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ORIGINAL ARTICLE

PRE-ASSESSMENT CRITERIA FOR THE NEEDS OF PATIENTS IN PALLIATIVE CARE: THE ROLE OF PALLIATIVE CARE BY AGE GROUPS

Abstract

Introduction: We aimed to define the characteristics of patients hospitalised in a palliative care unit and evaluate the role of palliative care services in the geriatric age group. The priorities and treatment approaches needed according to age groups were also evaluated.

Materials and Methods: The records of patients aged 18 years and older who followed up with palliative care between 01/2020-12/2021 were reviewed retrospectively. Patients aged 18-64 were defined as "group-1", patients aged 65-75 as "group-2", patients aged 76-90 as "group-3", and patients aged 91 and over as "group-4". The patient's age, sex, diagnosis, comorbidities, length of stay in the clinic, prognosis, pressure ulcers and immobilisation status were recorded and compared according to age groups.

Results: A total of 560 patients were included. The mean age was 73.14 ± 14.22 years, and 53.2% were women. 48.2% of patients were transferred to the palliative care unit from the intensive care unit. Groups-1, 2, 3, and 4 consisted of 139 (24.8%), 129 (23%), 254 (45.4%), and 38 (6.8%) patients, respectively. When patients were examined according to age group, there was a statistically significant difference between the groups in terms of sex, pressure ulcers, immobilisation, mean hospital stay in the palliative care, and prognosis ($p=0.026$, $p \le .001$, $p=0.006$, $p \le .001$, $p \le .001$). While 72% of patients were discharged from the palliative care unit, 28% died during admission. The prognosis was better in group-1 compared to other groups.

Conclusion: Geriatric age and presence of chronic disease were the primary groups receiving palliative care. Access and integration of these patients to palliative care must be expanded.

Keywords: Palliative Care; Geriatrics; Critical Care; Chronic Diseases; Health Services Accessibility.

INTRODUCTION

Regardless of age, diagnosis, or prognosis, palliative care (PC) is a patient and family centred care setting that offers complete management of incurable diseases; the goal is to improve quality of life by foreseeing, preventing, and treating suffering (1). PC involves social needs as well as prevention, early detection, evaluation, and management of physical, psychological, and mental symptoms, according to the International Association of Hospice and PC definition and attempts to enhance the standard of living of caregivers, families, and patients. It can positively affect the course of the disease and can be applied at all healthcare levels (2-4).

The World Health Organization (WHO) estimated that globally, 56.8 million patients require PC per year, of which 25.7 million are in the terminal stage of disease (5). Only 14% of these individuals receive PC, and the need for PC continues to increase globally. Today, in the United States of America (USA), the majority of patients receiving PC are geriatric patients aged > 65 (6). Patients of any age and severe disease stage are eligible to receive PC (7), but different patient populations require different approaches (8). The requirements for the younger age group and the older age group are very different (9). There are significant differences in complaints, symptoms and treatment, as well as in needs and expectations, between older and younger age groups (6, 9, 10). Based on the limited literature available, we would have assumed that there would be differences in PC processes between very old, elderly, old and young age groups. Therefore, in our study, we evaluated the patients according to age groups.

This study aimed to define the characteristics of patients hospitalised in the PC unit, to determine their care priorities and the approaches needed according to age groups, as well as to evaluate the role of PC services in the geriatric age group. We aimed to comparatively emphasize the importance of the geriatric age group in the PC process by including all patients over the age of 18 in our study. Instances where PC service cannot be broadly provided were identified, including in the most developed high-income countries, and methods to raise awareness about PC among health service providers and professionals are discussed.

MATERIALS AND METHOD

Patients

All patients aged 18 years and older who followed up in the PC unit of Ankara City Hospital between January 2020 and December 2021 were included in the study retrospectively.

Patients with a hospitalisation period of less than two days in the PC unit, all repeated hospitalisations other than the first hospitalisation of patients with repeated hospitalisations, and patients with missing data were excluded from the study (Figure 1).

Study Design

Age, sex, diagnosis, comorbidities, duration of hospitalisation, prognosis (discharge or death), endoscopic gastrostomy, tracheostomy, pressure ulcers, and immobilisation status of each patient who met the inclusion criteria and the units for which consultation was requested in the PC unit were collected anonymously and recorded using Excel. Data were obtained electronically from patient records using Hospital Information Management System Software (HBYS, Ankara, Turkey).

