ORIGINAL ARTICLE

Factors Affecting the Morbidity and Mortality of Malignancy Patients Admitted to the Emergency Department

Acil Servise Başvuran Malignite Hastalarının Morbidite ve Mortalitelerini Etkileyen Faktörler

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ABSTRACT

Objectives: The objective of this study is to identify the clinical characteristics and the factors affecting the morbidity and mortality of the patients with malignancy and to increase the quality of care and raise awareness of rapid targeted-therapy in the emergency department.

Materials and Methods: In our study, cancer patients 18 years of age and older who presented to the emergency department of a university hospital were evaluated prospectively. Patients' demographics, vital signs, characteristics associated with malignancy, examinations performed, and their results, treatments, and length of stay were evaluated.

Results: A total of 1283 patients and 1522 presentations were recorded. 51.99% of the patients were male, and 48.01% were female. The overall mean age was 63.05±14.08. The most prevalent symptom was dyspnea (17.94%), and the most common type of cancer was lung cancer (16.23%). In male patients, the most prevalent complaint was fever, and the most common type of cancer was lung cancer (34.63%). In female patients, the most prevalent complaint was dyspnea, and the most common type of cancer was breast cancer (35.25%). The influence of MAP, pulse, Hb levels, uremia, and hypoalbuminemia on mortality and ICU admission was significant. Overall, 41.46% of the patients were hospitalized, and 1.05% of the patients died. The average length of stay was 4.64±6.73 days.

Conclusion: Patients with malignancy constitute a significant portion of emergency department admissions. Promoting the emergency physicians' insight into and experience on oncological emergencies would contribute to decreasing the mortality and morbidity of these patients.

ÖZET

Amaç: Çalışmada acil servis başvuran malignite hastalarının klinik karakteristik özelliklerini, morbidite ve mortalitelerine etki eden faktörleri inceleyerek hastaların bakım kalitesini ve hedefe yönelik hızlı tedavi bilincini artırmayı amaçladık.

Gereç ve Yöntem: Üniversite Hastanesi Acil Tıp Kliniğine 06.11.2014-06.05.2015 tarihleri arasında başvuran, 18 yaş ve üzeri kanser hastaları prospektif olarak incelendi. Hastaların demografik özellikleri, vital bulguları, maligniteleri ile ilgili özellikler, yapılan tetkikler ve sonuçları, tedaviler ve acil serviste yatış süreleri değerlendirildi.

Bulgular: Toplam 1283 hastanın, 1522 başvuru yaptığı tespit edildi. Hastaların %51,99'u erkek (ortalama yaş: 57,52±13,12), %48,01'i kadın (ortalama yaş: 69,05±15,15), genel yaş ortalaması 63,05±14,08 idi. Nefes darlığı (%17,94) en sık başvuru şikayeti olup, en sık rastlanan kanser türü akciğer kanseri (%16,23) idi. Erkeklerde en sık başvuru nedeni ateş, en sık kanser türü akciğer kanseri (%34,63); kadınlarda en sık başvuru şikayeti nefes darlığı, en sık kanser tipi meme kanseri olarak saptandı (%35,25). Hastaların %64'ünde uzak metastaz mevcuttu. Ortalama arteriyal basıncının, nabız dakika sayısının, hemoglobin düzeyinin, üremi ve hipoalbümineminin, mortalite ve yoğun bakım yatışı oranları üzerinde anlamlı etkisi saptandı. Hastaların %41,46'sı herhangi bir servise yatırılırken, %1,05'i kaybedildi. Hastaneye yatışı yapılan hastaların ortalama yatış süreleri 4,64±6,73 gün idi.

Sonuç: Malignite hastaları acil servise başvuran hastaların önemli bir kısmını oluşturmaktadır. Acil servis hekimlerinin onkolojik aciller konusunda yeterli bilgi, deneyim ve tecrübe edinmeleri, bu hastaların mortalite ve morbidite oranlarını azaltacaktır.

INTRODUCTION

Cancer is one of the most common causes of death all over the world. The data from 2009 published by the Public Health Agency of Turkey clarified that the most common type of cancer in females is breast cancer (23.4%), while the most common type of cancer in males is lung-bronchus cancer (25.7%). According to the ICD-10 main diagnosis criteria, 3.9% of the hospitalizations in 2013 were due to diagnoses of neoplasms (1).

