

ORIGINAL ARTICLE

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Cancer patients presenting to the emergency department in northwest syria

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Abstract

Emergency departments face a high density of patients as they address many patient groups. Cancer patients constitute a significant proportion of the population presenting to the emergency department for many reasons, including new symptoms, exacerbation of existing problems, treatment complications, and disease progression. This study can be helpful in determining treatment approach, planning, and service delivery. All cancer patients admitted to the emergency department between 1 January 2022 and 31 March 2022 were included in the study. Medical records were retrospectively analyzed from hospital records. A total of 90 patients were included in the study. Data were collected from the patient records by examining the reasons for admission, demographic and clinical data, diagnoses, and laboratory tests. The most common cancers were breast (43.3%), colon (20.0%), lung (12.2%). In the last 1 month, 73.3% of patients visited the emergency department 1 time, 24.4% 2 times, and 2.2% 3 times. The association between the number of visits to the emergency department in the last 1 month and the ECOG groups was statistically significant ($p=0.020$). Patients presented to the emergency department mainly with pain (66.7%) and nausea/vomiting (57.8%). The most common cancers in patients admitted to the emergency department in our study are similar to the literature. It has been reported in the literature that the symptoms detected in our study are potentially less severe, and emergency room visits can be reduced if patients are encouraged to self-manage similar symptoms through education. From this point of view, to reduce the number of cancer patients applying to the emergency service in regions of internal turmoil and conflict such as Syria, it is very important to identify the reasons for patient admission and to provide training emphasizing the self-management of their symptoms.

Keywords: Cancer patient, emergency department, after the civil war in northern syria

Introduction

Emergency departments face a high density of patients as they address many patient groups. Cancer patients constitute a significant proportion of the population presenting to the emergency department for many reasons, including new symptoms, exacerbation of existing problems, treatment complications, and disease progression [1-4].

Patients undergoing chemotherapy or radiotherapy treatment, or those with terminal cancer, often experience acute symptoms that can increase the risk of an emergency department visit.

For cancer patients, cancer treatment is often provided by oncologists. However, patients often visit the emergency departments for unexpected health problems. These visits may be appropriate for a patient's acute health problems. But with well-coordinated care, appropriate treatment regimens, and adequate symptom management, unnecessary emergency department visits can be avoided. Providing high-quality and safe care to oncology patients, who often require specialised treatment, is challenging for ED staff given the diversity of patients presenting at ED and the complex and fast-paced clinical environment. In addition, the importance and need to address issues related to the cost and quality of cancer care has been reported in the literature [5].

International studies reporting epidemiological data have led to a better understanding of the reasons for emergency department visits among cancer patients [6-10]. Based on this information, efficient and effective use of resources can be organised. Using epidemiological data, cancer patients can have access to better

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quality and safer healthcare, the number of emergency department visits can be reduced, and costs and manpower can be used effectively. It is very difficult for cancer patients to access curative treatment, especially in areas of civil unrest. Inability on the field and security issues due to civil unrest have forced patients to resort to palliative solutions and emergency services. As a result, the intensity of emergency services is increasing even more. Improving the quality of patient care and using resources effectively is difficult.

There is no study that looks at no study has been conducted to review the reasons, frequency, and demographic data of cancer patients admitted to emergency departments after the civil war in northern Syria. This study can be helpful in determining treatment approach, planning, and service delivery. It may guide cost-effective planning. In our study, we examined the diagnoses, reasons for admission, frequency of presentation, and clinical and demographic characteristics of cancer patients admitted to the emergency department.

Materials and Methods

All cancer patients admitted to the emergency department between 1 January 2022 and 31 March 2022 were included in the study. Medical records were retrospectively analyzed from hospital records. A total of 90 patients were included in the study. No exclusion criteria were applied. Data were collected from the patient records by examining the reasons for admission, demographic and clinical data, diagnoses, and laboratory tests. Our study is a retrospective study. Ethics committee approval was obtained for the study from Hatay Mustafa Kemal University Clinical Research Ethics Committee with the decision numbered 02, dated 12.05.2022.

Place of study

In northern Syria, Turkey has opened hospitals for humanitarian aid, providing consultancy services. Syrian doctors, nurses, and other health workers work in these hospitals and serve the local people in northern Syria. The study was conducted in Afrin, Jarabulus, and Al-Bab Hospitals. The geography and population served by these hospitals are unique.

Afrin Hospital: Afrin is a place with a cosmopolitan population in the neighborhood of Idlib, Aleppo, Azez, and Turkey, which has received intense immigration from Syria, whose population is approaching 600 thousand. They have agriculture, industry, and commerce business lives. Regular and irregular camps affect the population density. It is one of the most populated cities in northwestern Syria along with Idlib. Although Afrin Hospital looks like it was designed as a trauma hospital, it was restored and opened to public service with 100 beds after the region was cleared of terrorism.

Jarabulus Hospital: The hospital, which started to serve in 2016, is located in the city center of Jarabulus, which is adjacent to the Gaziantep Karkamis border district. The city of Jarabulus is just west of the Euphrates, close to the Turkish border. The city does not have easy access to reach other cities in the west because the city does not have a transportation connection with the city centers in the east and south. The people of the region, who live on agriculture and animal husbandry, have limited contact with other

cities and have a partially isolated population.

Al-Bab Hospital: The city of Al-Bab has about 400 thousand population. This place is in the south of the cities of Jarabulus, Cobanbey, and Mare, where there are business lines in the fields of trade and industry [11].

Statistics

Statistical analyses of the study were performed using Statistical Package for Social Sciences version 28.0 software for Windows (IBM SPSS Statistics for Windows, version 28.0. Armonk, NY: IBM Corp., USA). The normality assumption for quantitative variables was tested with Kolmogorov-Smirnov and Shapiro-Wilk tests. Descriptive statistics are reported as mean $\pm$ standard deviation, median (min-max), and n (%). For univariate analysis of the variables in the study, the independent t-test, Mann-Whitney U-test, chi-square test, and Fisher-Freeman's exact test were used depending on the type of variables and whether the assumptions were met. In all statistical analyses, P-values below 0.05 were interpreted as statistically significant.

Results

A total of 90 patients participated in the study. 34 (37.8%) of the patients were male and 56 (62.2%) were female. The mean age of the patients was 52.91 ± 14.18 years. Although the mean age of male patients was higher than that of female patients, the difference between the sexes in terms of mean age was not statistically significant ($p=0.059$) (Table 1).

Table 1. Demographic distribution of patients

	Total n=90(100.0%)	Male n=34(37.8%)	Female n=56(62.2%)	p value [#]
Age, year	52.91 ± 14.18	56.52 ± 14.42	50.71 ± 13.69	0.059
	53.0(19.0-85.0)	58.5(19.0-77.0)	49.0(20.0-85.0)	

[#]: Independent t-test

The distribution of patients according to their diagnoses is summarized in Table 2. The most common cancers were breast (43.3%), colon (20.0%), lung (12.2%) and lymphoma (10.0%), while the least common were larynx (2.2%), stomach (2.2%), pancreas (2.2%) and prostate (2.2%) (Figure 1a). The difference between the incidence of the cancer types was statistically significant ($p=0.000$).

Table 2. Distribution of patients according to diagnosis

Diagnosis	Total	Male	Female
Lung	11(12.2%)	9(26.5%)	2(3.6%)
Colon	18(20.0%)	12(35.3%)	6(10.7%)
Larynx	2(2.2%)	2(5.9%)	-
Lymphoma	9(10.0%)	7(20.6%)	2(3.6%)
Breast	39(43.3%)	-	39(69.6%)
Stomach	2(2.2%)	1(2.9%)	1(1.8%)
Ovarian	5(5.6%)	-	5(8.9%)
Pancreas	2(2.2%)	1(2.9%)	1(1.8%)
Prostate	2(2.2%)	2(5.9%)	-
P value [§]	0.000	0.000	0.000

[§]: Chi-Square test

The most common cancers in male patients were colon (35.3%), lung (26.5%), and lymphoma (20.6%). The least common cancers were stomach (2.9%) and pancreas (2.9%) (Figure 1b). The difference between the frequency of cancers detected in male patients is statistically significant ($p=0.000$).

The most common cancer in female patients was breast (69.6%), while the least common cancers were stomach (1.8%) and pancreas (1.8%) (Figure 1c). Laryngeal cancer was not found in female patients. The difference between the frequency of cancers detected in female patients is statistically significant ($p=0.000$).

