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Palliative Care Needs and Clinical Outcomes of Patients with Advanced Cancer in the Emergency Department

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Abstract

Background: Older adults with cancer use the emergency department (ED) for acute concerns.
Objectives: Characterize the palliative care needs and clinical outcomes of advanced cancer patients in the ED.
Design: A planned secondary data analysis of the Comprehensive Oncologic Emergencies Research Network (CONCERN) data.
Settings/Subjects: Cancer patients who presented to the 18 CONCERN affiliated EDs in the United States.
Measurements: Survey included demographics, cancer type, functional status, symptom burden, palliative and hospice care enrollment, and advance directive code status.
Results: Of the total (674/1075, 62.3%) patients had advanced cancer and most were White (78.6%) and female (50.3%); median age was 64 (interquartile range 54–71) years. A small proportion of them were receiving palliative (6.5% [95% confidence interval; CI 3.0–7.6]; $p = 0.005$) and hospice (1.3% [95% CI 1.0–3.2]; $p = 0.52$) care and had a higher 30-day mortality rate (8.3%, [95% CI 6.2–10.4]).
Conclusions: Patients with advanced cancer continue to present to the ED despite recommendations for early delivery of palliative care.

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Keywords: advanced cancer; cohort study; oncologic emergency medicine; palliative care

Introduction

The prevalence of emergency department (ED) use by patients with cancer is on the rise due to inadequately controlled disease and treatment-related symptoms, and patient-related factors.[1] It is estimated that among 696 million adult ED visits from January 2006 to December 2012, 29.5 million (4.2%) were made by patients with cancer.[2] The American Society of Clinical Oncology (ASCO) recommends that all patients with advanced cancer receive ''dedicated palliative care services, early in the disease course, concurrent with active treatment.''[3] However, significant barriers complicate palliative care integration across health care settings, especially in emergency care.[4–6] Although the ED has a clear role in managing acute oncologic emergencies, its role in chronic conditions, palliating burdensome symptoms, and confronting end-of-life (EOL) care issues is less defined.

EDs are difficult environments for providers to discuss goals of care with advanced cancer patients.[7] Attitudinal barriers also exist, reflecting impressions that palliative care is incompatible with disease-modifying therapy.[8,9] These aspects of oncologic care have historically been underdeveloped in emergency medicine, as this field traditionally emphasizes the treatment of acute illness and injury.[7] The availability of palliative care services is increasing; however, consultation typically does not take place until a week[10,11] into a patient's hospital stay. The ED serves as a key decision point at which physicians set the subsequent care trajectory during a patient's hospitalization. Thus, characterizing the palliative care needs of ED patients with advanced cancer can both identify opportunities to improve the ED approach to addressing the high symptom burden of these patients and ensure early palliative care consultation, which has been shown to improve quality of life, decrease hospital length of stay, and may even decrease in 30-day mortality.[12]

The Comprehensive Oncologic Emergencies Research Network (CONCERN), a National Cancer Institute (NCI)-sponsored research consortium, performed a multicenter prospective observational study to improve the care management of patients with cancer in the ED. To our knowledge, this is the first multisite study to identify and describe the needs of advanced cancer patients presenting to the ED.[13] The current report is a planned secondary data analysis of that observational cohort. We reported the characteristics of palliative and hospice care enrollment, advance directive status, and symptom burden and how these factors related to clinical outcomes, including hospital readmission rates, ED revisits, and 30-day mortality.

Materials and Methods

Study design, participants, and setting

A planned secondary data analysis of the CONCERN data was conducted to characterize the palliative care needs and clinical outcomes for ED patients with advanced cancer. A detailed description of the study design, participant recruitment, and setting is provided in Caterino et al.[13] IRB approval was obtained by respective IRBs by all sites prior to patient enrollment.

Data collection

In-person survey included demographics, cancer type, functional status, symptom burden, palliative care (e.g., ''Do you currently receive palliative care services?'' using ''Yes''/''No'' response options) and hospice care (e.g., ''Do you currently receive hospice care?'' using ''Yes''/''No'' response options) enrollment, and advance directive code status. Research staff performed an assessment of functional status using the Eastern Cooperative Oncology Group score (ECOG)[14]; and measured patient symptom burden using the Condensed Memorial Symptom Assessment Scale (CMSAS) for physical as well as psychological symptoms.[15]

Additional prespecified clinical data were collected through electronic medical record at 30 days postenrollment and included comorbidity severity using the Charlson Comorbidity Index, hospital use and length of stay, ED revisit and disposition, advance directive code status, and 30-day mortality.