The median age value of the patients included in the study, the geriatric age definition value and the "very old" patient age definition value were taken as cut-off values in the classification of the patients according to age groups. Geriatric age group was considered to be over 65 years of age (first cut-off value) (11). The mean age of all patients in our study was 73.14±14.22 years and the median age value was 76 years (second cut-off value) (first quartile age value 65, compatible with the accepted first cut-off value; second quartile age value 84). The
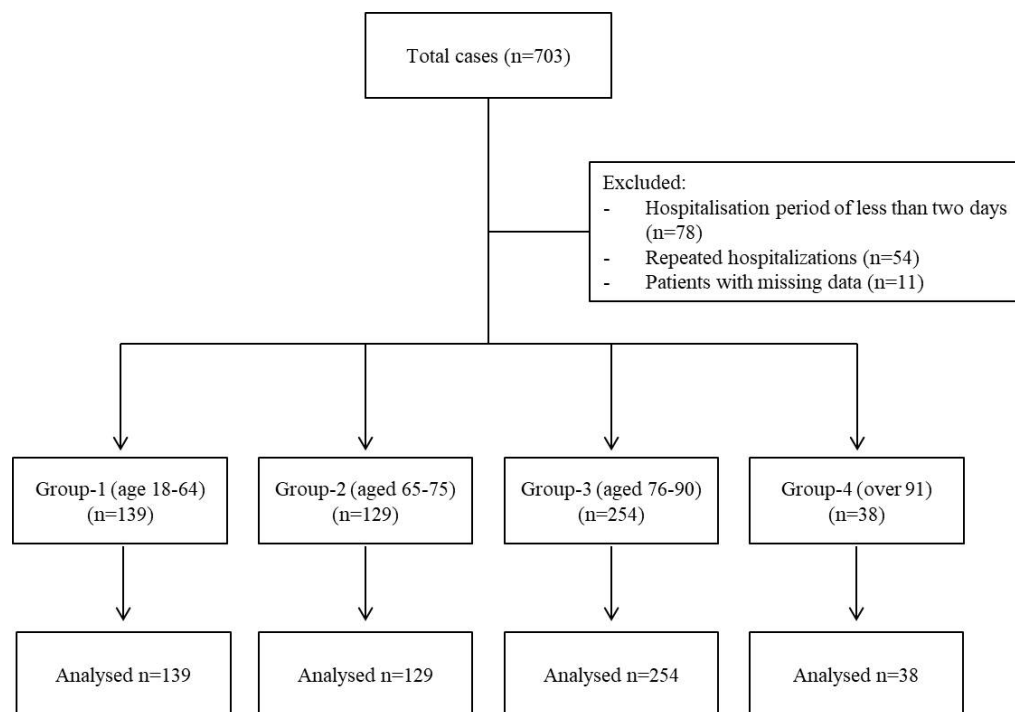
Figure 1. Flow charts of the patients

definition of the "very old" patient group is unclear in the literature. Some of studies recognise very old persons as those over 80 or 85 years of age (12-14), while some studies in the literature consider subjects aged 90 years and older to be very old, given the increasing proportion of elderly patients receiving medical services (15, 16). The only consensus in the literature for the "very old" patient group is that patients over 90 years of age have a poor survival prognosis in the short term after hospital discharge (16-20). Since the patient group over 90 years of age had a poor survival prognosis after hospital discharge, we thought that this patient group needed more PC services, and we considered the patient group over 90 years old as the "very old" patient group (third cut-off value). In our study, based on these literature data, patients aged 18-64 were defined as "group-1", patients aged 65-75 as "group-2", patients aged 76-90 as "group-3", and patients aged 91 and over as "group-4".

Ethics Statement

This study was approved by the Ankara City Hospital Ethics Committee (Approval Date and No:01.09.2021/E2-21-769). Ankara City Hospital Ethics Committee did not require informed consent because the study was retrospective. All procedures were performed in accordance with the guidelines outlined in the Declaration of Helsinki.

Outcome Criteria

The primary outcome of our study is the change in the characteristics, primary needs, care processes and prognoses of patients admitted to the PC unit according to age groups. The secondary outcome is the proportion of the geriatric age group in the PC process. The tertiary outcome is the impact of patient characteristics and place of residence on access to PC.

Sample Size

Patients who met the criteria admitted to the PC unit within a two-year period were included in our study. The two-year period was chosen at random.

Statistical Analysis

The statistical package program Statistical Package for the Social Sciences 24.0 (SPSS Inc., Chicago, IL, USA) was used to analyse the acquired data. The Shapiro-Wilk Test was used to assess the distribution of the obtained data. Mann-Whitney U and Student's t-tests were used to compare binary groups in accordance with the data distribution results. The Pearson Chi-Square test was used to compare categorical data between groups. Statistical significance was defined as $p < 0.05$. The number of cases (n), percent (%), mean ± standard deviation (±SD), or median (quarter 1, quarter 3), as well as the minimum value (min) and maximum value (max) were used to convey descriptive statistics. Categorical and demographic information are presented as percent (%) and number of cases (n).

When comparing the four groups, statistical significance was considered as <.008 after significant values were corrected using the Bonferroni correction for multiple tests.

RESULTS

Patient demographic and clinical characteristics are presented in Table 1. This study included 560 patients hospitalised in a PC unit. In 2020, 246 of these individuals were hospitalised, and 314 in 2021. Among all participants, 298 (53.2%) were female. The mean age was 73.14±14.22 years in all participants, 74.02±14.74 years in women, and 72.15±13.55 years in men (p=0.497).

Regarding place of residence, 14.3% of patients were admitted from a city other than Ankara, and 85.7% resided in the province of Ankara. When the settlements in their provinces of residence were viewed, it was determined that 83.2% of them lived in the city centre (Table 1). Admission to palliative services from the city centre was significantly higher.

Hypertension and diabetes mellitus were present in 52.5% and 29.6% of patients, respectively, while 28.4% of patients had some form of cancer (Table 1).

Prior to admission to the PC unit, 48.2% of the patients were transferred from intensive care units (ICU) and 12% from emergency rooms. Of these patients, 24.5 % (n=137) were admitted directly to the PC unit because of the inability of their relatives or caregivers to provide home care services (Table 1). Patients taken over from ICUs constituted the first rank in patient admission to the PC unit. The three most common requested consultations for patients in the PC unit were clinical nutrition (92.0%), physical therapy (91.8%), and infectious disease (45.9%) (Table 1).

When the additional clinical conditions of the patients were examined (Table 1), 280 (50%) had pressure ulcers, and 157 (28%) were immobilised.

Group-1 consisted of 139 (24.8%), group-2 129 (23%), group-3 254 (45.4%) and group-4 38 (6.8%) patients. The number of patients in Group-3 (76-90 years) was significantly higher than that in the other groups.

Considering the sex distribution by age group, there was a statistically significant difference between the groups (p=0.026) (Table 2). When the causes of the differences between the groups were investigated, a substantial sex difference was discovered only between Groups 1 and 4 (p=0.004). While the proportion of males was higher under the age of 65 years, the proportion of females was statistically higher over the age of 90 years.

There was a statistically significant difference between the age groups when pressure ulcers were analysed (p=0.001) - 33.8% of the patients in group-1, 54.3% in group-2, 55.1% in group-3, and 60.5% in group-4 (Table 2). The proportion of pressure ulcers did not differ significantly between groups 2,

Table 1. Patients' demographics and medical conditions

Features	Total (n=560)
Age (year, mean ± SD)	**73,14 ±14,22**
Gender, n (%)	
Male	262 (46.8)
Female	298 (53.2)
Place of Residence, n (%)	
City Centre	466 (83.2)
District Centre	64 (11.4)
Village	30 (5.4)
Is the place of residence in a different province other than Ankara? n (%)	
Yes	80 (14.3)
No	480 (85.7)
Comorbidities, n (%)	
Hypertension (HT)	294 (52.5)
Diabetes (DM)	166 (29.6)
Cancer (CA)	159 (28.4)
Cerebrovascular Diseases (CVH)	131 (23.4)
Coronary Artery Disease (CAD)	90 (16.1)
Alzheimer's Disease	77 (13.8)
Congestive Heart Disease (CHF)	48 (8.6)
Dementia	42 (7.5)
Chronic Kidney Disease (CKD)	40 (7.1)
Atrial Fibrillation (AF)	36 (6.4)
Parkinson's Disease	35 (6.3)
Benign Prostatic Hypertrophy (BPH)	31 (5.5)
Epilepsy	26 (4.6)
Hypothyroidism	20 (3.6)
Morbid Obesity	3 (0.5)
Clinic transferred at admission, n (%)	
Intensive Care Unit	270 (48.2)
Admission to Palliative Direct Admission	137 (24.5)
Emergency Medicine Clinic	67 (12.0)
Internal Medicine Clinic	29 (5.2)
Oncology Clinic	21 (3.8)
Neurology Clinic	13 (2.3)
Gastroenterology Clinic	4 (0.7)
Neurosurgery Clinic	4 (0.7)
Urology Clinic	4 (0.7)
Infection Clinic	3 (0.5)
Nephrology Clinic	3 (0.5)
General Surgery Clinic	2 (0.4)

▶

Table 1 continued

Table 1. Patients' demographics and medical conditions

Endocrinology Clinic	1 (0.2)
Chest Diseases Clinic	1 (0.2)
Orthopedics Clinic	1 (0.2)
Additional clinical status, n (%)	
Pressure Ulcers	280 (50.0)
Immobilisation	157 (28.0)
PEG	132 (23.6)
Urine Catheter	32 (5.7)
Gastroenterostomy	1 (0.2)
Cystostomy	1 (0.2)
Colostomy	6 (1.1)
Ileostomy	4 (0.7)
Nephrostomy	1 (0.2)
The first seven units for which consultation was requested during the admission process, n (%)	
Clinical Nutrition Unit	515 (92.0)
Physical Therapy Clinic	514 (91.8)
Infectious Diseases Clinic	257 (45.9)
Stoma Wound Care Unit	179 (32.0)
Chronic Wound Unit Polyclinic	153 (27.3)
Neurology Clinic	144 (25.7)
Psychiatry Clinic	122 (21.8)

3, and 4 (group 2 versus 3, $p=0.874$; group 2 versus 4, $p=0.495$; group 3 versus 4, $p=0.531$). Group-1 did have significantly fewer pressure ulcers compared to the other groups (group 1 versus 2, $p<0.001$; group 1 versus 3, $p<0.001$ and group 1 versus 4, $p=0.003$). The wounds of 206 (73.5%) patients with pressure ulcers were located in the sacral region, and in terms of progression of all pressure ulcers, 35.0% were stage 1, 32.7% were stage 2, 25.7% were stage 3, and 5.8% were stage 4. The distribution of pressure ulcers according to their stage and localisation is summarised in Table 3.

One hundred and fifty-seven patients (28%) were bedridden (immobilised), which was statistically significantly different between the groups according to age ($p=0.006$, Table 2). The proportion of immobilisation in groups 1, 2, 3, and 4 were 18.7%, 24.8%, 33.1%, and 39.5%, respectively. There was a

statistically significant difference in immobilisation between groups 1 and 3, and between groups 1 and 4 ($p=0.002$ and $p=0.007$, respectively). Immobilisation was significantly less common in group-1 than in groups 3 and 4.

The mean number of hospitalisation days in the PC unit was 17.84 ± 10.71 days. Considering the days of hospitalization according to the age group, there was a statistically significant difference (Fisher's ANOVA, $p<.001$). The mean hospital stay in group-1 was 13 days (SD=10.4), 4.69 days less than in group-3 (mean:19.5, SD:9.56, $p<.001$), and in group-4 it was less than 7.26 days (mean:22.1, SD:16.0, $p<.001$), and the difference was statistically significant when compared with both groups (post-hoc Tukey test, Figure 2). The mean hospital stay in group-2 was 16.4 days (SD=10.4), 3.09 days less than in group-3 (mean:19.5, SD:9.56, $p=0.005$), and in group-4 it was

Table 2.   Distribution of Gender, Pressure Ulcers, Immobilisation and Prognosis by Age Groups of the Patients

			Gender		Total	p*
			Male	Female		
Age Groups	Age 18-64	(n)	73	66	139	0,026
		(%)	52,5%	47,5%	24,8%	
	Age 65-75	(n)	65	64	129	
		(%)	50,4%	49,6%	23,0%	
	Age 76-90	(n)	114	140	254	
		(%)	44,9%	55,1%	45,4%	
	Over 91	(n)	10	28	38	
		(%)	26,3%	73,7%	6,8%	
Total		(n)	262	298	560	
		(%)	46,8%	53,2%	100,0%	
			Pressure Ulcers		Total	p*
			Yes	No		
Age Groups	Age 18-64	(n)	47	92	139	<,001
		(%)	33,8%	66,2%	24,8%	
	Age 65-75	(n)	70	59	129	
		(%)	54,3%	45,7%	23,0%	
	Age 76-90	(n)	140	114	254	
		(%)	55,1%	44,9%	45,4%	
	Over 91	(n)	23	15	38	
		(%)	60,5%	39,5%	6,8%	
Total		(n)	280	280	560	
		(%)	50%	50%	100,0%	
			Immobilisation		Total	p*
			Yes	No		
Age Groups	Age 18-64	(n)	26	113	139	0,006
		(%)	18,7%	81,3%	24,8%	
	Age 65-75	(n)	32	97	129	
		(%)	24,8%	75,2%	23,0%	
	Age 76-90	(n)	84	170	254	
		(%)	33,1%	66,9%	45,4%	
	Over 91	(n)	15	23	38	
		(%)	39,5%	60,5%	6,8%	
Total		(n)	157	403	560	
		(%)	28%	72%	100,0%	

▶

Table 2 continued

Table 2.   Distribution of Gender, Pressure Ulcers, Immobilisation and Prognosis by Age Groups of the Patients

| | | | Prognosis | | Total | p* |
			Discharge	**Exitus**		
Age Groups	Age 18-64	(n)	120	19	139	
		(%)	86,3%	13,7%	24,8%	
	Age 65-75	(n)	90	39	129	
		(%)	69,8%	30,2%	23,0%	
	Age 76-90	(n)	171	83	254	<0,001
		(%)	67,3%	32,7%	45,4%	
	Over 91	(n)	22	16	38	
		(%)	7,9%5	42,1%	6,8%	
Total		(n)	403	157	560	
		(%)	72%	28%	100,0%	

*Pearson Chi-square test, p<0.05 was considered significant.
Significance between groups p<0.008 was significant according to Bonferroni correction.

less than 5.66 days (mean:22.1, SD:16.0, *p*=0.003), and the difference was statistically significant when compared with both groups (post-hoc Tukey test, Figure 2). No statistically significant differences were found between group-1 and group-2 (*p*=0.099) and between group-3 and group-4 (*p*=0.082).
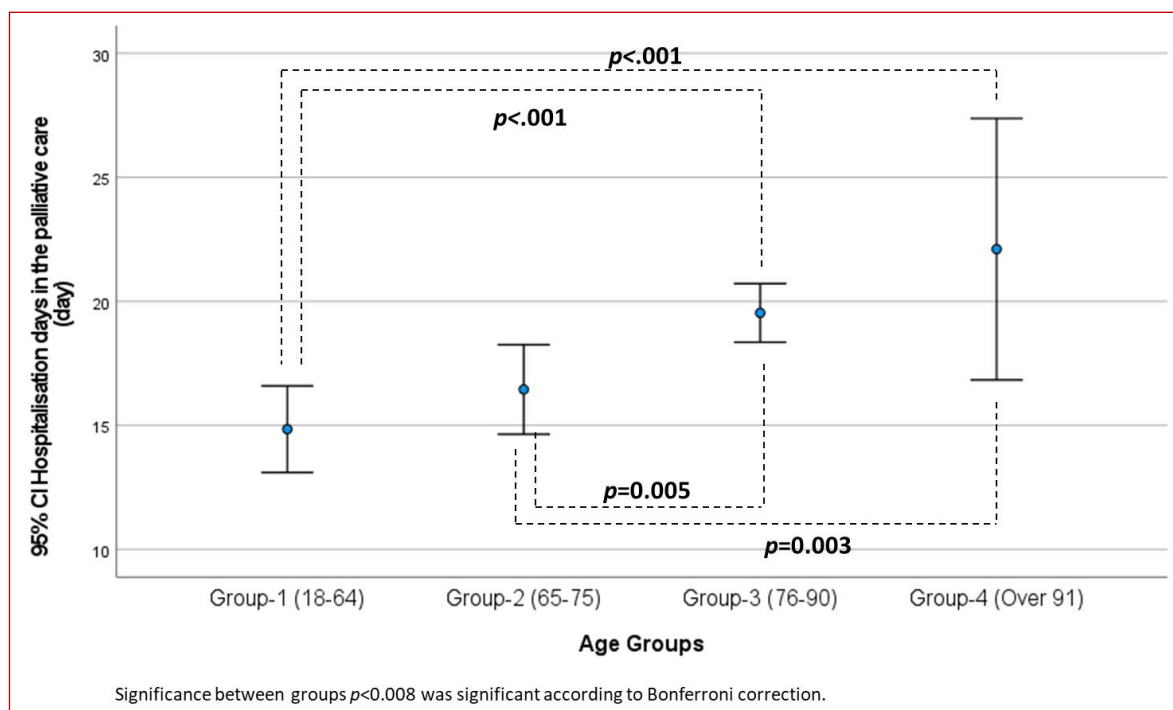
Figure 2. Hospitalisation days in the palliative care

Table 3. Distribution of pressure ulcers by stage and localization

Anatomical Localisation	Phase	Total
Sacrum	Phase 1	63 (30.6%)
	Phase 2	58 (28.2%)
	Phase 3	70 (34.0%)
	Phase 4	13 (6.3%)
	Unphasible	2 (1.0%)
	Total	206 (100.0%)
Gluteal	Phase 1	11 (18.0%)
	Phase 2	35 (57.4%)
	Phase 3	10 (16.4%)
	Phase 4	4 (6.6%)
	Unphasible	1 (1.6%)
	Total	61 (100.0%)
Heel	Phase 1	34 (72.3%)
	Phase 2	8 (17.0%)
	Phase 3	5 (10.6%)
	Total	47 (100.0%)
Trochanter	Phase 1	11 (35.5%)
	Phase 2	10 (32.3%)
	Phase 3	8 (25.8%)
	Phase 4	2 (6.5%)
	Total	31 (100.0%)
Leg	Phase 1	8 (29.6%)
	Phase 2	11 (40.7%)
	Phase 3	6 (22.2%)
	Phase 4	2 (7.4%)
	Total	27 (100.0%)
Ankle	Phase 1	6 (60.0%)
	Phase 2	1 (10.0%)
	Phase 3	2 (20.0%)
	Phase 4	1 (10.0%)
	Total	10 (100.0%)
Coccyx	Phase 1	2 (40.0%)
	Phase 2	2 (40.0%)
	Phase 4	1 (20.0%)
	Total	5 (100.0%)
Back	Phase 1	1 (20.0%)
	Phase 2	3 (60.0%)
	Phase 3	1 (20.0%)
	Total	5 (100.0%)
Arm	Phase 2	1 (100.0%)
	Total	1 (100.0%)
Hand	Phase 1	2 (66.7%)
	Phase 2	1 (33.3%)
	Total	3 (100.0%)
Toe	Phase 1	1 (100.0%)
	Total	1 (100.0%)
Total	Phase 1	139 (35.0%)
	Phase 2	130 (32.7%)
	Phase 3	102 (25.7%)
	Phase 4	23 (5.8%)
	Total	397 (100.0%)

A statistically significant difference was found when the PC unit lengths of stay in the patient groups with and without pressure ulcers or immobilisation were compared. The mean hospital stay for patients with pressure ulcers was 19.0 days (SD=10.2), and 16.7 days (SD=11.1) for without patients (p=0.009). The mean length of stay for immobilised patients was 19.3 days (SD=10.1), and 17.3 days (SD=10.9) for mobile patients (p=0.038).

In addition, 72% (n=403) of the patients were discharged from the PC unit and 28% (n=157) died during their stay in the unit. When prognosis was compared according to age group, a statistically significant difference was found between the groups (p<.001, Table 2). Death was observed in 13.7% of group-1 patients, 30.2% of group-2 patients, 32.7% of group-3 patients and 42.1% of group-4 patients during their PC unit stay. When the reason for the difference between the groups was examined, the mortality rate was significantly lower in group-1 than in the other groups (group 1 versus 2, p=0.001; group 1 versus 3, p<0.001; group 1 versus 4, p<0.001). Mortality rate and discharge were not statistically significantly different between the other three groups (group 2 versus 3, p=0.627; group 2 versus 4, p=0.171; group 3 versus 4, p=0.252).

DISCUSSION

In this study, access to PC services differed significantly according to patient characteristics. First, 75.2% the cohort (n=421) were geriatric patients aged 65 years and over. The geriatric patient group also needed more PC, and this patient group required further healthcare during PC. Access to PC services was significantly higher for patients living in large provinces and provincial centres. When hospitalisations in the PC unit were examined, 48.2% of the patients were admitted from the ICUs. The aforementioned shows that PC provides the integration of patients in ICUs into home care processes, and patient drainage from ICUs. Patient discharge from ICUs, which constitutes the majority of the health care cost of, is enabled

by PC services. Moreover, 24.5% of hospitalised patients were admitted directly to the PC unit. This group consisted of patients whose were care was too complicated for home services from their relatives or caregivers and were admitted to the PC unit for direct needs. This indicates that PC units are essential not only for patients, but also for families and caregivers. PC units assume this service when relatives are unable to provide home care. Pressure ulcers were present in 50% of the patients admitted to the PC unit, and 28% were immobilised. The presence of pressure ulcers and immobilisation of patients significantly prolonged PC hospitalisation time. Patients with pressure ulcers or those who are immobilised require more PC services because their care is more complex and has more requirements.

Rosenwax et al. determined that an increase in PC access rates was associated with living in big cities, having a partner, living in a private residence, and was higher for female patients (2). In our study, 85.7 % (n=480) of patients hospitalised in our PC unit resided in the province where the hospital is located. In addition, 83.2% (n=466) of the patients lived in the city centre and 53.2% were female, consistent with previously reported data. Our research indicates that this is primarily due to the inability of patients residing in districts or villages to reach PC centres, which are mainly located in provincial centres. Additionally, patients residing in districts or villages may not be aware of such services due to the low number of applications in larger central hospitals.

The PC team's main responsibilities are detailed symptom assessment and treatment suggestions for severely ill patients (7, 21). Geriatric comorbidities are special cases to be considered in the care of elderly patients with serious illnesses (22). Older patients with medical comorbidities are also predicted to be hospitalised more often (23). In our study, 90.9% of the patients (n=509) had one or more comorbidities. Thirty-eight of the 51 patients without comorbidities were aged < 65 years. The most common comorbidities were

hypertension (52.5%), diabetes (29.6%), cancer (28.4%), cerebrovascular disease (23.4%), coronary artery disease (16.1%) and Alzheimer's disease (13.8%). Therefore, we speculated that geriatric patients with comorbidities are more likely to have significant care needs that are appropriate for PC services.

Regardless of age, diagnosis, or prognosis, PC attempts to provide a comprehensive therapy for patients with incurable diseases. PC also emphasises treatment of problems such as distress (physical, psychological, and spiritual), communication for shared decision making, and alleviating the strain on caregivers (24, 25). In patients with severe critical illness, intensive care (IC) attempts to sustain vital functions to reduce mortality and prevent morbidity (26, 27). Clinicians in ICUs lack knowledge and skills in many areas such as stopping/withdrawing interventions and providing end-of-life care in general (24, 28). These include using treatments to reduce pain, having effective conversations with family members, and knowing how to handle ethical dilemmas. Moreover, ICU admission is an unpleasant experience for patients at the end of life (29, 30). Expectedly, PC and IC can be opposite ends of care; PC is known as "conversing medicine" and IC is known as "technical medicine". However, there are similarities between the two types of treatments, as they can work together to help patients receiving IC. The already existing relationship between IC and PC will become stronger as ideologies blend, treatment cultures are normalised, and opportunities for collaboration present themselves (1). Due to this significant association, patients who need PC are generally followed up in ICUs because of their clinical processes and can be referred for PC, especially in the end-of-life period. In our study, we found that 48.2% of patients were admitted from ICUs, 12.0% from emergency services, and 24.5% were admitted directly to PC and hospitalised. These rates are consistent with previous data. We believe that PC will become increasingly important for patients being discharged from ICUs. In this regard, we support the idea that the number of

hospitals with PC units and beds should increase to accommodate for the aging population.

PC is a multidisciplinary team-based care approach that involves physicians, advanced practice clinicians, nurses, pharmacists, clergy's, and social workers and is distinct from other healthcare services (7). In our study; PC patients were consulted to many clinics after hospitalization and evaluated by several teams. The clinics that needed consultation the most were nutrition (92%), physical therapy (91.8%), infectious disease (45.9%), stoma wound care (32%), chronic wound care (27%), neurology (25.7%), and psychiatric (21.8%). Specialties including nutrition, physical therapy, pain management, infectious diseases, wound care, neurology and psychiatry are a priority in the PC process. Based on this, the PC process should involve multidisciplinary teamwork.

PC deals with patients of all ages with unique requirements related to death in a broad sense (31). By preventing and treating symptoms rather than illnesses in the care of patients until they pass away from a severe and life-threatening condition, PC seeks to enhance the quality of life and lessen suffering. Most patients receiving PC are > 65 years of age (6). Aging patients' requirements and characteristics shape PC needs (10). Therefore, we advocate the idea that it is crucial to group patients according to age in the PC process and provide services accordingly. In our study, we divided patients into four groups. We divided geriatric patients over 65 years of age into lower age groups because life expectancy and geriatric age group limits are the subject of discussion owing to newly developed medical treatments and technologies. In a study by Ersin et al. (32), it was found that 48.2% of patients receiving PC were female, 14.5% of all patients were between the ages of 60-69, 20.5% were between the ages of 70-79, and it was shown that 39.2% were between the ages of 80-89, while 25.8% were aged 90 years and over. In our study, 53.2% of all patients were female, and 75.2% were geriatric patients aged > 65 years. The geriatric age group had the highest number of patients hospitalised in the PC unit. We strongly argue that geriatric patients should be integrated into the PC process earlier in the disease course. There was a statistically significant difference between the age groups in terms of sex (p=0.026). While the male sex was higher in those under 65 years of age, the female sex was statistically higher in those over 90 years of age (p=0.004). We believe that the high number of female patients aged > 90 years is because female patients have a longer life expectancy than male patients. Pressure ulcers were less in group-1 (18-64 years) than in the other groups, indicating a significantly higher prevalence of pressure ulcers was in the geriatric age group. Immobilisation was statistically lower in group-1 than in group-3 and group-4. We think that in the patient group over 75 years of age, attention should be paid to immobilisation and its complications. In addition, in the PC unit, the mean hospital stay for pressure ulcers was 2.3 days (p=0.009), and immobilisation prolonged the mean hospital stay by two days (p=0.038). Studies have found that geriatric patients are more likely to apply to a hospice or skilled care facility and are less likely to be discharged home (10). In our study, the mean number of hospitalisation days in the PC unit was 17.84±10.71 days which was statistically significantly different by age between the groups (Fisher's ANOVA, p<.001). The mean PD hospitalisation times of patients in group-1 and group-2 were less than those in group-3 and group-4 patients. This result has not been examined in the literature before, and we suggest that patients over 75 years of age have more PC need and that early integration into PC should be provided to this patient group. We consider this group of patients as the cornerstone of PC services.

Limitations

Our study included a number of limitations. First of all, it was a single-center retrospective analysis with a limited patient population. Larger sample size investigations should back up our findings.

Our hospital is located in the city center and has the largest bed capacity of Ankara. For this reason, the accessibility of our hospital is high in the city center and patient demographic data includes the population of the region where our hospital is located. It may not be correct to generalize to all PC units and the population. Second, there were no data on how long it takes for patients to start PC from the time of diagnosis, and more detailed studies are needed for PC planning, especially for patients with chronic diseases including cancer. Single patients admitted to the PC unit and their first hospitalisations were evaluated; since the number of patients with more than one hospitalisation was not sufficient for evaluation, patients with more than one hospitalisation were not included in the evaluation. As this was a retrospective study, and the data were accessed through an electronic recording system, more extensive data (laboratory, treatment, etc.) from patients who received PC could not be obtained. In addition, the effect of care on the end-of-life indicators of patients could not be measured, and the rate of PC use could not be calculated.

CONCLUSION

PC service is most essential in the geriatric age group. Access to and integration into PC in this age group should be expanded. The connection between IC units and PC units continues to grow daily, and this connection becomes indispensable with the aging population. Identifying patients with critical PC needs is necessary for the effective use of resources and the future in line with the expected increase in care burden.

Even today, access to a PC is insufficient, and must be increased in particular for geriatric patients and patients living in rural areas. