 65-74 years old, 75-84 years old, and 85 years and older. Demographic findings (age, gender), number of ED visits, comorbidity (hypertension, coronary artery disease, congestive heart failure, diabetes mellitus, chronic obstructive pulmonary disease, Dementia/Alzheimer, cerebrovascular disease, other [gastro-intestinal disease, renal disease, rheumatic disease]), number of comorbidities, chief complaint, tumor localization, stage of cancer, receiving treatment, hospitalization,

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mortality, and factors affecting mortality were evaluated across age groups.

Statistical Analysis

The SPSS package (Statistical Package for the Social Sciences for Windows, Version 22.0, SPSS Inc., Chicago, IL, U.S.A.) was used for data analysis in the study. In descriptive statistics on continuous data, mean, standard deviation, median, interquartile range (IQR), and discrete data, numbers and percentages were given. Shapiro-Wilk test was used to examine the conformity of continuous data to normal distribution. Kruskal Wallis Variance was used for comparisons of continuous variables between age groups. In the variables found to be different as a result of the Kruskal Wallis Analysis of Variance, the groups that caused the differences were examined with the Kruskal Wallis multiple comparison test. Chi-Square/Fisher's Exact test was used for comparisons of categorical variables between groups. Risk factors affecting mortality were analyzed by multivariate logistic regression analysis. And $p<0.05$ was considered statistically significant.

Results

The mean age of the 273 patients included in the study was 73.61±7.21 years (min 65-max 89), and 165 (60.4%) patients were male. 142 (52.0%) were in the 65-74 age group, 77 (28.2%) were in the 75-84 age group, and 54 (19.8%) were in the 85 and over age group. There was no difference between the age groups regarding gender ($p>0.05$).

The number of patients in the 85 and older age group who visited ED was lower than the patients in other age groups ($p<0.05$, $p<0.05$, respectively). There was no difference between the age groups in terms of 1, 2, and ≥3 ED visits ($p>0.05$) (Table 1).

There was no difference between age groups in terms of comorbidity ($p>0.05$) (Figure 1).

In the 85 and older age group, the number of comorbidities of 3 or more was higher than those in the 65-74 age group, and the number of comorbidities of one was lower ($p<0.05$, $p<0.05$, respectively).

Lung and other cancer types were less and colorectal cancer was more common in the 85 and older age group ($p<0.001$, $p<0.001$, respectively).

While the metastatic disease was more common in n the 85 and older age group compared to other age groups, the early-stage disease was more common in patients aged 65-74 ($p<0.001$, $p<0.001$, respectively).

85 and older age group was less likely to receive treatment compared to other age groups, while patients age groups 65-74 were more likely to receive treatment compared to other age groups ($p<0.001$, $p<0.001$, respectively).

There was no difference between age groups in terms of hospitalization ($p>0.05$).

Sixty (33%) patients with the metastatic disease died in the ED. Mortality was higher in patients 85 and older age group compared to other groups and lower in patients aged 65-74 years age groups ($p<0.001$, $p<0.001$, respectively) (Table 1).

There was no difference in the mortality of male and female patients ($p>0.05$). Mortality was higher in patients with 3 or more visits to ED than those with 1 or 2 visits ($p<0.001$). Mortality was lower in patients with ED duration of 1 day compared to patients with ED duration of both 2-6 days and ≥1 week ($p<0.001$, $p<0.001$, respectively). Mortality was higher in patients with 3 or more comorbidities compared to patients with comorbidity numbers of 1 and 2 ($p<0.001$, $p<0.001$, respectively). Mortality was high in patients with a chief complaint of neurologic and cardiovascular system problems ($p<0.001$, $p<0.001$, respectively). Mortality in

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Table 1. Comparison of demographic findings and clinical characteristics according to the age groups

