IJCMBS

Original Article

doi.org/ 10.5281/zenodo.14691149 JCMBS 2025; 5(1):xxxxxx

Emergency Visits in Cancer Patients: Predictors of Hospitalization and Palliative Care Needs

Kanser Hastalarında Acil Servis Başvuruları: Yatışı Öngören Faktörler ve Palyatif Bakım İhtiyaçları

Elif Degirmenci Aktas[1*], Yusuf Koksal[2] Can Aktas[3]

[1]Koc University, Department of Oncology, Istanbul /Turkiye

[2]Consultant in Emergency Medicine, WIC Clinic, Primary Health Care Corporation, Doha/ Qatar

[3]Koc University, Department of Emergency Medicine, Istanbul/Turkiye

Abstract

Background: Cancer patients frequently visit emergency departments due to acute complications related to their disease or treatment. Identifying visit patterns and predictors of adverse outcomes can guide targeted interventions to improve care and reduce emergency reliance.

Materials and Methods: This retrospective cohort study analyzed visit patterns, common complaints, and predictors of hospitalization and mortality among cancer patients at a tertiary hospital. We reviewed 753 patients with active cancer who visited emergency department. Data on demographics, clinical presentation, admissions, and mortality were analyzed. Regression analysis was performed to determine the predictors of hospitalization and mortality. Mortality rates were assessed based on visit frequency.

Results: Among 753 patients with 1609 visits, gastrointestinal (36.5%) and respiratory (20.7%) cancers were the most common. Abdominal pain (18.15%) and nausea/vomiting (18.09%) were leading complaints. Hospitalization occurred in 34.6% of visits. Significant predictors included anorexia-cachexia (OR=3.84, 95% CI: 2.18–6.77, p<.001), altered mental status (OR=3.14, 95% CI: 1.81–5.44, p<.001), shortness of breath (OR=2.15, 95% CI: 1.52–3.03, p<.001), fever (OR=1.86, 95% CI: 1.40–2.48, p<.001), and abdominal pain (OR=1.61, 95% CI: 1.22–2.12, p<.001). The two-year mortality rate was 20.19%, highest in gastric (32.65%), pancreatic (25.0%), and lung cancers (24.8%). Patients with ≥5 visits had a 25% mortality rate.

Conclusions: Cancer patients frequently visit emergency services and anorexia-cachexia, altered mental status, shortness of breath, fever and abdominal pain increase the hospitalization risks. Recurrent visits (≥5) have higher mortality, highlighting the need for better palliative care integration and strategies to reduce emergency dependence for this vulnerable population.

Keywords: Cancer, Emergency Department, Mortality, Palliative Care

ÖZ

Amaç: Kanser hastaları, hastalıkları veya tedavileriyle ilişkili akut komplikasyonlar nedeniyle sıklıkla acil servislere başvurmaktadır. Başvuru paternlerinin ve olumsuz sonuçları öngören faktörlerin belirlenmesi, bakım kalitesini iyileştirmek ve acil başvurularını azaltmak için hedefe yönelik palyatif çözümlere rehberlik edebilir.

Gereç ve Yöntem: Bu retrospektif kohort çalışması, üçüncü basamak bir hastanede Acil service başvuran aktif kanserli 753 hastayı kapsamaktadır. Demografik veriler, klinik başvurular, yatış oranları ve mortalite verileri incelenmiştir. Hastaneye yatış ve mortalite ilişkili semptomları belirlemek için regresyon analizi yapılmış ve başvuru sıklığına göre mortalite oranları ayrıca değerlendirilmiştir.

Bulgular: Bulgular: Toplam 753 hastanın 1609 başvurusu incelenmiştir. En sık görülen kanser türleri gastrointestinal (%36,5) ve solunum sistemi kanserleri (%20,7) olup, en yaygın semptomlar karın ağrısı (%18,15) ve bulantı/kusma (%18,09) olarak belirlenmiştir. Başvuruların %34,6'sı yatış ile sonuçlanmış olup Anoreksi-kaşeksi (OR=3.84, 95% CI: 2.18–6.77, p<.001), bilinç değişikliği (OR=3.14, 95% CI: 1.81–5.44, p<.001), nefes darlığı (OR=2.15, 95% CI: 1.52–3.03, p<.001), ateş (OR=1.86, 95% CI: 1.40–2.48, p<.001) ve karın ağrısı (OR=1.61, 95% CI: 1.22–2.12, p<.001) yatış için anlamlı prodüktörlerdir. İki yıllık mortalite oranı %20,19 olup, en yüksek oran gastrik (%32,65), pankreatik (%25,0) ve akciğer (%24,8) kanserlerinde saptanmıştır. Beşten fazla başvurusu olan hastaların mortalitesi %25 saptanmıştır.