Data analysis

Standard descriptive statistics were used for categorical and continuous variables. Chi-square and *t* tests were performed to compare categorical or continuous variables where appropriate. All statistical analyses were computed using SAS software version 9.4. Alpha was set at 0.05.

Results

Patient demographics

Of the total, a subset ($n = 674/1075$) included patients with advanced cancer (see Table 1). These patients were primarily White (78.6%) and female (50.3%), and the median age was 63 (interquartile range [IQR] 54–70) years. The results of chi-square comparisons indicated statistically significant group differences only for age ($p = 0.0054$).

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Table 1. Patient Demographics

	All cancer patients		*Nonadvanced cancer*		*Advanced cancer*		
	n1	*%*	*n2*	*%*	*n3*	*%*	p
Total	1075		401	37.3	674	62.7	
Race[a]							
White	847	78.8	317	79.1	530	78.6	0.1124
Black	129	12.0	45	11.2	84	12.5	
Other	38	3.5	8	2.0	30	4.5	
Ethnicity[a]							
Hispanic or Latino	76	7.07	32	8.0	44	6.5	0.3329
Non-Hispanic or Latino	977	90.9	357	89.0	620	92.0	
Gender							
Male	518	48.2	183	45.6	335	49.7	0.1968
Female	557	51.8	218	54.4	339	50.3	
Age							
18–39	86	8.0	40	10.0	46	6.8	0.0054
40–64	484	45.0	155	38.7	329	48.8	
65–79	406	37.8	161	40.2	245	36.4	
80+	99	9.2	45	11.2	54	8.0	
Primary cancer[a]							
Gastrointestinal	220	20.5	57	14.2	163	24.3	
Lung	139	12.9	38	9.5	101	15.0	<0.0001
Hematologic	128	11.9	100	25.0	28	37.9	
Breast	118	11.0	46	11.5	72	10.7	
Genitourinary	89	8.3	26	6.6	63	9.4	
Gynecologic	80	7.5	22	5.6	58	8.6	
Lymphoma	72	6.7	41	10.2	31	4.6	
Prostate	57	5.3	15	3.7	42	6.2	
Head and neck	40	3.7	11	2.7	29	4.3	
Dermatologic	31	2.9	6	1.6	25	3.7	
CNS	29	2.7	16	4.0	13	1.9	
Sarcoma	25	2.3	6	1.5	19	2.8	
Endocrine	16	1.5	0	0	16	2.4	
Pulmonary	10	0.9	2	0.5	8	1.2	
Other	10	0.9	4	1.0	6	0.6	

[a]Numbers do not add to total due to observations with missing data.
CNS, central nervous system.

Main results

As shown in Table 2, about 6.5% of patients with advanced cancer reported currently receiving palliative care upon ED arrival compared with 2.0% (95% CI 3.0–7.6) of patients with nonadvanced cancer ($p < 0.005$).

Among patients with advanced cancer who presented to the ED, the majority were admitted to the hospital, or held for observation, whereas roughly one-third (30.4%) were discharged. Patients with advanced cancer who were admitted to the hospital had a median length of stay of four days (IQR 0–31). There were no deaths reported for when patients were in the ED; however, 8.3% (95% CI 6.2–10.4) of the patients with advanced and 1.5% (95% CI 0.32–2.8) of the patients with nonadvanced cancer died within 30 days of their ED disposition ($p < 0.0001$).

Patients with advanced cancer were highly symptomatic with roughly two-third endorsing pain and nearly one-third endorsing nausea. In fact, 65.1% of patients with advanced cancer reported pain compared with 57.1% of those with nonadvanced cancer upon ED arrival ($p = 0.0316$). Patients with advanced cancer also had a higher comorbidity index averaging 5.1 (standard deviation [SD] 3.1), as compared with patients with nonadvanced cancer with an average of 4.2 (SD 3.1 [95% CI 4.0–4.4]; $p < 0.001$). In regard to functional status, Table 3 demonstrates that 64.0% of all patients with advanced cancer reported restrictions in physically strenuous activity with a comparable 36.0% of patients with nonadvanced cancer reporting the same functional status ($p < 0.0001$).

Approximately 50.0% (95% CI 48–56) of patients with advanced cancer and 42.0% (95% CI 39.0–49.0) of patients with nonadvanced cancer had an advance directive upon ED arrival ($p = 0.01$). Among patients with advanced cancer with an advance directive, the majority reported they had full code status, whereas only 8.2% had a code status of do not resuscitate (DNR), <1% reported do not intubate (DNI), and only 2.0% reported comfort care only (see Table 4). A substantial decrease was observed in the percentage of patients with advanced cancer who had full code status at ED arrival (32.6%) to hospital discharge (22.0%) and an increase in the DNR, DNI, and comfort care only status at ED arrival to hospital discharge among patients with advanced cancer.

Table 2. Health Care Utilization

	All cancer patients		*Nonadvanced cancer*		*Advanced cancer*		
	n1	*%*	*n2*	*%*	*n3*	*%*	p
Palliative care[a]							
Yes	86	8.5	20	2.0	66	6.5	0.005
No	927	91.5	357	35.2	570	56.3	
Hospice care[a]							
Yes	20	1.9	6	0.6	14	1.3	0.5164
No	1044	98.1	387	36.4	657	61.8	
Previous hospitalizations[a]							
0	749	69.7	287	71.6	462	68.6	
1	258	24.0	90	22.4	168	24.9	
2	47	4.4	9	2.2	38	5.6	0.0578
3+	10	0.9	4	1.0	6	0.9	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	
Hospital readmissions >24 hours within 30 days	1.3	1.0	1.2	0.7	1.3	1.0	0.6806
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	
ED revisits within 30 days	1.3	0.6	1.3	0.7	1.3	0.6	0.8481
ED presentation time[a]	*n1*	*% (n1/N1)*	*n2*	*%*	*n3*	*%*	0.3883
Day (7 AM to 3 PM)	641	59.6	245	61.1	396	58.8	
Evening (3 PM to 11 PM)	329	30.6	111	27.7	218	32.3	
Night (11 PM to 7 AM)	94	8.7	34	8.5	60	8.9	
ED disposition[a]	*n1*	*%*	*n2*	*%*	*n3*	*%*	0.3227
Admit regular floor/stepdown or progressive unit/ transfer to another facility	590	54.9	213	53.1	377	55.9	
Admit ICU (including surgical and medical)	45	4.2	12	3.0	33	4.9	
Discharge home	342	31.8	137	34.2	205	30.4	
Discharge ECF/rehab/extended hospital stay	4	0.4	2	0.5	2	0.3	
Transfer to another facility	20	1.9	11	2.7	9	1.3	
Died in ED	0	0	0	0	0	0	
Admit ED observation/hospital observation	82	7.6	26	6.5	56	8.3	
	Median	*IQR*	*Median*	*IQR*	*Median*	*IQR*	
Average length of hospital stay (days)	3	2–6	4	0–60	4	0–31	0.2126
30-Day mortality[a]	*n1*	*%*	*n2*	*%*	*n3*	*%*	<0.0001
Yes	62	5.8	6	1.5	56	8.3	
No	965	89.8	364	90.8	601	89.2	

[a]Numbers do not add to total due to observations with missing data.
ECF, extended care facility; ED, emergency department; ICU, intensive care unit; IQR, interquartile range; SD, standard deviation.

Discussion

Our findings suggest that patients with cancer who present to the ED have unmet palliative care needs. In fact, <10.0% of patients with advanced cancer reported current receipt of palliative care services upon ED arrival. The relatively higher endorsement of pain and low functional status when arriving to the ED possibly reflects the increase in both physical and psychological symptom burden and poor quality of life as the cancer progressed to the advanced stages and the necessity for palliative interventions—to meet all needs of these patients, including social support and spiritual care in the ED. The ASCO guidelines recommend that palliative care should be part of the standard care alongside usual oncology care for any patient with cancer. Unfortunately, waiting until the EOL to initiate palliative care remains common, with referrals often occurring in the last month of life (often in an inpatient setting) or not at all.[16]

Although patients with advanced cancer were more likely to have an advance directive upon ED arrival (50.0%) than those with nonadvanced cancer (42.0%), there were similar proportions of advance directive subtypes between the two groups, with full code being the most common code status. A substantial change in full code status was observed among

TABLE 3. PATIENT-REPORTED SYMPTOM BURDEN (CONDENSED MEMORIAL SYMPTOM ASSESSMENT SCALE)