Age group, n (%)	**Total** 273 (100)	**65-74 years** 142 (52)	**75-84 years** 77 (28.2)	**≥85 years** 54 (19.8)	**p value**
Age (Year) Mean± SD	73.61±7.21	67.66±2.36	76.31±1.67	85.42±1.00	
Gender, n (%)					
Male	165 (60.4)	90 (63.4)	44 (57.1)	31 (57.4)	0.585[a]
Female	108 (39.6)	52 (36.6)	33 (42.9)	23 (42.6)	
ED visit, median (IQR)	3 (1-4)	3 (1-4)	3 (2-5)	2 (1-3)	**0.012** [b*]
Number of visit ED, n (%)					
1	70 (25.6)	36 (25.4)	18 (23.4)	16 (29.6)	0.190 [a]
2	39 (14.3)	14 (9.9)	14 (18.2)	11 (20.4)	
≥3	164 (60.1)	92 (64.8)	45 (58.4)	27 (50)	
Number of comorbidities					
1	85 (31.5)	48 (33.8)	26 (33.8)	11 (20.4)	**0.045**[a*]
2	99 (36.3)	55 (38.7)	28 (36.4)	16 (29.6)	
≥3	89 (32.6)	39 (27.5)	23 (29.9)	27 (50)	
Tumour localization					
Brain and nervous system	7 (2.6)	6 (4.2)	1 (1.3)	0 (0)	
Breast	40 (14.6)	16 (11.3)	14 (18.2)	10 (18.5)	**<0.001** [a*]
Lung	71 (26)	48 (33.8)	19 (24.7)	4 (7.4)	
Kolorectal	60 (22)	17 (12)	16 (20.8)	27 (50)	
Other gastrointestinal cancers	27 (9.9)	20 (14.1)	5 (6.5)	2 (3.7)	
Prostate	31 (11.4)	16 (11.3)	10 (13)	5 (9.3)	
Bladder	17 (6.2)	8 (5.6)	6 (7.8)	3 (5.6)	
Other*	20 (7.3)	11 (7.7)	6 (7.8)	3 (5.6)	
Chief complaint					
Pain	27 (9.9)	20 (14.1)	6 (7.8)	1 (1.9)	
Respiratory problems	56 (20.5)	33 (23.2)	18 (23.4)	5 (9.3)	
Fever	25 (9.2)	15 (10.6)	7 (9.1)	3 (5.6)	**0.037**[a*]
Gastrointestinal problems	37 (13.6)	15 (10.6)	14 (18.2)	8 (14.8)	
Neurologic problems	29 (10.6)	13 (9.2)	7 (9.1)	9 (16.7)	
Urogenital problems	25 (9.2)	14 (9.9)	5 (6.5)	6 (11.1)	
Other**	15 (5.5)	10 (7)	3 (3.9)	2 (3.7)	
Impaired general condition	38 (13.9)	14 (9.9)	10 (13)	14 (25.9)	
Cardiovascular system problems	21 (7.6)	8 (5.6)	7 (9.1)	6 (11.1)	
Stage of canser					
Early-stage disease	25 (9.2)	23 (16.2)	2 (2.6)	0	**<0.001** [a*]
Locoregional disease	66 (24.2)	47 (33.1)	17 (22.1)	2 (3.7)	
Metastatic disease	182 (66.6)	72 (50.7)	58 (75.3)	52 (96.3)	
Receiving treatment					
Yes	219 (80.2)	130 (91.5)	63 (81.8)	26 (48.1)	**<0.001** [a*]
No	54 (19.8)	12 (8.5)	14 (18.2)	28 (51.9)	
Hospitalization					
Yes	92 (33.7)	49 (34.5)	23 (29.9)	20 (37)	0.665
No	181 (66.3)	93 (65.5)	54 (70.1)	34 (63)	
Mortality					
Yes	60 (22)	17 (12)	20 (26)	23 (42.6)	**<0.001** [a*]
No	213 (78)	125 (88)	57 (74)	31 (57.4)	

ED: emergency department, other gastrointestinal cancers: liver, gallbladder, pancreas, stomach, intestine, *other: head and neck cancers, other respiratory cancers, renal cancer, other male genital cancers, female reproductive cancers, Other**: psychiatric problems, dermatological problems, a: Chi -Square test, b: Kruskal Wallis test, *p<0.005 regarded significant

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Table 2. Demographic data and clinical features of deceased and surviving patients