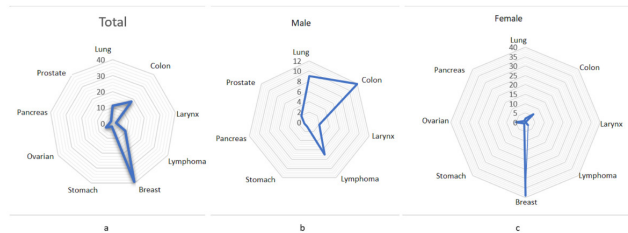


Figure 1. Distribution of patient diagnoses by total and gender

Descriptive statistics and group comparisons of the clinical and laboratory findings of patients divided into 2 groups according to the ECOG performance score can be found in table 3. According to this, the differences between the ECOG groups in terms of laboratory findings were not statistically significant ($p>0.05$).

In the last 1 month, 73.3% of patients visited the emergency department 1 time, 24.4% 2 times and 2.2% 3 times. The association between the number of visits to the emergency department in the last 1 month and the ECOG groups was statistically significant ($p=0.020$). 86.0% of patients in the ECOG <2 group visited the emergency department 1 time, 14.0% visited the emergency department 2 times, and no patient in this group visited the emergency department 3 times. In the ECOG ≥ 2 group, 61.7% of patients presented to the emergency department 1 time, 34.0% 2 times, and 4.3% 3 times.

While 41.1% of patients were hospitalized, 58.9% were not hospitalized. The association between hospitalization and ECOG groups was statistically significant ($p=0.000$). While the rate of hospitalization in the ECOG <2 group was 18.6%, this rate increased to 61.7% in the ECOG ≥ 2 group.

Table 3. Distribution of patients divided into 2 groups according to ECOG performance score according to clinical and laboratory values

	TOTAL n=90	ECOG <2 n=43	ECOG ≥ 2 n=47	P value
SYSTOLIC BP	127.61 $\pm$ 12.83	125.53 $\pm$ 13.17	129.51 $\pm$ 12.35	0.143 [#]
	130.0(100.0-165.0)	125.0(100.0-165.0)	130.0(100.0-155.0)	
DIASTOLIC BP	79.64 $\pm$ 10.36	77.63 $\pm$ 9.42	81.49 $\pm$ 10.92	0.077 [#]
	80.0(60.0-113.0)	80.0(60.0-96.0)	81.00(60.0-113.0)	
PULSE	75.01 $\pm$ 9.10	75.07 $\pm$ 8.78	74.96 $\pm$ 9.48	0.954
	73.0(57.0-98.0)	74.0(62.0-98.0)	72.0(57.0-95.0)	
HGB	11.05 $\pm$ 1.41	11.15 $\pm$ 1.22	10.96 $\pm$ 1.57	0.534 [#]
	11.0(8.0-14.9)	11.0(8.0-13.2)	11.0(8.0-14.9)	
WBC	5.39 $\pm$ 2.85	4.96 $\pm$ 1.46	5.78 $\pm$ 3.66	0.799 ^{&}
	4.65(1.92-18.50)	4.60(2.69-8.47)	4.71(1.92-18.50)	
PLT	244.49 $\pm$ 110.72	252.91 $\pm$ 89.46	236.79 $\pm$ 127.61	0.334 ^{&}
	255.0(48.0-566.0)	255.0(90.0-516.0)	224.0(48.0-566.0)	
NEUTROFİL	2.72 $\pm$ 2.31	2.39 $\pm$ 1.19	3.03 $\pm$ 2.97	0.762 ^{&}
	2.10(0.31-13.50)	2.10(0.71-6.80)	2.04(0.31-13.50)	
CRE	0.89 $\pm$ 0.57	0.77 $\pm$ 0.21	1.00 $\pm$ 0.75	0.082 ^{&}
	0.80(0.44-5.57)	0.80(0.50-1.30)	0.80(0.44-5.57)	
ALT	35.60 $\pm$ 11.34	33.56 $\pm$ 4.36	37.47 $\pm$ 14.97	0.543 ^{&}
	34.0(18.0-116.0)	34.0(22.0-42.0)	34.0(18.0-116.0)	
AST	30.39 $\pm$ 7.67	29.02 $\pm$ 3.98	31.64 $\pm$ 9.80	0.549 ^{&}
	28.0(19.0-65.0)	28.0(20.0-38.0)	29.0(19.0-65.0)	
A number of emergency room visits in the last 1 month?				
1	66(73.3%)	37(86.0%)	29(61.7%)	0.020 [£]
2	22(24.4%)	6(14.0%)	16(34.0%)	
3	2(2.2%)		2(4.3%)	
Have you been hospitalized?				
Yes	37(41.1%)	8(18.6%)	29(61.7%)	0.000 ^{\$}
No	53(58.9%)	35(81.4%)	18(38.3%)	

#: Independent t-test, &: Mann Whitney U test, \$: Chi-Square test, £: Fisher-Freeman-Halton Exact test

The distribution of patients' complaints at presentation to the emergency department is shown in Table 4. The difference between the distribution of patients' complaints at presentation to the emergency department was statistically significant ($p=0.000$). Patients presented to the emergency department mainly with pain (66.7%) and nausea/vomiting (57.8%).

Table 4. Distribution of complaints at presentation to the emergency department

Complaints	TOTAL
1. Pain	60(66.7%)
2. Nausea/vomiting	52(57.8%)
3.GIS	25(27.8%)
4. Febrile Fever	21(23.3%)
5. Respiration	10(11.1%)
6. Skin	6(6.7%)
7. Neurological	6(6.7%)
p value ^s	0.000

^s: Chi-Square test

Discussion

Until recently, there was little information in the literature on emergency department visits by patients with cancer. However, international studies with epidemiological data have led to a better understanding of the reasons for emergency department visits and the symptoms of cancer patients [12,13]. Although there are few studies on the use of the emergency department by cancer patients, they show great differences in terms of the population studied and the sample size. One review study found that the incidence of emergency department use for all cancer types was higher for patients with gynecological or colorectal cancer than for patients with breast, prostate or lung cancer. When comparing rates for presentation within 30 days of diagnosis or treatment, rates for emergency department visits were about 10% to 12%, especially for patients with gynecological or colorectal cancers, and about 1% to 5% for patients with prostate or breast cancer [14]. Similar to the literature, in our study, the most common cancers among patients who visited the emergency department were breast cancer (43.3%), colorectal cancer (20.0%), and lung cancer (12.2%). The least common cancers were larynx (2.2%), stomach (2.2%), pancreas (2.2%) and prostate (2.2%).

An Australian study showed that 70% of visits to the emergency department by cancer patients occurred within 4 weeks of chemotherapy and 88% resulted in hospital admission [15]. Another study reported that 40% of cancer patients receiving chemotherapy had two or more emergency department visits and 59% of emergency department visits required hospital admission. [16].

In our study, 73.3% of patients presented to the emergency department 1 time, 24.4% 2 times and 2.2% 3 times in the last 1 month. 41.1% of patients were admitted as inpatients and 58.9% were not admitted as inpatients. When evaluated according to the clinical performance of the patients, the rate of hospital admissions in the ECOG <2 group was 18.6%, while it increased to 61.7% in the ECOG ≥2 group. The fact that the number of admissions and hospitalization rates are lower than those reported in the literature may be directly related to the socio-economic inadequacy of the

regional society, as access to health care is costly, especially in conflict and civil war regions. Most of the time, people do not have access to health services.

It is well known that identifying the complaints of cancer patients presenting to the emergency department allows for more efficient health planning, and several studies have investigated the variety and frequency of complaints of cancer patients presenting to the emergency department. One systematic review showed that pain, respiratory problems, fever, and infection were the most common complaints [17]. In a study conducted in Australia, the most common complaints were nausea or vomiting, pain, fever or febrile neutropenia. [15] Another study showed that complaints of nausea/vomiting/dehydration were among the most common diagnoses in the emergency department [18].

In our study, most patients came to the emergency department with complaints of pain (66.7%) and nausea/vomiting (57.8%). Similar results were also found in the literature. The literature reports that these symptoms are potentially less severe and therefore emergency department visits may be reduced if patients are encouraged to self-manage similar symptoms through education [18].

Conclusion

From this point of view, it is very important to provide training that emphasizes self-management of patient symptoms to reduce the number of visits of cancer patients to the emergency department in regions of civil unrest and conflict, such as Syria. Simple and applicable training programmers, awareness-raising activities with various brochures will reduce the burden on emergency departments. This study suggests that many emergency admissions can be prevented and that these complaints of cancer patients can be treated more appropriately by palliative services.

Conflict of interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

All authors declare no financial support.

Ethical approval

Ethics committee approval was obtained for the study from Hatay Mustafa Kemal University Clinical Research Ethics Committee with the decision numbered 02, dated 12.05.2022.

References

- Gallaway MS, Idaikkadar N, Tai E, et al. Emergency department visits among people with cancer: Frequency, symptoms, and characteristics. *J Am Coll Emerg Physicians Open*. 2021;2:e12438.
- Cronin KA, Lake AJ, Scott S, et al. Annual report to the nation on the status of cancer, part I: national cancer statistics. *Cancer*. 2018;124:2785-800.
- Yang Z, Yang R, Min Ji K, et al. Oncologic emergencies in a cancer center emergency department and in general emergency departments countywide and nationwide. *PLoS One*. 2018;13.
- Chan A, Soh D, Ko Y, et al. Characteristics of unplanned hospital admissions due to drug-related problems in cancer patients. *Support Care Cancer*. 2014;22:1875-81.
- Levit L, Balogh E, Nass S, Ganz PA. Delivering High-Quality Cancer Care: Charting a New Course for a System in Crisis. Institute of Medicine, National Academies Press; Washington, DC: 2013.
- Barbera L, Atzema C, Sutradhar R, et al. Do patient-reported symptoms

- predict emergency department visits in cancer patients? A population-based analysis. *Ann Emerg Med.* 2013 ;61:427–37.
7. Panattoni L, Fedorenko C, Greenwood-Hickman MA, et al. Characterizing potentially preventable cancer- and chronic disease-related emergency department use in the year after treatment initiation: a regional study. *J Oncol Pract.* 2018;14:e176-e85.
 8. 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 APJCP.*2014;15:687–90.
 9. Tsai SC, Liu LN, Tang ST, et al. Cancer pain as the presenting problem in emergency departments: incidence and related factors. *Support Care Cancer.* 2010;18:57–65.
 10. Medicare Centersfor, Services Medicaid. Admissions and Emergency Department Visits for Patients Receiving Outpatient Chemotherapy Measure Technical Report. Baltimore, MD: Centers for Medicare & Medicaid Services, US Dept of Health and Human Services; 2016
 11. Karaca B., Celik B. Can 4C Score Predict Mortality due to COVID-19 Pneumonia in Syria? An Observational Study. *South Clin Ist Euras.* 2022; 33:237-44.
 12. Mayer DK, Travers D, Wyss A, et al. Why do patients with cancer visit emergency departments? Results of a 2008 population study in North Carolina. *J Clin Oncol.* 2011;29: 2683–8.
 13. Yates M, Barrett A. Oncological emergency admissions to the Norfolk and Norwich University Hospital: an audit of current arrangements and patient satisfaction. *Clin Oncol. (R Col Radiol).* 2009;21:226–33.
 14. Lash RS, Bell JF, Reed SC, et al. A Systematic Review of Emergency Department Use Among Cancer Patients. *Cancer Nurs.* 2017;40:135-44.
 15. McKenzie H, Hayes L, White K, et al. Chemotherapy outpatients' unplanned presentations to hospital: a retrospective study. *Support Care Cancer.* 2011;19:963– 9.
 16. Livingston P, Craike M, Considine J. Unplanned presentations to emergency departments due to chemotherapy induced complications: opportunities for improving service delivery. *Australas Emerg Nurs J.* 2011;14:62–8.
 17. Vandyk AD, Harrison MB, Macartney G, et al. Emergency department visits for symptoms experienced by oncology patients: a systematic review. *Support Care Cancer.* 2012;20:1589–99.
 18. Jefford M, Baravelli C, Dudgeon P, et al. Tailored chemotherapy information faxed to general practitioners improves confidence in managing adverse effects and satisfaction with shared care: results from a randomized controlled trial. *J Clin Oncol.* 2008;26:2272–7.