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Original Article

General Characteristics of Palliative Care Patients Admitted to the Emergency Department

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ABSTRACT

Background This study aimed to analyze patients who apply to emergency services and need palliative care regarding appropriate patient care and effective use of health institutions.

Materials and Methods The study was conducted prospectively on patients who applied to the emergency services of Bursa Uludag University Health Application and Research Center, Health Sciences University Bursa Yüksek Ihtisas Training and Research Hospital and Bursa City Hospital between 15.08.2021 and 15.02.2022 and needed palliative care.

Results A total of 261 patients, 143 male (54.8%) and 118 female (45.2%), were included in the study. It was determined that 50 (19.1%) of these patients had previously received palliative care services. It was determined that the patients included in the study applied to the emergency services 7.52±6.77 times in the last year. The three most common diseases diagnosed in patients admitted to the emergency department were pneumonia (24.5%), urinary system infection (7.7%), and cerebrovascular disease (5.4%). Of the patients, 39.84% were referred/hospitalized, 25.28% were referred/hospitalized to intensive care units, 2.68% refused treatment, 2.68% died, and 29.5% have been discharged.

Conclusion As a result, it is understood that most of the patients in need of palliative care do not receive this service, and patients who can be treated in palliative care units are treated in clinics and intensive care units.

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Introduction

Palliative care (PC) is the care services that aim to make people with a progressive and life-threatening disease have a good end of life and to eliminate the problems they may encounter during this process.[1] Due to the gradual increase in the elderly population, cancer and other non-communicable diseases, the need for PC is increasing rapidly across the world.[2,3] Despite this need, PC has still not developed at the desired level in many parts of the world (except for North America, Europe and Australia).[3] In a study, it was reported that one-third of people with life-threatening diseases worldwide could not receive PC.[4]

It has been reported that the most common accompanying diseases in patients who need PC are motor neuron diseases and progressive neurological diseases (Alzheimer's, amyotrophic lateral sclerosis), advanced organ failures (heart, lung, kidney, liver), cancers that do not respond to treatment, acquired immunodeficiency syndrome (acquired immune deficiency syndrome, AIDS), and genetic/congenital and progressive diseases in children.[5] PC, which is usually provided in oncology units, has expanded to the extent that it can be served in other clinics and even in the emergency department (ED) with the increasing need.[6] However, EDs are not suitable for long-term treatment of terminal period patients due to their busy, crowded and tiring environments.[7] The aim of this study was to examine patients who apply to emergency services and need palliative care, and to analyze them in terms of both appropriate patient care and effective use of health institutions.

Material and Methods

Before starting the study, Bursa Uludag University Faculty of Medicine Clinical Research Ethics Committee was applied and an ethics committee report was obtained with the decision dated 28.07.2021 and numbered 2021-10/37. The research was performed prospectively on patients who admitted to Bursa Uludag University Health Application and Research Center, Health Sciences University Bursa High Specialization Training and Research Hospital and Bursa City Hospital EDs between 15.08.2021 and 15.02.2022 and needed PC.

Patients over the age of 18 who applied to the emergency medicine clinics of the health centers on the specified date and who met the criteria for hospitalization in the PC unit according to the Workshop Report for Palliative Care at Home and Hospital[8] prepared in 2013 were included in the scope of the study. The study included 261 patients (143 males, 118 females) who admitted to the emergency departments of the health centers on the specified date.

The patients included in the study or their relatives were informed and their consent was obtained. The data obtained were recorded in the patient file by the physician who evaluated the patient. The patient's file was including name, surname, date of application to the emergency room, hospital protocol number, age, gender, reason for applying to the emergency department, chronic diseases (diabetes mellitus, hypertension, malignancy, Alzheimer's, heart failure, etc.), whether or not he/she received PC before, who cares for the patient, the count of emergency department admissions in the last year, whether consultation was requested, patient outcome, duration of stay in the ED, and diagnosis. No interventional procedure, examination or medication was applied to the patient other than routine health care.

Information about whether the patients received PC service before and by whom the care was taken was obtained from the patient or his relatives. Patients who received home care even once, were hospitalized in the palliative care service or received hospice care were considered to have received PC. The E-Nabız system of the patients was used to calculate the ED applications of the patients in the last year. The E-Nabız is an personal health record system that Turkish Ministry of Health integrated all the information systems of all health institutions.