Sonuç: Sonuç: Kanser hastaları sıkça acil servise başvurmakta olup, anoreksi-kaşeksi, bilinç değişikliği, nefes darlığı, ateş ve karın ağrısı hastaneye yatış riskini artırmaktadır. Beş ve üzeri tekrar eden acil servis başvuruları, daha yüksek mortalite oranları ile ilişkilidir. Bu durum, palyatif bakımın iyileştirilmesi ve bu hassas popülasyonda acil servise bağımlılığı azaltmaya yönelik stratejilerin acilen gerekliliğini vurgulamaktadır

Anahtar kelimeler: Kanser, Acil Servis, Mortalite, Palyatif Bakım

***Corresponding author:** Yusuf Koksal. Consultant in Emergency Medicine, WIC Clinic, Primary Health Care Corporation, Doha, QATAR
E-mail: ykoksal@phcc.gov.qa **Received:** 24 December 2024 **Accepted:** 16 January 2025

Highlights

- *High Emergency Department Utilization by Cancer Patients:* 30% of cancer patients visit the ED during treatment, with frequent visits linked to disease progression.
- *Key Predictors of Hospitalization Identified:* Symptoms such as anorexia-cachexia, altered mental status, shortness of breath, fever, and abdominal pain significantly increase hospitalization risk.
- *Frequent ED Visits Linked to Mortality:* Patients with five or more ED visits face a 25% two-year mortality rate, underscoring the need for early interventions.

Introduction

Up to 30% of cancer patients may visit the Emergency Department (ED) at least once during their treatment course (1–3). Cancer incidence and cancer caused by mortality are rising due to prolonged life expectancy and enhanced diagnostic capabilities. For many patients the ED is the point of attention for the assessment and treatment of acute problems related to cancer or its therapies (1–3).

However, ED's have some limitations in providing comprehensive oncology care which leads to increased length of stay, poor symptom control and avoidable admissions.

The most frequent complaints observed in the ED among patients with cancer are nausea and vomiting, abdominal pain, dyspnea, and fatigue (4–6). These symptoms require a lot of diagnostic testing, and the patients may require intervention on an urgent basis. The frequency of ED visits has been associated with disease progression as well as worse outcomes including higher mortality rates (7,8).

Research evidence has pointed out that the implementation of palliative care and the establishment of coordinated outpatient oncology services can decrease the frequency of visits to the ED and produce better patient-oriented results (9–12). Nevertheless, many healthcare organizations do not have the necessary structure to provide palliative specific care.

Our study aimed to fill the gap in current research regarding ED utilization by specific cancer subtypes by describing patterns of ED utilization, identify common presenting symptoms, and determine predictors of hospitalization and mortality among patients with active cancer. These insights may guide strategies to optimize oncology care, enhance symptom management, and reduce the burden on emergency services and improve outcomes of this vulnerable population.

Material and Methods

Study Design and Setting: This study was designed as a single-center, retrospective cohort study and was conducted at a tertiary care university hospital ED. Used records from January 2016 to January 2018. The hospital had a comprehensive cancer center and is one of the largest cancer hospitals that receive about 34,000 ED visits on an annual basis. In this study, STROBE guidelines for observational research were followed.

Participants: Inclusion criteria were adults (≥18 years) with active cancer (receiving chemotherapy, palliative intent, or documented recurrence), who visited the ED with cancer-related problems. Exclusion criteria included patients in remission or those presenting to the hospital due to trauma or any other visits that were not related to cancer. We excluded patients with incomplete records, which included missing demographic or outcome data. Patients were identified using ICD-10 code (C34 for lung cancer, C50 for breast cancer, C18 for colon cancer etc.) documented in the hospital's electronic health system.

Data Collection: Two experienced ED nurses, who are familiar with the process of abstraction of data, re-viewed the records. The data collected included the patients' demographic data, cancer diagnosis, symptoms presented at the ED, diagnostic investigations, and management in the ED, hospital admission and mortality. Mortality was established through the patients' charts and phone contact made six months after the end of the study. The data includes 1609 ED visits made by 753 patients.

Variables: We collected the following variables: patient characteristics (such as age, gender, cancer type, symptoms at presentation), diagnostic investigations (laboratory tests and imaging), treatments (fluids, analgesics, and transfusions), hospital admission and mortality. The symptoms were classified according to the organ system affected while the diagnostic investigations included the standard laboratory and imaging procedures.

Ethics: This Study approval was obtained from the Koc University Hospital Faculty of Medicine, Non-Interventional Clinical Research Ethics Committee (Approval No. 2021.176. IRB1.060 date: 24.03.2021). As this was a retrospective study, patient data were reviewed in compliance with institutional regulations and national

data protection laws. Only data from patients who had provided informed consent for the use of their information and communication permissions during hospital admission were included. We ensured the patient's confidentiality and followed the principles of the Declaration of Helsinki.

Statistical analyses

We used descriptive statistics to summarize demographic and clinical characteristics. Continuous variables were tested for normality using the Shapiro-Wilk test and presented as mean ± SD for normally distributed data or median with interquartile range (IQR) for non-normally distributed data. Variance homogeneity was assessed using Levene's test. Categorical variables expressed as frequencies and percentages. To identify predictors of hospitalization, we performed logistic regression analysis. Variables with a p-value <0.10 in the statistical analysis were included in a multivariate logistic regression model to control potential confounders. Results of the regression analysis are reported as odds ratios (ORs) with 95% confidence intervals (CIs). Given the binary nature of the dependent variable (hospitalization: yes/no), binary logistic regression was applied. We considered p<0.05 significant. Analyses were conducted using SPSS version 20.0 (IBM Corp., Armonk, NY).

Results:

Patient Characteristics: A total of 753 patients made 1,609 ED visits. The mean age was 62 ± 14 years (range: 19–94), and the gender distribution was balanced (49.3% male, 50.7% female). Gastrointestinal cancers were most common (36.5%), followed by respiratory (20.7%), hematopoietic/lymphatic (12.4%), genitourinary (11.0%), and gynecologic (5.0%) malignancies. Lung, colon, and pancreatic cancers were frequent diagnoses (Table 1).

Number of Hospitalizations and Discharges by Cancer Type: Of the 1,609 ED visits, lung cancer alone was seen to be the most common (19.9%), and 31.2% of these visits ended up being hospitalized. Colon cancer (30.1%) and pancreatic (38.9%) cancer also had high rates of hospitalization, respectively. Although colon cancer accounted for only 10.9% of visits while pancreatic cancer was 10.1%. However, gastric cancer had almost half (48.5%) of the visits resulting in hospitalization. On the other hand, all the testis cancer patients were discharged without being admitted.

Thus, 65.4% of patients (n= 1,052) were discharged and 34.6% of patients (n=557) were hospitalized **(Table 1)**.

Presenting Symptoms: The most frequent symptom was abdominal pain (18.2%), followed by nausea/vomiting (18.1%), fever (15.9%), malaise/fatigue (15.7%), and shortness of breath (9.8%). Other less common symptoms were diarrhea, cough, altered mental status, anorexia-cachexia and chest pain **(Table 2)**. The analysis of ED revisit rates based on presenting symptoms highlights specific predictors of repeated visits. Patients presenting with abdominal distention and dizziness demonstrated the highest revisit rates (1.91 each), followed by abdominal pain (1.9), nausea and vomiting (1.9) and fever (1.9).

Predictors of Hospitalization: Of the 1609 visits 34.6% (n= 557) resulted in hospitalization. Anorexia-cachexia, altered mental status, shortness of breath, fever and abdominal pain symptoms were found to be significantly higher in hospitalized patients (p<0.001, for all). Anorexia-cachexia (OR=3.84, 95% CI: 2.18–6.77, p: < 0.001), altered mental status (OR=3.14, 95% CI: 1.81–5.44, p: <0.001), shortness of breath (OR=2.15, 95% CI: 1.52–3.03, p: < 0.001), fever (OR=1.86, 95% CI: 1.40–2.48, p: < 0.001) and abdominal pain (OR=1.61, 95% CI: 1.22–2.12, p: < 0.001) were identified as significant predictors by the multivariate logistic regression analysis respectively **(Table 3)** .

Admission Trends: The attendance at ED was seen to have spikes at certain times of the day between 10:00 to 18:00 and between 20:00 to 23:00. Patients waited for an average of 136 ± 67.8 minutes. Of these, 40.4% visited the ED more than once and 11.3% visited the ED five or more times **(Figure 1).**

Mortality: We calculate the two-year mortality as 20.19%. The highest mortality was observed in gastric cancers (n=16, 32.65%), the next being pancreatic cancers (n=16, 25.0%) and lung cancers (n=36, 24.8%) the other cancers mortality rate was (n=84, 18%). Of the patients who visited the ED more than five times, mortality was 25% while 2% of the patients who visited once **(Figure 2)**.

Diagnostic and Treatment Patterns: Common investigations included complete blood counts (83.4%), biochemistry tests (81.9%), and coagulation profiles (21.9%). Imaging studies, such as X-rays (27.5%) USG's (%24.7) and Computed Tomography (15.4%), were frequently performed. Interventions included fluid therapy (36.4%) and analgesics (25.9%); blood transfusions were rare (1.9%).

Table 1: Cancer Types, Gender, and Age Distribution of Patients

Cancer Types	Patients* (n, %)	Male* (n, %)	Female* (n, %)	Age (Mean ±SD)	Discharge** (n, %)	Hospitalization** (n, %)	Total Visits** (n, %)
Lung Cancers[1]	145 (19.3)	79 (54.5)	66 (45.5)	64 ± 6	220 (20.9)	100 (18.0)	320 19.9)
Colon Cancers[2]	75 (10.0)	39 (52.0)	36 (48.0)	63 ± 6	123 (11.7)	53 (9.5)	176(10.9)
Pancreas Cancers[2]	64 (8.5)	33 (51.6)	31 (48.4)	62 ± 6	99 (9.4)	63 (11.3)	162 10.1)
Lymphoma[3]	56 (7.4)	29 (51.8)	27 (48.2)	61 ± 6	82 (7.8)	35 (6.3)	117 (7.3)
Gastric Cancers[2]	49 (6.5)	24 (49.0)	25 (51.0)	65 ± 6	51 (4.8)	48 (8.6)	99 (6.2)
Breast Cancers	48 (6.4)	0 (0.0)	48 (100.0)	55 ± 5	61 (5.8)	21 (3.8)	82 (5.1)
Rectum Cancers[2]	41 (5.4)	20 (48.8)	21 (51.2)	58 ± 5	61 (5.8)	25 (4.5)	86 (5.3)
Prostate Cancers[5]	33 (4.4)	33(100.0)	0 (0.0)	72 ± 7	44 (4.2)	22 (3.9)	66 (4.1)
Brain Cancers	23 (3.1)	11 (47.8)	12 (52.2)	62 ± 6	42 (4.0)	21 (3.8)	63 (3.9)
Bladder Cancers[5]	27 (3.6)	15 (55.6)	12 (44.4)	64 ± 6	23 (2.2)	31 (5.6)	54 (3.4)
Liver Cancers[2]	26 (3.5)	14 (53.8)	12 (46.2)	63 ± 6	33 (3.1)	13 (2.3)	46 (2.9)
Leukemia[3]	23 (3.1)	13 (56.5)	10 (43.5)	60 ± 6	22 (2.1)	14 (2.5)	36 (2.2)
Connective Tissue Cancers	22 (2.9)	12 (54.5)	10 (45.5)	59 ± 5	24 (2.3)	18 (3.2)	42 (2.6)
Ovarian Cancers[4]	18 (2.4)	0 (0.0)	18 (100.0)	58 ± 5	30 (2.9)	16 (2.9)	46 (2.9)
Kidney Cancers[5]	14 (1.9)	9 (64.3)	5 (35.7)	65 ± 6	19 (1.8)	15 (2.7)	34 (2.1)
Thyroid Cancers	14 (1.9)	2 (14.3)	12 (85.7)	56 ± 5	22 (2.1)	2 (0.4)	24 (1.5)
Multiple Myeloma[3]	14 (1.9)	9 (64.3)	5 (35.7)	62 ± 6	12 (1.1)	10 (1.8)	22 (1.4)
Cervix Uteri Cancers[4]	12 (1.6)	0 (0.0)	12 (100.0)	55 ± 5	16 (1.5)	7 (1.3)	23 (1.4)
Throat Cancers[1]	10 (1.3)	6 (60.0)	4 (40.0)	63 ± 6	10 (1.0)	6 (1.1)	16 (1.0)
Testis Cancer[5]	9 (1.2)	9 (100.0)	0 (0.0)	28 ± 2	16 (1.5)	0 (0.0)	16 (1.0)
Esophagus Cancers[2]	8 (1.1)	4 (50.0)	4(50.0)	62 ± 6	10 (1.0)	12 (2.2)	22 (1.4)
Endometrial Cancers[4]	8 (1.1)	0(0.0)	8 (100.0)	59 ± 5	11 (1.0)	4 (0.7)	15 (0.9)
Gall Bladder Cancers[2]	6 (0.8)	4 (66.7)	2 (33.3)	61 ± 6	12 (1.1)	6 (1.1)	18 (1.1)
Biliary Tract Cancers[2]	6 (0.8)	4 (66.7)	2 (33.3)	61 ± 6	8 (0.8)	12 (2.2)	20 (1.2)
Adrenal Cancers	1 (0.1)	1 (100.0)	0 (0.0)	57 ± 0	1 (0.1)	2 (0.4)	3 (0.2)
Larynx Cancers[1]	1 (0.1)	1 (100.0)	0 (0.0)	58 ± 0	0 (0.0)	1 (0.2)	1 (0.1)
Total	753(100.0)	371(49.3)	382 (50.7)	62 ± 14	1052 (100.0)	557 (100.0)	1609(100.)

Abbreviations:*Percentages are based on patients (n = 753), ** Percentages are based on emergency department visits (n = 1609),[1]Respiratory system cancers (Lung, Throat, Larynx): 20.7%,[2]Gastrointestinal cancers (colon, pancreas, gastric, rectum, liver, gall bladder, and biliary tract cancers): 36.5%,[3]Hematopoietic and Lymphatic System (Lymphoma, Leukemia, Multiple Myeloma): 12.4%,[4]Gynecologic cancers (Ovarian, Cervix uteri, Endometrial cancer): 5.04%,[5]Genitourinary Cancers (Prostate Cancers, Bladder Cancers, Kidney Cancers, Testis Cancer): 11.02%*

Table 2: Most Frequent Symptoms Reported According to Admissions

Symptoms	n, (%)*	Symptoms	n, (%)*
Abdominal Pain	292 (18.15)	**Thrombophlebitis**	26(1.62)
Nausea or vomiting	291 (18.09)	**Urine Retention**	22(1.37)
Fever	255 (15.85)	**Hypertension**	18(1.12)
Malaise and fatigue	252 (15.66)	**Hematuria**	15(0.93)
Shortness of breath	158 (9.82)	**Hemoptysis**	12(0.75)
Diarrhea	83(5.16)	**Hyperglycemia**	9(0.56)
Cough	65(4.04)	**Hypotension**	8(0.50)