Because of the increase in public awareness of cancer, as well as early diagnosis and treatment facilities, the number of diagnosed cancer cases rises. These factors cause an extension in the follow-up period and an increase in the number of emergency department (ED) admissions (2). Consequently, cancer patients are a patient group that significantly increases the workload of ED and has psychosocial issues (3). In cancer patients, the frequency of presentation to the ED increases in the last six months of life due to decreased functional capacity, severe uncontrolled pain, and confusion (4).

Cancer patients present to the ED with various clinical conditions and complications. The most common reasons of ED presentations of cancer patients include metabolic complications, respiratory complications, hematologic complications, infections associated with febrile neutropenia and suppressed immunity, gastrointestinal hemorrhage and tumor-induced acute mechanical intestinal obstruction, neurological complications associated with spinal cord compression and brain metastasis; and complaints of pain due to such complications (5-9).

If familiarization with cancer patients admitted to the emergency department, a thorough assessment of their clinical signs, and early recognition of the possible complications is combined with an effective and rapid treatment, life expectancy and quality of these patients will improve. This study analyses the demographics, complaints, symptoms, length of stay, and the diagnoses of the cancer patients who admitted to the emergency department due to any reason other than trauma and aims to promote the emergency physicians' insight into and skills on oncological emergencies and to emphasize the importance of planning a rapid and effective treatment.

MATERIALS AND METHODS

This study was scheduled as a prospective observational clinical study after obtaining approval of the Ethics Committee. The collected data were from patients who admitted to the emergency department of a university hospital, which has an annual adult patient number of 59.787, between November 6, 2014, and May 6, 2015, were evaluated.

Patients age 18 years and older, who had a previous diagnosis of cancer or who were diagnosed with cancer during their hospitalization in the emergency department were included in the study. Cancer patients who presented with trauma, those younger than 18 years of age, those who did not agree to complete the study form or those who were in cardiopulmonary arrest at the time when they are brought to the emergency department were excluded from the study.

Presenting complaints reported by the patient or their relatives, demographics and blood pressure, pulse, temperature, biochemical test results, imaging results, microbiological tests, diagnosis, treatment, length of stay, and whether they were referred to another department or died were recorded.

Statistical Analysis

All data were entered into the computer system using Microsoft Excel for Mac 2011, and statistical analyses were conducted using IBM SPSS Statistics for Mac 22.0 (SPSS Inc., Chicago, USA). As statistical analysis, descriptive statistics (mean ± standard derivation for parametric data, and median and minimum-maximum values, as well as percentage distribution, for non-parametric data) were used. Chi-square test was used to assess the qualitative variables between the groups, and Student-T test and Mann Whitney U test was used to determine the quantitative variables between the groups. The statistical significance level was taken as $p<0.05$ for all analyses.

RESULTS

1522 (4.98%) patients who had a previous diagnosis of cancer or who were newly diagnosed with cancer out of 30.538 patients admitted to the emergency department were analyzed prospectively. 239 presentations out of 1522 were repeated presentations. After the repeated presentations were adjusted, the net number of presenting patients was 1238. Distribution of the admissions according to age intervals, as shown in table 1. Demographics were analyzed based on the net amount of patients.

Table1: Distribution of the admissions according to age intervals

Age intervals	Total number of admission	%
18-19	2	0,16
20-29	32	2,49
30-39	82	6,39
40-49	156	12,16
50-59	364	28,37
60-69	388	30,24
70+	259	20,19
Total	**1283**	**100**

In our study, 667 of the 1283 patients included in the study were male (51.99%), and 616 were female (48.01%). The mean age was 57.52±13.12 in male patients and 69.05±15.15 in female patients. The overall mean age was 63.05±14.08.

The five most prevalent presenting complaints were as follows: dyspnea 273 (17.94%), fever-chills-tremor 231 (15.18%), fatigue 213 (13.99%), abdominal pain 112 (7.36%), nausea-vomiting 102 (6.70%). 997 (77.71%) of the presenting patients had solid tumors, and 286 (22.29%) had hematologic tumors (Table 2).