Statistical analysis

Statistical evaluation, descriptive statistics for continuous variables among the features discussed; mean, standard deviation, minimum and maximum values were expressed as numbers and percentages for categorical variables. One-way analysis of variance was performed to compare

group means in terms of continuous variables. Chi-square test was used to determine the relationship between categorical variables. The statistical significance level was taken as 5% in the calculations, and the SPSS (ver: 21) statistical package program was used for the calculations.

Results

The mean age of the 261 PC patients included in the study was calculated as 72.3±14.05 years. The mean duration of stay in the ED of patients was found to be 9.97±7.13 hours (*Table 1*). When the duration of stay in the ED of men and women was compared, the relationship was found to be statistically insignificant (p=0.710). When the mean age of men and women admitted to ED was compared, it was found that the mean age was higher in female patients than in male patients, but this difference was not statistically significant (p=0.339). The mean number of ED admissions made by the patients in the last year was calculated as 7.52±6.77 (*Table 1*). It was determined that men admitted to ED more than women, but the difference was found to be statistically insignificant (p=0.175).

As seen in Table 1, the average number of consultations requested from other departments for the patients was calculated as 1.75±1.17. It was determined that there was no statistically significant difference between men and women in terms of the number of departments for which consultation was requested (p=0.529). For patients admitted to the ED and in need of PC, the departments most requested consultation was detected as chest diseases (n: 97), internal medicine (n: 91), infectious diseases (n: 66), anesthesiology/reanimation (n: 53), and cardiology (n: 42), respectively.

The most common complaints of the patients admitted to ED were dyspnea (26.1%), poor general condition (17.6%), altered consciousness (8%), nausea/vomiting (4.9%) and fever (3.8%) respectively. The comorbidities of the patients are given in Table 2. According to Table 2, the five most common diseases in the patients were hypertension, malignancies, Alzheimer's/dementia, diabetes mellitus, and coronary artery

Table 1. Evaluation of the gender of the patients according to the duration of their stay in the emergency department, their age, the emergency department applications they have made in the last year and the number of consulted departments.

Variables		Count (n)	Mean±SD (Min-Max)	P-value
Age (years)	Male	143	71.54±12.692 (21-94)	0.339
	Female	118	73.21±15.549 (18-99)	
	Total	261	72.3±14.052 (18-99)	
Duration of stay in the emergency department (hours)	Male	143	10.12±6.914 (1-33)	0.71
	Female	118	9.79±7.426 (2-44)	
	Total	261	9.97±7.138 (1-44)	
Number of emergency department admissions in the last year	Male	143	8.04±7.25 (1-49)	0.175
	Female	118	6.9±6.13 (1-46)	
	Total	261	7.52±6.778 (1-49)	
Number of departments consulted	Male	143	1.71±1.167 (0-5)	0.529
	Female	118	1.81±1.179 (0-5)	
	Total	261	1.75±1.171 (0-5)	

SD: standard deviation, Min: minimum, Max: maximum.

Table 2. Comorbidities of patients and incidences of these diseases.

Comorbidity	n (%)
Hypertension	120 (46)
Malignancy	112 (42.9)
Alzheimer's disease/dementia	79 (30.3)
Diabetes mellitus	71 (27.2)
Coronary artery disease	58 (22.2)
Cerebrovascular disease	49 (18.8)
Asthma/COPD	37 (14.2)
Heart failure	20 (7.7)
Chronic renal insufficiency	19 (7.3)
Atrial fibrillation	13 (4.9)
Epilepsy	11 (4.2)
Parkinson's disease	11 (4.2)
Hyperlipidemia	7 (2.6)
Hypothyroidism	6 (2.2)
Rheumatoid arthritis	4 (1.5)
Hepatic cirrhosis	3 (1.1)

Table 3. Diseases of patients diagnosed in the emergency departments.

Diseases	n (%)
Pneumonia	64 (24.5)
Urinary system infection	20 (7.7)
Cerebrovascular disease	14 (5.4)
Heart failure	11 (4.2)
Pleural effusion	11 (4.2)
Pulmonary embolism	9 (3.4)
Acute kidney failure	8 (3.1)
Gastrointestinal tract bleeding	8 (3.1)
Hypernatremia	7 (2.7)
Intracranial mass-metastasis	7 (2.6)
Cardiac arrest	6 (2.3)
Cellulite	5 (1.9)
Hypercarbic respiratory failure	4 (1.5)
Other diagnoses	87 (33.9)

disease (CAD). The most common cancer types of the patients admitted to ED were lung (25.8%), gastrointestinal system (25%), urinary system (11.6%), hematological (8.6%) and neurosurgical (8%) respectively.

In the study, it was found that patient care was mostly (85.8%) provided by the patient's family. It was determined that the care of the patients was less frequently provided by the nursing home (6.5%), home caregiver (4.2%) and herself/himself (3.1%). It was determined that the patients who received PC service at the highest rate were those who stayed in the nursing home (*Figure 1*). It was examined whether the patients had received PC before, and 23 of 143 male patients (16.08%) and 27 of 118 female patients (22.88%) were found to have received PC. In total, 50 of 261 patients were found to have received PC (19.1%).

The ED processes of the patients are given in Figure 2. As seen in Figure 2, it was determined that 39.46% of the patients were hospitalized, 0.4% were referred to another hospital for clinical hospitalization because there was no room, 14.94% were hospitalized in the ICU, 10.34% were referred to another ICU, 2.68% refused treatment, 2.68% died, and 29.5% were discharged. The diagnoses of the patients admitted to EDs after their admission were analyzed. The most common diagnoses were pneumonia, urinary system infection, cerebrovascular disease, heart failure, and pleural effusion, respectively (*Table 3*).

The patients' length of stay in the ED, their age, the number of ED applications they made in the last year and the number of departments for which consultation was requested were compared according to whether they received PC service before admission and the results are given in Table 4. Accordingly, the time spent in ED was found to be longer in patients who received PC than in patients who did not receive PC, but the difference was not statistically significant (p=0.257). It was determined that the number of consulted departments was higher in patients receiving PC, but the difference was found to be statistically insignificant (p=0.330). The number of admissions to EDs in the last year (p=0.977) and age (p=0.686) of the patients were compared according to whether they received PC or not, and the differences were found to be statistically insignificant.

Table 4. Comparison of the patients' length of stay in the emergency department, their ages, the count of emergency service admissions they have made in the last year and the number of consulted departments according to whether they have received palliative care or not.

	Palliative care receiving or not	Count	Mean±SD (Min-Max)	P-value
Time spent in the emergency departments (hours)	Received	50	11.00±8.751 (1-44)	0.257
	Didn't receive	211	9.73±6.701 (1-30)	
	Total	261	9.97±7.138 (1-44)	
Age (years)	Received	50	73.02±16.517 (18-99)	0.686
	Didn't receive	211	72.12±13.441 (18-96)	
	Total	261	72.30±14.052 (18-99)	
Count of emergency departments visit in the last year	Received	50	7.50±5.530 (1-25)	0.977
	Didn't receive	211	7.53±7.053 (1-49)	
	Total	261	7.52±6.778 (1-49)	
Count of department consulted	Received	50	1.90±1.359 (0-5)	0.330
	Didn't receive	211	1.72±1.122 (0-5)	
	Total	261	1.75±1.171 (0-5)	

SD: standard deviation, Min: minimum, Max: maximum.

Discussion

As in other countries, it is observed that the elderly population is increasing due to the increase in the lifetime of people in Türkiye. Due to this increase, the need for PC centers is increasing due to the increase in life-threatening advanced chronic diseases in patients.[9,10] It is seen that the number of PC centers in Türkiye is lower than in some developed countries and the clinical experience of healthcare professionals in this field is limited.[11] The low number of PC centers increases the number of admissions to EDs and decreases the quality of health services due to the patient density in emergency services.[12]

In some studies, it was reported that the mean age of PC patients ranged from 62 to 73.[9,13-17] In our study, it was found that the mean age of the patients was 72.3. In some studies performed on PC, it was observed that the majority of the patients were women admitted to EDs.[13-16] In some other studies, it was found that male patients had a higher rate than females.[9,17,18] In our study, it was determined that 54.8% of the patients were male and 45.2% were female.

In a study conducted by Kirkland et al.[19], it was stated that 21.87% of the patients who applied to the emergency department received PC service before, and 78.12% did not. In this study conducted by us, it was determined that 19.15% of the patients had previously received PC service. In the study conducted by Green et al.[16], it was observed that 105 palliative care patients admitted to EDs a total of 112 times in a 10-week period. In a study by Lawson et al.[20], 1182 patients who received palliative care were reported to have admitted to EDs 2103 times over seven years. In this study conducted by us, it was determined that 261 patients applied to EDs a total of 1964 times in the last year, and the annual average number of admittions for each patient was calculated as 7.52±6.77.

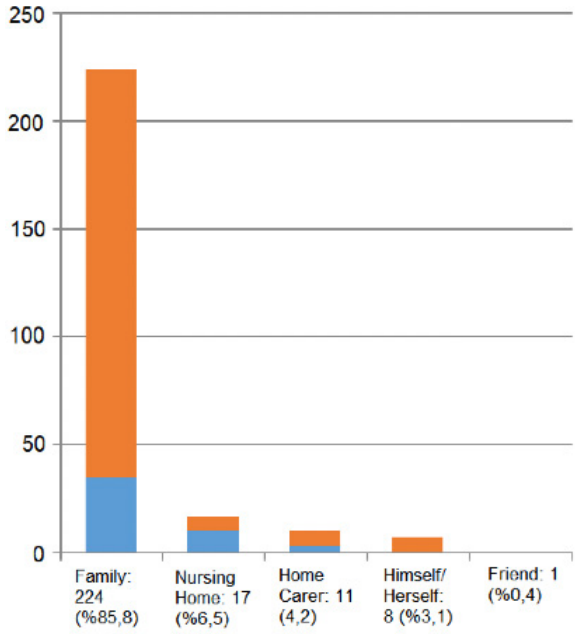

Figure 1. Patient care providers.

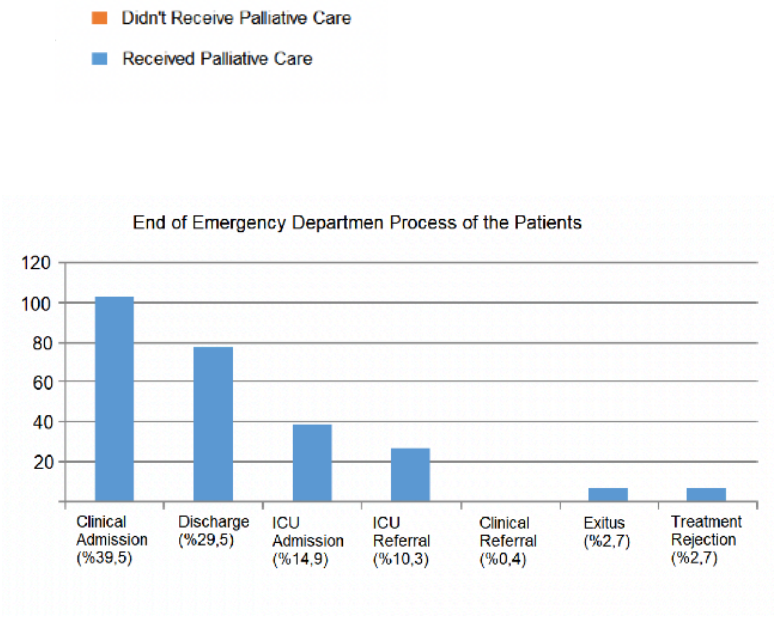

Figure 2. Emergency department processes of patients.

In a study conducted by Verhoef et al.[18], the most common presenting complaints of PC patients were dyspnea and pain. Similarly, in the study of Green et al.[16], dyspnea and pain were reported to be the most common complaints. In the study conducted by Algan et al.[17], the most common reasons for admission were shortness of breath, abdominal pain, general condition disorder, vomiting, gastrointestinal system bleeding, fatigue and falling were reported. In our study, the most common complaints were dyspnea, poor general condition, altered consciousness, nausea/vomiting and fever has been found.

In the study conducted by Kirkland et al.[19], malignancy was found in 41%, COPD 16.1%, heart failure 9.4%, chronic kidney failure 8.9% and cirrhosis 7.4% as an additional disease in palliative care patients. In the study conducted by Miniksar et al.[9], malignancy was found 43.3%, Alzheimer's 18.06%, cerebrovascular disease 12.77%, hypertension 12.77%, COPD 6.85%, coronary artery disease 5.6% and diabetes mellitus 4.67% in palliative care patients. In the study conducted by Algan et al.[17], in palliative care patients, 58.86% had cancer, 41.33% for hypertension, 29.72% for diabetes mellitus, 19.29% for coronary artery disease, 18.11% for congestive heart failure, 16.54% for cerebrovascular disease, 14.37% for dementia/neurodegenerative disease, 10.83% for COPD, 9.06% for atrial fibrillation, 7.68% for chronic renal failure, 4.92% for asthma and 3.35% for terminal liver disease were reported. In our study, the most common co-morbidities were hypertension (46%), malignancy (42.9%), Alzheimer's/dementia (30.3%), diabetes mellitus (27.2%) and coronary artery disease (22.2%), respectively. In the study conducted by Miniksar et al.[9], the most common cancer types in palliative care patients have been detected in lung, stomach, prostate, pancreas, colon and breast respectively. In the study conducted by Algan et al.[17], the most common cancer types in palliative care patients were gastrointestinal system, lung, urinary system, hematological tissues, endocrine system, neurosurgical, gynecological, head/neck, and bone/muscle/skeletal have been reported respectively. In our study, it was determined that the most common cancer types were lung, gastrointestinal system, urinary system, hematological and neurosurgical respectively.

In some studies performed on palliative care patients, it has been reported that the duration of stay in emergency services varies between 3.5-16 hours.[18,20-22] In our study, it was determined that the mean duration of stay in EDs was 9.97 hours.

In the study conducted by Algan et al.[17], the

most frequently diagnosed diseases in PC patients admitted to the emergency department were respectively COVID-19 (15.94%), urinary system infection (6.89%), pneumonia (6.5%), acute renal failure (6.3%), fracture/soft tissue trauma (6.1%), and gastrointestinal system bleeding (5.71%). In our study, the most frequent diagnoses in patients were pneumonia (24.5%), urinary system infection (7.7%), cerebrovascular disease (5.4%), heart failure (4.2%), pleural effusion (4.2%), pulmonary embolism (3.4%), acute renal failure (3.1%) and gastrointestinal bleeding (3.1%).

In the study performed by Kirkland et al.[19], it was reported that 65.2% of PC patients admitted to emergency services were hospitalized, 31.9% were discharged, and 2.5% were referred. In the study conducted by Algan et al.[17], it was reported that 49.61% of palliative care patients were discharged, 26.57% were hospitalized, 14.96% were admitted to the intensive care unit, 6.69% gave up treatment voluntarily, and 2.17% died. In this study conducted by us, it was determined that 39.84% of the palliative care patients were clinically admitted/referred, 25.28% were admitted/referred to the intensive care units, 2.68% refused treatment, 2.68% died, and 29.5% were discharged.

In a study conducted by Yang et al.[22], it was determined that 79.1% of PC patients live with their families, 8.4% live alone, 8.2% live in long-term care facilities and 2.6% live in nursing homes. In the study conducted by Green et al.[16], it was stated that 56.3% of the patients live with their families, 25% live alone, 9.8% live in nursing homes, and it is not known where 8.9% live. In our study, it was determined that 85.8% of the patients were cared for by their families, 6.5% by nursing homes, 4.2% by the caregiver at home and 3.1% by themselves.

Limitations

Although it is a multicenter and prospective study, the fact that the study was conducted only in Bursa and the low number of cases are the factors limiting our study.

Conclusions

As a result, it has been determined that most of the patients in need of PC do not receive this service and they frequently admitted EDs. In addition, it is understood that patients who need to be treated in PC units are treated in clinics and ICUs. These results suggest that the effective use of PC centers will contribute to more appropriate healthcare for patients, decrease in ED admissions and more economical use of healthcare institutions.

Conflict of interest

The authors declare that they have no conflict of interest.

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Ethical Approval

Local Ethics Committee approved the study protocol.

Authors' Contribution

Study Conception: YAM; Study Design: CHI; Supervision: DYA; Literature Review: HOK; Critical Review: AE, CH; Data Collection and/or Processing: KB, AS, AS, SYY; Analysis and/or Data Interpretation: DVA, YAM; Manuscript preparing: YAM, CHI.

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