Altered Mental Status	63(3.92)	**Drug overdose**	5(0.31)
Anorexia and Cachexia	61(3.79)	**Anxiety**	2(0.12)
Chest Pain	61(3.79)	**Fall**	38(2.36)
Ascites	60(3.73)	**Palpitation**	35(2.18)
Constipation	45 (2.80)	**Syncope**	26(1.62)
Loss of Appetite	42(2.61)	**Dizziness**	41(2.55)
Gastrointestinal hemorrhage	33(2.05)	**Headache**	40(2.49)

Abbreviations: **Percentages are based on emergency department visits (n = 1609).*

Table 3: Predictors of Hospitalization

Symptoms	OR (95% CI)	p
Anorexia-Cachexia	**3.84 (2.18–6.77)**	**<0 .001**
Altered Mental Status	**3.14 (1.81–5.44)**	**<0 .001**
Shortness of Breath	**2.15 (1.52–3.03)**	**<0 .001**
Fever	**1.86 (1.40–2.48)**	**< 0.001**
Abdominal Pain	**1.61 (1.22–2.12)**	**<0 .001**
Nausea/Vomiting	**1.25 (0.95–1.65)**	**0.095**
Diarrhea	**1.10 (0.88–1.37)**	**0.216**
Dizziness	**0.95 (0.72–1.26)**	**0.356**
Cough	**0.85 (0.66–1.09)**	**0.452**
Chest Pain	**0.82 (0.64–1.06)**	**0.483**
Weakness	**0.78 (0.60–1.01)**	**0.510**
Back Pain	**0.75 (0.58–0.97)**	**0.618**
Palpitations	**0.70 (0.54–0.91)**	**0.658**
Hemoptysis	**0.68 (0.52–0.89)**	**0.702**