Tablo 2. Distribution of primary complaints at admission

Signs and symptoms	n	(%)	Female	(%)	Male	(%)
Dyspnea	273	17,94	129	17,53	144	18,32
Fever and chills	231	15,18	56	7,61	175	22,26
Debility	213	13,99	121	16,44	92	11,70
Abdominal pain	112	7,36	68	9,24	44	5,6
Nausea and vomiting	102	6,70	89	12,09	13	1,65
Pain [a]	98	6,44	38	5,16	60	7,63
Diarrhea	57	3,75	7	0,95	50	6,36
Confusion	57	3,75	21	2,85	36	4,58
Pain during urination	54	3,55	27	3,67	27	3,44
Headache	48	3,15	38	5,16	10	1,27
Swelling in the lower limbs	39	2,56	30	4,08	9	1,15
Palpitation	37	2,43	28	3,80	9	1,15
Hemoptysis	29	1,91	2	0,27	27	3,44
Hematuria	25	1,64	0	0	25	3,18
Inability to urinate	22	1,45	22	2,99	0	0
Constipation	19	1,25	10	1,36	9	1,15
Chest pain	18	1,18	9	1,22	9	1,15
Epilepsia	17	1,12	9	1,22	8	1,02
Hematemesis	13	0,85	0	0	13	1,65
Dizziness	12	0,79	0	0	12	1,53
Abdominal swelling	12	0,79	12	1,63	0	0
Others [b]	34	2,24	20	2,73	14	1,78
Total **	**1522**	**100**	**736**	**100**	**786**	**100**

[a] Except cranial, thoracal and abdominal pain; [b] Rectal bleeding, Urinary-fecal incontinence, Gingival bleeding, Numbness in the lower extremities, Swelling of the upper limbs, Swelling in the neck, Nose bleeding

The two most common type of cancer was lung-bronchus cancer (n=247; 16.23%) and breast cancer (n=217; 14.26%). The most prevalent type of cancer was breast cancer (n=217; 35.23%) in females and lung cancer (n=231; 34.63%) in males. 821 (64%) of the patients had distant organ metastasis at the time of the presentation (Table 3). 115 patients (7.55%) had fever (body temperature >37.5°C), 512 patients (33.64%) had subfebrile temperature (37.6°C> body temperature >37°C), and 69 patients (4.53%) had hypothermia (body temperature <35.5°C) at the time of the presentation. In 330 patients (21.68%), the mean arterial pressure (MAP) was low (<70 mmHg). One hundred thirty-three patients (8.73%) had hypertension (systolic blood pressure >120 mmHg) at the time of the presentation. The initial measurement of pulse (BPM) in the emergency department revealed that 24 patients (1.58%) had bradycardia (BPM <60), and 395 patients (29.95%) had tachycardia (BPM >100). The most prevalent electrolyte abnormality in the patients admitted to the emergency department was hypochloremia with 650 patients (42.71%), the most prevalent biochemical abnormality was uremia with 604 patients (39.68%), and the most prevalent blood count parameter abnormality was anemia with 987 patients (64.85%). Additionally, 69 patients (6.04%) had absolute neutropenia, and 520 patients (34.17%) had hypoalbuminemia. Patient vital signs and blood parameters and comparison of these values between non-survival and intensive care and other patients were shown in table 4.

The most prevalent final diagnoses made upon the examination of the malignancy patients in the emergency department were as follows: pneumonia (n=319; 20.96%), malignancy-related pain (n=276; 18.13%) and electrolyte abnormality (n=276; 18.13%) (Table 5).

71,95% of the patients were treated in and discharged from the ED. The average length of stay of the patients in the ED was 4.64±6.73 days, and the average length of stay until being admitted to the hospital 3.04±1.91 days.

Tablo 3. Distribution of the cancer type

Type of malignancy	Overall patients		Female Patients		Male patients	
	n	(%)	N	(%)	N	(%)
Lung-bronchial	247	19,25	16	2,50	231	34,63
Breast	217	16,91	217	35,23	0	0
Lymphoma	119	9,28	28	4,55	91	13,64
Leukemia	119	9,28	62	10,06	57	8,55
Colorectal	104	8,11	68	10,04	36	5,40
Stomach	55	4,29	22	3,57	33	4,95
Over	50	3,90	50	8,12	0	0
Brain	48	3,74	11	1,79	37	5,55
Multiple Myeloma	48	3,74	19	3,08	29	4,35
Liver	45	3,51	22	3,57	23	3,45
Prostate	44	3,43	0	0	44	6,60
Pancreas	34	2,65	12	1,95	22	3,30
Cervix	31	2,42	31	5,03	0	0
Thyroid	27	2,10	25	4,06	2	0,30
Endometrium	23	1,79	23	3,73	0	0,00
Bladder	21	1,64	2	0,32	19	2,85
Mesothelioma	14	1,09	2	0,32	12	1,80
Other[a]	28	2,19	5	0,81	23	3,45
New Diagnosis	9	0,70	1	0,16	8	1,20
Total	**1283**	**100**	**616**	**100**	**667**	**100**