	Total	Alive	Died	p value
	273 (100)	213 (78)	60 (22)	
Gender, n (%)				
Male	165 (60.4)	135 (81.8)	30 (18.2)	0.061[a]
Female	108 (39.6)	78 (72.2)	30 (27.8)	
Number of visit ED, n (%)				
1	70 (25.6)	66 (94.3)	4 (5.7)	**<0.001 [a]***
2	39 (14.3)	34 (87.2)	5 (12.8)	
≥3	164 (60.1)	113 (68.9)	51 (31.1)	
Number of comorbidity, n (%)				
1	85 (31.5)	77 (90.6)	8 (9.4)	**<0.001 [a]***
2	99 (36.3)	83 (83.8)	16 (16.2)	
≥3	89 (32.6)	53 (59.6)	36 (40.4)	
Tumor localization				
Brain and nervous system	7 (2.6)	6 (85.7)	1 (14.3)	
Breast	40 (14.6)	29 (72.5)	11 (27.5)	0.254[a]
Lung	71 (26)	55 (77.5)	16 (22.5)	
Colorectal	60 (22)	45 (75)	15 (25)	
Other gastrointestinal cancers	27 (9.9)	23 (85.2)	4 (14.8)	
Prostate	31 (11.4)	25 (80.6)	6 (19.4)	
Bladder	17 (6.2)	17 (100)	0	
Other*	20 (7.3)	13 (65)	7 (35)	
C**hief complaint**				
Pain	27 (9.9)	27 (100)	0	
Respiratory problems	56 (20.5)	46 (82.1)	10 (17.9)	
Fever	25 (9.2)	25 (100)	0	**<0.001 [a]***
Gastrointestinal problems	37 (13.6)	28 (75.7)	9 (24.3)	
Neurologic problems	29 (10.6)	10 (34.5)	19 (65.5)	
Urogenital problems	25 (9.2)	23 (92)	2 (8)	
Other**	15 (5.5)	15 (100)	0	
Impaired general condition	38 (13.9)	33 (86.8)	5 (13.2)	
Cardiovascular system problems	21 (7.6)	6 (28.6)	15 (71.4)	
Chief complaint group				
Respiratory problems	56 (20.5)	46 (82.1)	10 (17.9)	
Gastrointestinal problems	37 (13.6)	28 (75.7)	9 (24.3)	**<0.001[a]***
Neurologic problems	29 (10.6)	10 (34.5)	19 (65.5)	
Cardiovascular system	21 (7.7)	6 (28.6)	15 (71.4)	
Other	130 (47.6)	123 (94.6)	7 (5.4)	
Stage of cancer				
Early-stage disease	25 (9.2)	25 (100)	0	**<0.001[a]***
Locoregional disease	66 (24.2)	66 (100)	0	
Metastatic disease	182 (66.6)	122 (67)	60 (33)	
Receiving treatment				
Yes	219 (80.2)	184 (84)	35 (16)	**<0.001[a]***
No	54 (19.8)	29 (53.7)	25 (46.3)	

ED: emergency department, other gastrointestinal cancers: liver, gallbladder, pancreas, stomach, intestine, *other: head and neck cancers, other respiratory cancers, renal cancer, other male genital cancers, female reproductive cancers, Other*: psychiatric problems, dermatological problems, a: Chi-Square test, *p<0.005 regarded significant

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Table 3**.** Multivariate logistic regression analysis of factors affecting mortality

Parameter	Regression Coefficient (SE)	OR	95 % CI		p value
Gender (ref male)					
Female	-0.186 (0.436)	1.204	0.513	2.829	0.669
Age group (ref 65-74 age)					
75-84 years	1.384 (0.531)	3.850	1.361	10.896	**0.011***
≥85 years	1.614 (0.687)	5.023	1.308	19.297	**0.019***
Number of ED visits (ref 1 visits)					
2	-0.840 (1.318)	2.314	0.174	30.303	0.524
≥3	0.337 (1.486)	1.400	0.076	25.756	0.821
Number of comorbidity (ref 1 number)					
2	0.271 (0.634)	1.311	0.378	4.545	0.669
≥3	1.404 (0.627)	4.071	1.192	13.908	**0.025***
Chief complaint group (ref Other)					
Cardiovascular system problems	3.898 (0.785)	54.001	11.583	251.762	**<0.001***
Neurologic problems	3.224 (0.703)	25.123	6.329	99.773	**<0.001***
Gastrointestinal problems	1.250 (0.681)	3.858	1.016	14.644	**0.047***
Respiratory problems	1.300 (0.686)	3.761	0.957	14.076	0.058
Receiving treatment (ref Yes)					
No	1.394 (0.496)	4.0032	1.526	10.654	**0.005***

ED: emergency department, *p<0.05 regarded significant, Nagelkerke R Square =0.576