Abbreviations: *OR: Odds Ratio CI: Confidence Interval*

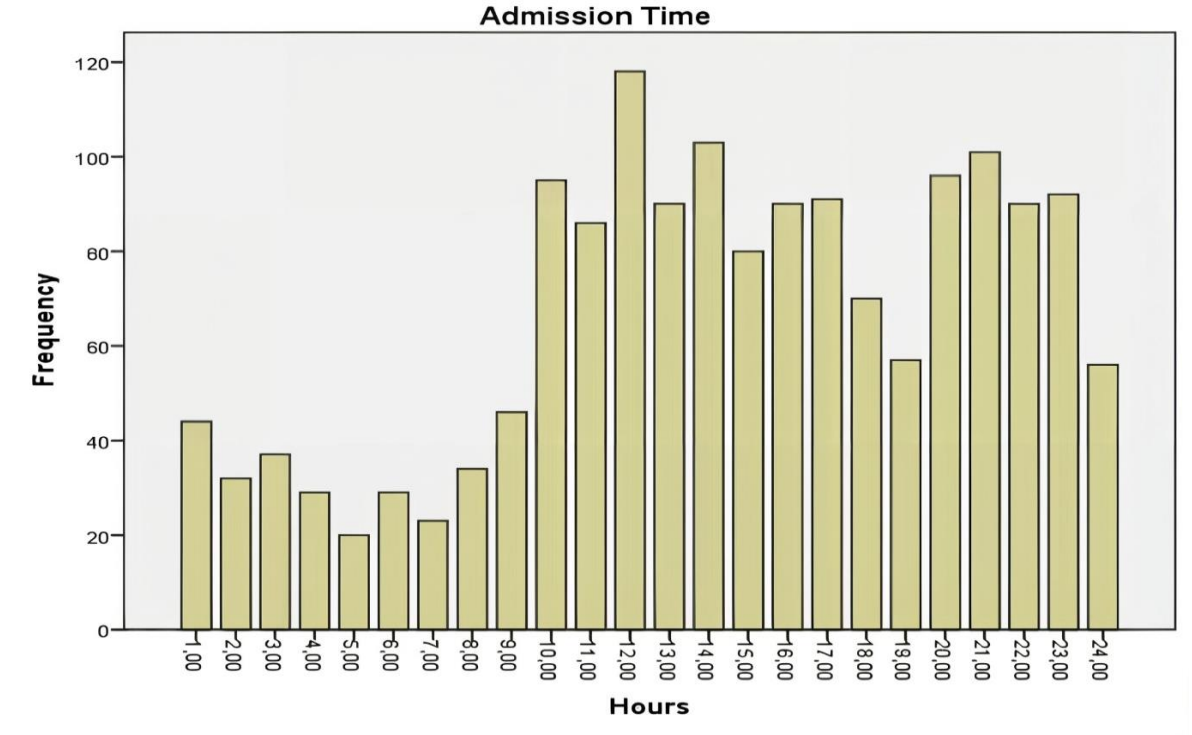

Figure 1. Admission Trends

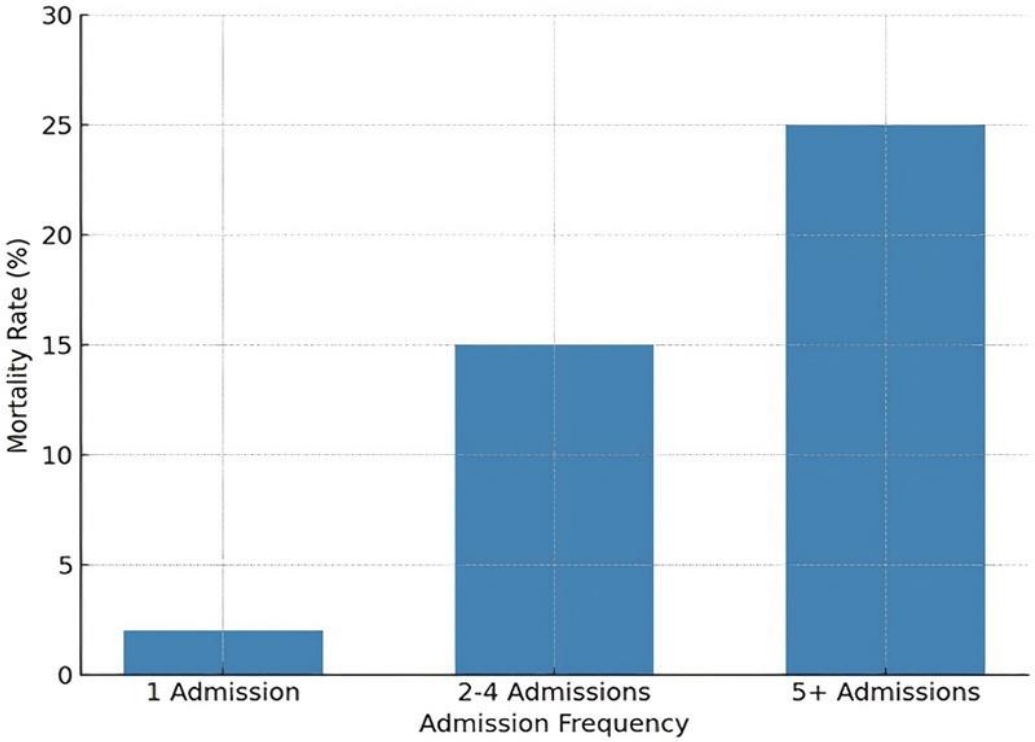

Figure 2. Mortality rate by Admission counts

Discussion

Our study also supports the fact that cancer patients constitute a heavy burden on the EDs due to high revisit rates, frequent admissions and high mortality. These patterns indicate late-stage disease, complex symptoms and poor coordination of care in the outpatient setting. Specifically, some of the high-risk presentations, for instance anorexia-cachexia or altered mental status were found to predict both hospitalization and mortality.

Even more, the frequent ED utilization (at least 5 visits) was associated with significantly higher mortality, which supports the importance of early inpatient admission and multimodal palliative care. Our results concur with the existing literature that frequent ED visits near the end of life indicate suboptimal community support (2,3,7,13). Thus, well-directed, proactive interventions targeting patients with gastric, lung or pancreatic cancer are necessary to prevent acute events, decrease the load on the ED, and enhance the outcomes of the patients.

Emergency Department Utilization: The findings from our study demonstrate that a large proportion of patients with cancer visit the ED highlight with existing literature that has established enhanced acute care utilization due to severe symptoms, treatment related toxicity and disease progression (4–6,14).The graph of visits and the peaks seen during late morning and early evening hours are in conformity with the findings of Barbera et al. which highlights the fact that both patient and institutional factors are key in determining the ED utilization patterns (3). Our findings also support the need to vary the attendance of the staff and resources to meet the challenges of increased patient throughput.

Symptom Profiles and Predictors of Hospitalization: As in prior research, the symptoms reported included nausea, abdominal pain, and fatigue as the common symptoms observed among the patients (8,15). Thus, symptoms such as anorexia-cachexia and altered mental status were identified as the major factors that are associated with increased risk of hospitalization, which in turn leads to early mortality, as in the literature reported before (12,16). In our research, we identified the factors that include shortness of breath and fever as the predictors of the outcome may be indicative of other conditions such as infections, respiratory complications or worsening of the disease (17). If these symptom clusters are recognized at an early stage, then this may allow for appropriate management and possibly

minimize the need for admission. Elevated revisit rates for symptoms such as abdominal distention, dizziness, abdominal pain, nausea, vomiting, and fever underscore the necessity for targeted interventions during initial emergency department evaluations. These symptoms may indicate complex underlying conditions that, if not thoroughly addressed, could lead to repeat visits. Future research should focus on identifying the etiologies and developing effective management strategies for these high-risk presentations.