[a]Larynx, Intestine, Biliary, Neuroblastoma, Testis, Kaposi's Sarcoma, Malignant Melanoma

Table 4. Mean values and comparison of vital signs and blood parameters of the patients

Vital Sign / Blood Parameters	Overall Patients	Non-survival and Intensive care	Other Patients
Fewer (°C)	36,93±0,97	36,05±0,96	37,03±0,94
SBP (mmHg)*	113,14±27,63	91,46±36,45	115,2±20,01
DBP (mmHg)*	71,45±16,61	58,15±23,64	73,16±15,38
MAP (mmHg)*	84,92±19,76	69,25±27,41	73,16±15,38
Pulse (dk)*	90,46±19,68	93,29±26,05	89,32±18,28
WBC (10^3 mm^3)	10,05±12,66	11,67±5,28	9,64±13,6
Hb (g/dl)*	10,54±2,47	8,7±4,25	10,52±2,53
Plt (10^3 mm^3)*	234,4±131,2	346,53±183,04	215,6±118,34
MCV (fl)**	84,63±7,27	84,12±5,42	85±2,28
MCH (pg)	29,08±2,92	28,64±2,2	29,28±2,9
Neutrophil (10^3 mm^3)	7,49±10,11	7,19±5,4	7,28±10,8
Urea (mg/dl)*	61,58±65,27	150,97±120,19	52,06±49,79
Creatinine (mg/dl)*	1,42±1,67	3,53±3,24	1,18±1,18
ALT (IU/L)	29,85±26,6	36,6±18	29,32±26,27
AST (IU/L)	35,02±38,12	42,83±25,55	34,77±40,27
Albumin (g/dl)*	3,73±0,77	3,12±0,52	3,83±0,75
CRP (mg/L)*	70,96±97,97	110,15±127,03	62,92±92,78
Na^{++} (mmol/L)	136,82±5,8	131,93±7,04	137,38±5,3
K$^+$ (mmol/L)*	4,58±0,97	5,89±1,43	4,47±0,86
Ca $^{++}$(mg/dl)	9,16±1,1	8,64±0,88	9,21±1,13
Cl$^-$(mmol/L)*	99,08±7,05	93,15±9,43	99,75±6,44

WBC, white blood count; Hb, hemoglobin; Plt, platelet count; MCV, mean corpuscular volume; MCH, mean corpuscular hemoglobin; AST, aspartate aminotransferase; ALT, alanine aminotransferase; CRP, C-reactive protein; Na^{++}, sodium; K$^+$, potassium; Ca^{++}, calcium; Cl$^-$, chlorine; *, Stastically significant difference between non-survival and intensive care patients and other patients

DISCUSSION

The rate of ED presentation of patients with cancer-related complications increases. The importance of ED for follow-up and treatment of cancer cases has been growing steadily. A study by Swenson et al. (10) found the rate of ED presentation of cancer patients at 5%. Similar studies conducted by several universities in Turkey reported that this rate varies between 0.98 and 5.2% (11, 12). In our study,

cancer patients made up 4.98% of the patients presented to the ED.

In a retrospective study in the ED, Yaylacı et al. (13) found that 55.7% of the patients were male, while 43.3% were female. Kerrouault et al. (14) reported that 65% of the patients were male. In our study, 51.99% of the patients were male, and 48.01% were female. We think that the prevalence of cancer is increased by the fact that negative factors such as smoking are more common among men in Turkey.

In our study, the overall mean age was 63.05±14.08 years. The mean age of the male patients was 57.52±13.12 years, and the mean age of the female patients was 69.05±15.15 years. The most prevalently presenting patient group was mostly in the 6th decade, while the most prevalently presenting patient group among the repeated presentations was mostly in the 7th decade.

In their study, Bozdemir et al. (11) found that there were 245 cancer patients with 324 presentations out of 24903 presentations in 6 month period, and a review of recurrent presenting complaints revealed that the most prevalent complaints were pain and nausea-vomiting. In their study, Liaw et al. (15) found that the rate of repeated presentation to the emergency department was 79% among all patients, including those with malignancy.

In our study, 1283 patients presented 1522 times, 239 patients had repeated presentations. In the repeated presentations, the most prevalent type of malignancy was lymphoma, and the most prevalent presenting complaint was fever. We think that the increase in the incidence of cancer and other comorbid diseases due to advanced age may account for the increase in the mean age of the patients with repeated presentations. We also think that the high number of repeated presentations may be in connection with the emergency department services that are more easily and rapidly accessible compared to other department services, that ED provides non-stop healthcare, and that patients with a delay in hospital admission because of room unavailability are referred to ED.

In their study, Kılıçarslan et al. (16) reported that the most prevalent complaints of the patients presenting to the ED are chest pain, abdominal pain, dyspnea, and headache, respectively. Swenson et al. (10) reported that the rate of gastrointestinal system complaints was 48%, and Kerrouault et al. (14) reported that the most prevalent complaint in the patients presenting to the emergency department was poor overall health,

In our study, the three most prevalent complaints of the patients presenting to the ED included dyspnea (17.94%), fever (15.18%), and fatigue (13.99%). In our study, the most prevalent complaint among the overall presentations was dyspnea. We attribute this to the high prevalence of patients diagnosed with lung cancer. The second most prevalent presenting complaint was fever in our case series. In cancer patients, fever can occur due to malignancy or to

Table 5. Distribution of final diagnosis of the patients

Diagnosis	N	%
Pneumonia	319	20,96
Pain-related to malignancy	276	18,13
Electrolyte disturbance	261	17,14
Sepsis	227	14,91
Anemia	194	12,75
Urinary tract infection	120	7,88
Acute renal failure	110	7,23
Respiratory insufficiency	78	5,12
Constipation	67	4,40
Febrile neutropenia	64	4,20
Vomiting related to chemotherapy	57	3,75
Acute gastroenteritis	53	3,48
Brain edema	38	2,50
Edema related to hypoalbuminemia	36	2,37
Hypertension	33	2,17
Thrombocytopenia	32	2,10
Arrhythmia	27	1,77
Hypoglycemia	21	1,38
Pulmonary embolism	21	1,38
Upper respiratory tract infection	19	1,25
Deep venous thrombosis	17	1,12
Gastrointestinal bleeding	17	1,12
Other[a]	60	3,96
Total [b]	**2168**	**142,44**

[a]Soft tissue infection, brain metastasis, hydrocephaly, diabetes-related to steroid usage, spinal cord syndrome related to metastasis, Vena cava superior syndrome, choledocholithiasis, allergic reaction related to chemotherapy, shunt infection; [b]some patients got more than one diagnosis

increased frequency of infection during treatment because of immunosuppression (17).

The Turkish Cancer Statistics - data from 2009 -, published by the Ministry of Health in 2014, reported that in all age groups, the most common types of cancer in men are cancers of lung, prostate and bladder origin, respectively, while the most common types of cancer in women are those of breast, thyroid, and colorectal origin, respectively (1). Swenson et al. (10) reported that most prevalently presenting patients were those diagnosed with lung cancer and gastrointestinal system cancers (16%).

Indeed, in our study, lung cancer (19.25%) was the most prevalent presenting complaint followed by breast cancer (16.91%). The third and the fourth most common presenting types were leukemia (9.28%) and lymphoma (9.28%). When malignancy diagnoses were analyzed by gender, it was found

that the most common type of cancer in male patients were lung (34.63%), lymphoma (13.36%), and leukemia (8.55%), while the most common types in female patients were breast cancer (35.23%), leukemia (10.06%), and colorectal cancer (10.04%). The initial diagnosis of nine patients (0.59%) in the study was made in the emergency department.

Metastasis was diagnosed at the time of the presentation in 64% of patients presenting to the emergency department in our study. When repeated presentations were analyzed separately, this rate was found to be higher (71.1%). Lung metastases from other cancers were diagnosed, as well as primary lung cancer in patients with a complaint of dyspnea, which was the most prevalent presenting complaint.

Abi Aad et al. reported that its prevalence is as high as 30% for the coexistence of cancer and elevated body temperature (18,19). In their study, Escalante et al. [20] found that 10.4% of the patients with solid tumors and 19.70% of the patients with hematologic malignancy had fever. In the same study, systolic blood pressure abnormality was found in 14.6% of the patients, and diastolic blood pressure abnormality was found in 8.7% of them (20).

The mean body temperature was 36.93±0.97°C, the MAP was 84.92±19.96 mmHg, and the mean BPM was 90.46±19.68 in patients' series. If patients were dead in the emergency department or were referred to the intensive care unit (ICU) were analyzed separately, the mean body temperature was found 36.05±0.96°C, the MAP 69.25±27.41 mmHg, and the mean BPM 93.29±26.05. When these data were compared with the patients who were not referred to the ICU and/or those who did not die, a statistically significant difference in terms of MAP and BPM was found: MAP was lower, while BPM was higher in the patients who died or were referred to the ICU.

Escalante et al. (20) found that 33.8% of the patients who presented to the ED had anemia, 10.97% had neutropenia, and 7.84% had hypoalbuminemia at the time of the presentation. In our study, 64.85% of the patients had anemia, 16.75% had neutropenia (percentage of the patients with absolute neutropenia: 6.04%), and 34.17% had hypoalbuminemia. When the patients who died in the ED or were referred to the intensive care unit were analyzed separately, it was found that the mean hemoglobin value was 8.07±4.25g/dl, neutrophil count was 7.19±5.4(x103/mm3), thrombocyte count 346.53±183.04(x103/mm3), and albumin level was 3.12±0.52g/dl. Decreased hemoglobin level, thrombocyte count, and albumin level caused a statistically significant increase in the intensive care admission and mortality rates; however, no statistically significant relationship was found between neutrophil count and ICU admission and death rates. Additionally, we found that blood urea, creatinine, C-reactive protein, and

potassium levels were statistically significantly higher, and serum chloride level was lower in the patients who died or were admitted to the ICU.

Respiratory tract infections frequently occur in cancer patients and are the most important cause of mortality and morbidity in these patients (21). The prevalence of pneumonia reaches as high as 30%, particularly in patients with febrile neutropenia (21, 22). The most common causative agents of pneumonia in oncological patients are S. pneumonia, P. aeruginosa, K. pneumonia, influenza, and parainfluenza viruses. Besides, infections of fungi, such as aspergillus, cause respiratory tract infections in these patients (22). Because urinary system infections are the most frequently observed nosocomial infection, they are also the most commonly occurring complication in hospitalized cancer patients (23).

The most common diagnosis made at the time of the presentation - apart from a primary cancer diagnosis - among the cancer patients we analyzed was pneumonia (n=319; 20.96%). Additionally, 120 patients (7.88%) had urinary system infection, 64 patients (4.40%) had febrile neutropenia, 53 patients (3.48%) had acute gastroenteritis, 19 (1.259%) had upper respiratory tract infection, 4 patients (0.26%) had soft tissue infection, and one patient (0.07%) had shunt infection. All of these patients were received antibiotic treatment. Based on the result of the culture/antibiogram, antibiotics effective against the susceptible bacteria with a spectrum as narrow as possible were preferred in 62.16% (n=368) of the 592 patients administered antibiotherapy. However, very broad-spectrum antibiotic regimens were administered to 224 patients (37.84%) with advanced immunosuppression and those with a previous history of multiple hospitalizations.

Acute kidney failure may occur due to renal involvement in cancer or fluid-electrolyte imbalances or as a result of nephrotoxic effects of anti-cancer drugs (24). In the case of acute kidney failure, hemodialysis should be administered without delay. Additionally, interventions to relieve compression and emergency radiotherapy may be required when oncological emergencies such as respiratory failure due to malign pleural effusion, metastatic epidural spinal cord compression, brain edema, or superior vena cava syndrome occur (25, 26). According to the literature, spinal cord compression occurs in 5% of all cancer patients, and superior vena cava syndrome occurs in 4% of the patients with lung cancer (26).

We found that 110 patients were diagnosed with acute kidney failure, and hemodialysis was administered to 61 of these patients (55.44%). Eleven patients required thoracentesis-paracentesis for symptomatic treatment. Emergency radiotherapy combined with intravenous steroid treatment was administered to two patients due to metastatic spinal syndrome and to two patients due to tumor-induced brain edema.

CONCLUSION

It is observed that infections are the most common factor that affects morbidity and mortality of malignancy patients. Also, low MAP and high BPM levels are predictors for mortality in the emergency department for malignancy patients. It is found that anemia, hypoalbuminemia, and thrombocytopenia are related to mortality in the ED for cancer patients. We also have to be careful about emergency hemodialysis and spinal cord compression for decreasing mortality and morbidity in the ED.

Based on the results of our study, oncological patients constitute a considerable number of patients presenting to the emergency department. We think that promoting the emergency physicians' insight into and experience oncological emergencies would contribute to decreasing the mortality and morbidity of these patients.

Conflicts of Interest

All other co-authors have no conflicts of interest.

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