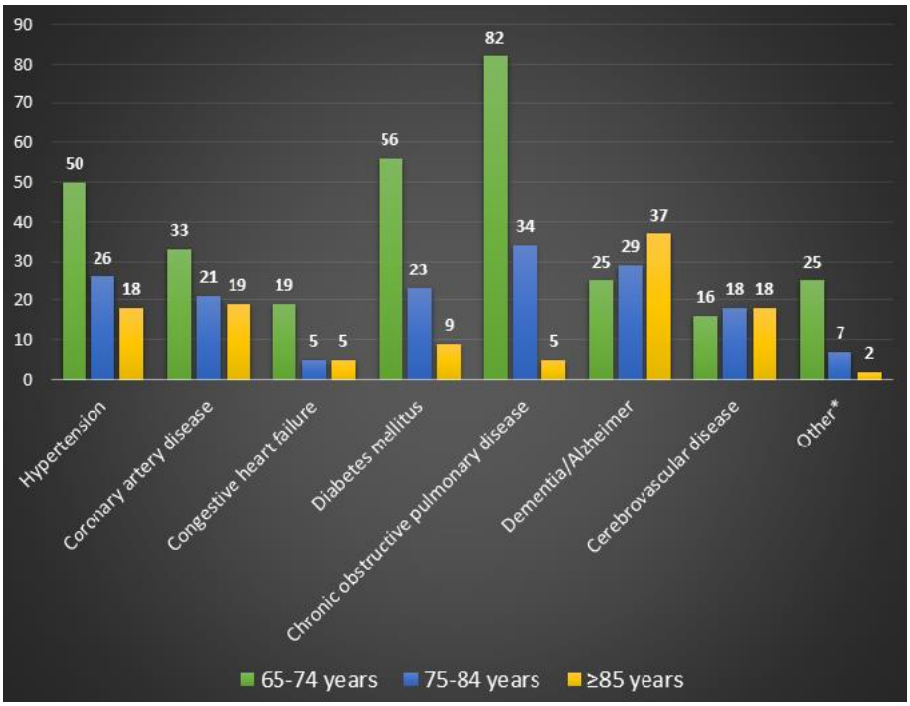


Figure 1. Comorbidities by age groups

Other*: gastrointestinal disease, renal disease, rheumatic disease

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patients with neurological and cardiovascular system problems is higher than in patients with respiratory and gastrointestinal problems; mortality in patients with respiratory problems is higher than in patients with other health problems, and mortality of patients with gastrointestinal problems was higher than in patients with other health problems ($p<0.001$, $p<0.001$, $p<0.001$, $p<0.001$, $p<0.001$, respectively). Mortality was higher in patients with metastatic disease than in patients with early-stage and loco-regional disease ($p<0.01$, $p<0.001$, respectively). Mortality was higher in untreated patients than in treated patients ($p<0.001$) (Table 2).

Independent risk factors found significant in univariate analyses: gender, age group, number of ED visits, number of comorbidity, chief complaint group, and receiving treatment parameters were included in the multivariate logistic regression model. In the stage of cancer variable, only those with metastatic disease were not included in the model because they had died. The factor of patients being in the 75-84 and the 85 and over age group increases the mortality 3,850 times and 5.023 times compared to the 65-75 age group, respectively ($p<0.05$, $p<0.05$, respectively). Having three or more comorbidities increases mortality 4,071 times compared to patients with one comorbidity ($p<0.05$). Mortality increases 54.001, 25.123, and 3.858 times in patients with a chief complaint of cardiovascular disease, neurological disease, and gastrointestinal disease compared to patients with other complaints, respectively ($p<0.001$, $p<0.001$, $p<0.05$, respectively). Mortality increases 4.032 times in untreated patients compared to treated patients ($p<0.01$) (Table 3).

Discussion

As the population ages, the number of elderly cancer patients is increasing dramatically, and these patients are visiting ED at an increasing rate. The old-age cancer patients in the ED are complicated by some factors, including the variety of symptoms observed, fragility, increased comorbidities, polypharmacy, and lack of social support. Determining the characteristics of these patients plays a crucial role in facilitating the management of these patients in ED, increasing their quality of life, and reducing mortality rates. Therefore, this study is important in terms of examining demographic findings, clinical features, mortality, and factors affecting mortality according to age groups of old age cancer patients visiting ED.

Cancer patients visit ED at least once because of many conditions such as cancer progression, cancer-related symptoms, treatment side effects, end-of-life support, and some life-threatening conditions [6,8,9]. In the study of Bayrak et al., 64.6% of cancer patients visited ED more than once [10]. In the study of Sadik et al., 54.5% of cancer patients visited ED once, and 45.5% visited two or more times [11]. In the Barbera et al. study, 36.5% of cancer patients visited the ED once within the last six months, 26.8% visited twice, 15.9% twice, 8.9% four times, 4.9% five times, and 6.9% observed to visit the ED six or more times [12]. In this study, the rate of ED visits of three and more was high among all age groups. Patients with metastatic disease were observed to form the majority of patients visiting ED. The metastatic diseases cause many difficulties and complications as well as increased treatment toxicities in this patient groups. Therefore, it may have caused a major increase in the number of ED visits. In particular, the number of ED visits of these patients, except for emergencies, should be reduced in order to improve the life quality of patients, and reduce the workload of ED personnel and the care costs of patients. The reduction in ED visit numbers can be achieved with appropriate palliative care services management.

Since the prevalence of comorbidity increases with age, the number of old-age cancer patients with comorbidity is gradually

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increasing. Some of the conditions that cause comorbidity play a role in the formation of cancer. Comorbidity may obscure symptoms, causing confusion in diagnosis and difficulty in treatment, and increase morbidity and mortality [13]. In addition, new comorbidities such as cardiac toxicity, neuropathy, or renal failure may be observed in cancer patients due to cancer treatment. In one study, it was reported that 53% of cancer patients aged 60-74 years and 63% of patients aged 75 years and older had at least one comorbidity [14]. In the same study, the number of comorbidities of 3 or more was higher in patients aged 85 and over compared to those in the 65-74 age group; this is thought to be due to the natural process of aging [14]. In the study of Bayrak et al. with cancer patients, the most common comorbidities were diabetes mellitus and hypertension [10]. In this study, the most common comorbidity was chronic obstructive pulmonary disease. The reason for the high incidence of this comorbidity is thought to be the majority of lung cancer patients in the study. As it is known, smoking is an important cause of lung cancer, and chronic obstructive pulmonary disease is frequently observed in these individuals [13,14]. In Sadik et al.'s study evaluating cancer patients visiting the ED, the most common cancers were lung cancer (32.5%), followed by the gastro-intestinal system (25.4%); In a similar study, by Tanriverdi et al., lung (30%) cancer was the most common which was followed by colon-rectum (17%) cancer [11,6]. In this study, lung cancer was first, and colorectal cancer was the second most frequently observed cancer in patients visiting ED. In addition, colorectal cancer was statistically higher in patients aged 85 years and older. In literature, the ratio of colorectal cancer increases with age, and approximately 60% of these patients are 70 years or older [15].

In this study, one-fifth of the patients visited the ED because of respiratory problems. The respiratory system is a common site of metastasis [16]. Respiratory problems are difficult for patients to endure and reduce their life quality significantly.

In this study, metastatic disease was statistically higher in patients aged 85 years and older than in other age groups. The elderly are often unaware that they belong to a population at high risk of cancer [17]. In addition, routine cancer screening is not recommended for many reasons, such as the expected short life span, comorbidity, and financial burden on this age group, and therefore the probability of detecting early stage of disease in these patients is lower [18].

Hospitalization of old age cancer patients visiting the ED is very common [8,19]. Lee et al. found in their study that the hospitalization of elderly patients visiting the ED increased with age and that almost half of those over 85 years were hospitalized [20]. Similarly, in this study, the highest hospitalization was in the age group of 85 years and older.

Of cancer patients visiting the ED, 8% in the Tanriverdi et al. study and 16.2% in the Mofid et al. study died [6,9]. In this study, mortality in ED was 22%, which was higher than in these studies. The reason behind this was thought to be due to the fact that the patients in this study group were old of age, and the number of patients with metastatic disease was being high.

There are several limitations in this study. Firstly, the study was retrospective. In the study, chief complaint classification was not done in detail, and the survival of patients was not followed up after being discharged from ED or hospitalization. Furthermore, the lack of oncological treatment and toxicity information received by the patients was another important limitation. Lastly, poly-pharmacy can be an important cause of mortality, and the fact that details of the drugs used by the patients were unknown was another limitation.