Cancer-Specific Trends: Of the cancer types considered, lung, pancreatic and colon cancers were the most frequent and accounted for the highest rates of ED visit and hospitalization. These results are consistent with prior research, which has connected lung cancer to late-stage disease, severe symptoms and frequent acute on chronic admissions (3,4). Pancreatic cancers which also characterized by severe pain and gastrointestinal distress at late stages of the disease leading to high admission rates (6). On the other hand, cancers which are generally less aggressive and therefore may not cause much distress such as testicular and thyroid cancers, were rarely hospitalized (8). Thus, such differences are an emphasis on the need for cancer care pathways and the triage that can identify those at high risk of clinical worsening.

Mortality and Frequent Admissions: The observed two-year mortality rate was 20.2% as well as its correlation with the frequent ED visits are consistent with previous research that has demonstrated that frequent presentations are a marker of worsening disease, inadequate community support or unmet palliative requirements (13,18,19). Thus, the results of the study revealed that patients who visited the ED at least five times had a high mortality rate, which emphasizes the importance of intensive and comprehensive management at the onset of the disease. With the integration of palliative care into oncology which has been seen to lower the rates of ED visit and enhance the quality of life through home based and outpatient palliative care programs, it could reduce the acute presentations (8,12,20,21).

Diagnostic and Treatment Patterns: Our findings on diagnostic and treatment practices are in conformity with the usual practice in the ED when dealing with a patient with cancer and acute problems. The use of laboratory investigations and imaging in the assessment of the patient's clinical state is therefore quite frequent as seen in literature too (22,23). The use of fluids and analgesics is understandable given that this is a very symptomatic population. Transfusion rates were lower than reported in literature before. This may be due to varying local practice, patient characteristics, or disease severity or pathways that restrict giving transfusions in ED (6). Further research may be done to examine the effects of using standardized plans for management of cancer patients in the emergency department with an aim of enhancing diagnostic value and symptom control.

Implications for Practice: Based on these findings, health systems should emphasize the early incorporation of palliative care and supportive care services as an integral part of the oncology care to minimize the dependence on the ED, enhance symptom control could improve the outcome as reported in existing literature (20,24). Especially, it is crucial to identify effective intervention for such high-risk patients as gastric cancer, lung cancer, pancreatic cancer, and symptoms such anorexia-cachexia, altered mental status, shortness of breath, fever and abdominal pain to avoid hospitalization and death. Furthermore, those patients who are likely to present at the ED frequently are at high risk of mortality and this emphasizes the need for early admission and prompt instituting of palliative measures for this vulnerable population.

Study limitations

Limitations and Future Directions: The use of a single center and retrospective cohort design may pose some limitations to the external validity of the study. Further investigation should be carried out into larger cohorts and in more than one center to validate our findings and assess the effects of interventions meant to decrease the dependence on the ED. Research on the possible palliative care delivery modals, specialized triage tools and telemedicine-based follow-up may help in identifying the best ways to manage such high-risk patients.

Conclusion

Our study demonstrates that frequent admissions to the ED by patients with cancer are often associated with late-stage disease, high symptom burden or inadequate community management. The results reveal that high-risk presentations which include anorexia-cachexia, altered mental status, shortness of breath, fever and abdominal pain or frequent ED admissions are associated with high hospitalization. Patients with ≥5 ED visits had a 25% mortality rate. Establishing effective follow-up and treatment protocols for cancer patients presenting to the emergency department may be effective in reducing emergency department visits and hospitalizations for these patients.

Acknowledgements: *None.*
Ethical Approval: *This Study approval was obtained from the Koc University Hospital Faculty of Medicine, Non-Interventional Clinical Research Ethics Committee (Approval No. 2021.176. IRB1.060 date: 24.03.2021).*
Author Contributions: *Concept: E.D.A, Y.K, C.A. Literature Review: E.D.A, Y.K, C.A Design: E.D.A, Y.K, C.A Data acquisition: F.D, O.D. Analysis and interpretation: E.D.A, Y.K, C.A. Writing manuscript: E.D.A, Y.K, C.A. Critical revision of manuscript: E.D.A, Y.K, C.A.*
Conflict of Interest: *The author(s) do not have any potential conflict of interest regarding the research. authorship and/or publication of this article.*
Financial Disclosure: *No financial support was received for this study.*

References

1. Da Costa I, Cottu P, Bouleuc C, et al. La consultation médicale en urgence dans le parcours du patient en oncologie. Bull Cancer (Paris). 2022;109(12):1277–86.
2. Baugh CW, Ouchi K, Bowman JK, et al. A Hospice Transitions Program for Patients in the Emergency Department. JAMA Netw Open. 2024;7(7): e2420695.
3. Barbera L, Taylor C, Dudgeon D. Why do patients with cancer visit the emergency department near the end of life? Can Med Assoc J. 2010;182(6):563–8.
4. Menon M, Perumal S, Ahmad R, et al. Symptoms, Electrolyte Disturbances and Serum Albumin Levels in Palliative Oncology Patients Admitted Through Emergency: Characteristics and Survival Outcomes. Indian J Palliat Care. 2024; 30:34–40.
5. Ha EL, Castillo EM, Vilke GM, et al. Active Cancer Patients Presenting to the Emergency Department with Acute Venous Thromboembolism: A Retrospective Cohort Study on Risks and Outcomes. J Emerg Med. 2021; 61(3):241–51.
6. Delgado-Guay MO, Rodriguez-Nunez A, Shin SH, et al. Characteristics and outcomes of patients with advanced cancer evaluated by a palliative care team at an emergency center. A retrospective study. Support Care Cancer. 2016; 24(5):2287–95.
7. Bosch X, Mota Gomes T, Montori-Palacin E, et al. Time to Diagnosis and Presenting Symptoms of Patients Diagnosed With Cancer Through Emergency and Nonemergency Routes: A Large Retrospective Study From a High-Volume Center. JCO Oncol Pract. 2024; 20(7):932–42.
8. Rocque GB, Cleary JF. Palliative care reduces morbidity and mortality in cancer. Nat Rev Clin Oncol. 2013; 10(2):80–9.
9. Alqahtani AM, Elsherbiny AY, Al-Badour HM, et al. Effectiveness of Home Care in Reducing Emergency Department Visits by End-Stage Palliative Care Patients in the Armed Forces Hospital – Southern Region, Saudi Arabia: A Retrospective Cohort Study. World Fam Med J Middle East J Fam Med. 2024;22 (5):42-6.
10. Andriastuti M, Halim PG, Mulyati T, et al. Palliative Home Visit Intervention and Emergency Admission in PediatricCancer Children: A Randomized Controlled Trial. Curr Pediatr Rev. 2024; 20(2):194–9.
11. Chan KY, Chan ML, Tsang KW, et al. Integration of palliative care approach into community mental health service may further reduce emergency admissions. Lancet Reg Health - West Pac. 2023t; 39:1-2.
12. Mistry H, Wernert T, Has P, et al. Assessing preventable emergency department visits and hospitalizations following implementation of a high-touch program at an academic cancer center. JCO Oncol Pract. 2023;19(11_suppl):415.
13. Wibulpolprasert A, Wangviboonchai V, Saengprateeptong P, et al. Comparison of resuscitation intervention utilization in the emergency department by palliative care eligible patients between cancer and non-cancer. Sci Rep. 2024; 14(1):26547.
14. Krishnamani PP, Qdaisat A, Wattana MK, et al. Characteristics and Outcomes of Patients with Cancer Pain Placed in an Emergency Department Observation Unit. Cancers. 2022; 14(23):5871.
15. BozdemïR N, Eray O, Eken C, et al. Demographics, Clinical Presentations and Outcomes of Cancer Patients Admitting to Emergency Department. Turk J Med Sci. 2009; 39(12):235-40
16. Fearon K, Strasser F, Anker SD, et al. Definition and classification of cancer cachexia: an international consensus. Lancet Oncol. 2011;12(5):489–95.
17. Sanchez-Gutierrez AJ, Caniza M, Escobedo-Melendez G. Outcomes of severe lower respiratory tract infection in Mexican children with cancer. J Pediatr Infect Dis Soc. 2024;13(Supplement_4):5–6.
18. Aderibigbe AS, Dare AJ, Kalvin HL, et al. Analysis of Risk Factors, Treatment Patterns, and Survival Outcomes After Emergency Presentation With Colorectal Cancer: A Prospective Multicenter Cohort Study in Nigeria. J Surg Oncol. 2024; 1–13.
19. Goktepe ME, Ozturk O. Analysis of Patients Hospitalised in the Comprehensive Palliative Care Service- 1-Year Experience. Int J Curr Med Biol Sci. 2024;4(2).
20. Arthur S Hong 1, Beverly Kyalwazi, Ethan A Halm, et al. How English- and Spanish-Preferring Patients With Cancer Decide on Emergency Care. Am J Manag Care. 2024;30(11):312–9.
21. Koh MYH, Lee JF, Montalban S, et al. ED-PALS: A Comprehensive Palliative Care Service for Oncology Patients in the Emergency Department. Am J Hosp Palliat Med. 2019;36(7):571–6.
22. Itani M, Menias CO, Mellnick VM, et al. Imaging of abdominal and pelvic infections in the cancer patient. Abdom Radiol. 2021; 46(6):2920–41.
23. Van Den Abbeele AD, Krajewski KM, Tirumani SH, et al. Cancer Imaging at the Crossroads of Precision Medicine: Perspective from an Academic Imaging Department in a Comprehensive Cancer Center. J Am Coll Radiol. 2016; 13(4):365–

71.
24. French WL, Wasserman EP, Beagley CB, et al. Effect of an oncology care management program on ED visits in a rural Medicaid population. JCO Oncol Pract. 2024; 20:175–5.

***Cite as*:** Degirmenci Aktas. E et al. Emergency Visits in Cancer Patients: Predictors of Hospitalization and Palliative Care Needs. JCMBS. *2025; 5(3):xxxxxx doi.org/ 10.5281/zenodo.14691149*