	All cancer patients		*Nonadvanced cancer*		*Advanced cancer*		
	n1	%	*n2*	%	*n3*	%	p
Lack of energy[a]							
Not at all	0	0	0	0	0	0	0.4086
A little bit/somewhat	319	29.7	120	29.9	199	29.5	
Quite a bit/very much	605	56.3	211	52.6	394	58.4	
Lack of appetite[a]							
Not at all	6	0.6	1	0.3	5	0.7	0.6242
A little bit/somewhat	296	27.5	106	26.5	190	28.2	
Quite a bit/very much	405	37.7	144	36.0	261	38.7	
Pain[a]							
Not at all	0	0	0	0	0	0	0.5462
A little bit/somewhat	295	27.5	108	27.0	187	27.8	
Quite a bit/very much	470	43.7	162	40.4	308	45.7	
Dry mouth[a]							
Not at all	6	0.6	3	0.8	3	0.5	0.4828
A little bit/somewhat	323	30.1	123	30.7	200	29.7	
Quite a bit/very much	357	33.2	123	30.7	234	34.7	
Weight loss[a]							
Not at all	5	0.5	3	0.8	2	0.3	0.3539
A little bit/somewhat	297	27.6	105	26.2	192	28.5	
Quite a bit/very much	215	20.0	69	17.2	146	21.7	
Feeling drowsy[a]							
Not at all	4	0.4	2	0.5	2	0.3	0.6200
A little bit/somewhat	383	35.6	141	35.2	242	36.0	
Quite a bit/very much	329	30.6	112	28.0	217	32.2	
Shortness of breath[a]							
Not at all	0	0	0	0	0	0	0.3043
A little bit/somewhat	271	25.2	104	26.0	167	24.8	
Quite a bit/very much	244	22.7	83	20.7	161	23.9	
Constipation[a]							
Not at all	1	0.1	0	0	1	0.2	0.6097
A little bit/somewhat	231	21.5	83	20.7	148	21.9	
Quite a bit/very much	219	20.3	72	17.9	147	21.8	
Difficulty sleeping[a]							
Not at all	3	0.3	1	0.3	2	0.3	0.8386
A little bit/somewhat	286	26.6	99	24.7	187	27.7	
Quite a bit/very much	317	29.5	117	29.2	200	29.7	
Difficulty concentrating[a]							
Not at all	0	0	0	0	0	0	0.6793
A little bit/somewhat	338	31.4	114	28.5	223	33.1	
Quite a bit/very much	171	15.9	61	15.2	110	16.3	
Nausea[a]							
Not at all	1	0.1	0	0	1	0.2	0.4960
A little bit/somewhat	357	33.2	117	29.2	240	35.6	
Quite a bit/very much	196	18.2	72	17.9	124	18.4	
Worry[a]							
Rarely	80	7.4	29	7.2	51	7.6	0.9205
Occasionally	282	26.2	98	24.4	184	27.3	
Frequently	231	21.5	87	21.7	144	21.4	
Almost constantly	144	13.4	53	13.2	91	13.5	
Feeling sad[a]							
Rarely	97	9.0	30	7.5	67	9.9	
Occasionally	249	23.2	83	20.7	166	24.6	0.6360
Frequently	142	13.2	54	13.5	88	13.1	
Almost constantly	81	7.5	30	7.5	51	7.6	
Feeling nervous[a]							
Rarely	107	10.0	43	10.7	64	9.5	0.1527
Occasionally	241	22.4	83	20.7	158	23.4	
Frequently	121	11.3	38	9.5	83	12.3	
Almost constantly	74	6.9	34	8.5	40	5.9	

(*continued*)

Table 3. (Continued)

	All cancer patients		Nonadvanced cancer		Advanced cancer		
	n1	%	n2	%	n3	%	p
ECOG performance status[a]							
Fully active and able to carry on all predisease performance without restriction	302	28.1	133	44.0	169	56.0	<0.0001
Restricted in physical strenuous activity but ambulatory and able to carry out work of a light or sedentary nature	324	30.1	117	36.0	207	64.0	
Ambulatory and capable of all self-care but unable to carry out any work activities. Up and about >50% of waking hours	202	18.8	68	33.7	134	66.3	
Capable of only limited self-care, confined to bed or chair >50% of waking hours	199	18.5	63	31.7	136	68.3	
Completely disabled. Cannot carry out any self-care. Totally confined to bed or chair	32	3.0	10	31.0	22	69.0	
Charlson Comorbidity Index Score			Mean	SD	Mean	SD	<0.0001
			4.2	3.1	5.1	3.1	
Symptoms upon ED arrival[a]	n1	%	n2	%	n3	%	
Pain							
Yes	668	62.1	229	57.1	439	65.1	0.0316
No	394	36.7	161	40.2	233	34.6	
Nausea/vomiting							
Yes	336	31.3	120	30.0	216	32.1	0.6234
No	727	67.6	271	67.6	456	67.7	

[a]Numbers do not add to total due to observations with missing data.
ECOG, Eastern Cooperative Oncology Group.

Table 4. Advance Directive Code Status

	All cancer patients		Nonadvanced cancer		Advanced cancer		
	n1	%	n2	%	n3	%	p
Do you have a living will or advance directive? [code status][a]							
No	492	45.8	183	45.6	309	45.9	
Yes: full code	193	18.0	76	19.0	117	17.4	0.9627
Yes: DNR	161	15.0	59	14.7	102	15.1	
Yes: DNI	6	0.6	3	0.8	3	0.5	
Yes: comfort care only	28	2.6	8	2.0	20	3.0	
Yes: other	114	10.6	40	10.0	74	11.0	
Don't know	69	6.4	23	5.7	46	6.8	
Refused	3	0.3	1	0.3	2	0.3	
Have advance directive code status at admission/in ED[a]							
Yes	504	46.9	168	41.9	336	49.9	0.0133
No	522	48.6	213	53.1	309	45.9	
Type of advance directive code status at admission/in ED[a]							
Full code	328	30.5	108	26.9	220	32.6	0.6054
DNR	83	7.7	28	7.0	55	8.2	
DNI	6	0.6	1	0.3	5	0.8	
Comfort care only	20	1.9	7	1.8	13	2.0	
Other	41	3.8	17	4.2	24	3.6	
Don't know	25	2.3	6	1.5	19	2.8	
Advance directive code status at hospital discharge (admit $n=871$)[a]							
Yes	421	39.2	143	35.7	278	41.3	0.0769
No	419	39.0	167	41.7	252	37.4	
Type of advance directive code status at discharge[a]							
Full code	242	22.5	94	23.4	148	22.0	0.0144
DNR	91	8.5	23	5.7	68	10.1	
DNI	8	0.7	1	0.3	7	1.0	
Comfort care only	28	2.6	6	1.5	22	3.3	
Other	29	2.7	12	3.0	17	2.5	
Don't know	22	2.1	6	1.5	16	2.4	

[a]Numbers do not add to total due to observations with missing data.
DNI, do not intubate; DNR, do not resuscitate.

patients with advanced cancer from 32.6% to 22.0% and relative increase in the DNR, DNI, and comfort care only status upon discharge. With more than one half of patients with advanced cancer lacking an advance directive when seeking care in the ED, suggests a paramount need for advance care planning among this population. The lack of engagement with palliative care is likely to bring patients to focus more on life-prolonging aggressive care, despite high rate of short-term mortality as opposed to symptom burden and functional status.

Limitations

There are a number of limitations to this study. Although the majority of all participating patients reported not having palliative and hospice care, the low rate of self-report may be attributed to exclusion criteria. Patients who were too ill to participate were excluded from the study, and these patients are potentially more likely to be enrolled in hospice care. In part it may also be due to the fact that patients with palliative care services are less likely to use the ED and thus underrepresented in our sample.

A second limitation includes the number of ED revisits within 30 days postdischarge. We did not record whether patients returned to the same ED as their index visit or to a different ED.

Finally, the information recorded on ED disposition includes transfer to other facility, which may include hospice care or a site where the patient could receive palliative care. However, we did not record additional information regarding the type of facility.

Conclusion

This study suggests that patients with advanced cancer often have unmet palliative, hospice, and advance care planning needs, which calls for a strengthening of endeavors to integrate palliative care into the standard emergency care of patients.

Authors' Contributions

All authors conceived the study. S.Y. and C.R.G. were responsible for data acquisition. D.D.D. performed the statistical analysis under the supervision of S.Y. and C.R.G. S.Y., C.R.G., C.M., and I.M. drafted the article, and all authors contributed substantially to its revision. S.Y., C.R.G., and D.D.D designed the statistical analysis. S.Y. takes responsibility for the article as a whole.

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Author Disclosure Statement

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