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Conclusion

The rate of ED visits is gradually increasing due to the increase in the number of old age cancer patients in the aging population. Thus, the role and responsibility of ED in the management of these patients are increasing. Old age cancer patients who visited the ED had different characteristics in the age groups observed. These patients had high mortality, and factors affecting mortality have been identified. In the multivariate analysis, the variables associated with mortality included age group, having 3 or more comorbidities, the chief complaint of cardiovascular disease, neurological disease, and gastrointestinal disease, and receiving treatment.

REFERENCES

1. Fulop T, Larbi A, Khalil A, Cohen AA, Witkowski JM. Are we ill because we age?. Front Physiol. 2019; 10: 1508.
2. Swaminathan D, Swaminathan V. Geriatric oncology: problems with under-treatment within this population. Cancer Biol Med. 2015; 12: 275-283.
3. Cinar D, Tas D. Cancer in the elderly. North Clin Istanb. 2015; 2: 73-80.
4. Balducci L. Epidemiology of cancer and aging. J Oncol Manag. 2005; 14: 47-50.
5. Lash RS, Bell JF, Reed SC, Poghosyan H, Rodgers J, Kim KK, et al. A systematic review of emergency department use among cancer patients. Cancer Nurs. 2017; 40: 135-144.
6. Tanriverdi O, Beydilli H, Yildirim B, Karagoz U. Single center experience on causes of cancer patients visiting the emergency department in southwest Turkey. Asian Pac J Cancer Prev. 2014; 15: 687-690.
7. Ho YW, Tang WR, Chen SY, et al. Association of frailty and chemotherapy-related adverse outcomes in geriatric patients with cancer: a pilot observational study in Taiwan. Aging (Albany NY). 2021; 13: 24192-24204.
8. Van der Meer DM, Weiland TJ, Philip J, Jelinek GA, Boughey M, Knott J, Marck CH, Weil JL, Lane HP, Dowling AJ, Kelly AM. Presentation patterns and outcomes of patients with cancer accessing care in emergency departments in Victoria, Australia. Support Care Cancer. 2016; 24: 1251-1260.
9. Mofid B, Novin K, Roointan ES, Forouzanfar MM. Epidemiology and death-related factors of oncology patients in emergency department. Emerg (Tehran). 2016; 4: 145-150.
10. Bayrak E, Kitiş Y. The main reasons for emergency department visits in cancer patients. Med Bull Haseki 2018; 56: 6-13.
11. Sadik M, Ozlem K, Huseyin M, AliAyberk B, Ahmet S, Ozgur O. Attributes of cancer patients admitted to the emergency department in one year. World J Emerg Med. 2014; 5: 85-90.
12. Barbera L, Taylor C, Dudgeon D. Why do patients with cancer visit the emergency department near the end of life? CMAJ. 2010; 182: 563-568.
13. Sarfati D, Gurney J, Lim BT, Bagheri N, Simpson A, Koea J, et al. Identifying important comorbidity among cancer populations using administrative data: Prevalence and impact on survival. Asia Pac J Clin Oncol. 2016; 12: e47-56.
14. Jørgensen TL, Hallas J, Friis S, Herrstedt J. Comorbidity in elderly cancer patients in relation to overall and cancer-specific mortality. Br J Cancer. 2012; 106: 1353-1360.
15. Millan M, Merino S, Caro A, Feliu F, Escuder J, Francesch T. Treatment of colorectal cancer in the elderly. World J Gastrointest Oncol. 2015; 7: 204-220.
16. Haas AR. Recent advances in the palliative management of respiratory symptoms in advanced-stage oncology patients. Am J Hosp Palliat Care. 2007; 24: 144-151.
17. Estapé T. Cancer in the Elderly: Challenges and Barriers. Asia Pac J Oncol Nurs. 2018; 5: 40-42.
18. DeSantis CE, Miller KD, Dale W, Mohile SG, Cohen HJ, Leach CR, Goding Sauer A, Jemal A, Siegel RL. Cancer statistics for adults aged 85 years and older, 2019. CA Cancer J Clin. 2019; 69: 452-467.

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19. Yang Z, Yang R, Kwak MJ, Qdaisat A, Lin J, Begley CE, et al. Oncologic emergencies in a cancer center emergency department and in general emergency departments countywide and nationwide. PLoS One. 2018; 13: e0191658.

20. Lee SB, Oh JH, Park JH, Choi SP, Wee JH. Differences in youngest-old, middle-old, and oldest-old patients who visit the emergency department. Clin Exp Emerg Med. 2018; 5: 249-255.

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Doi: 10.5505/aot.2022.48753

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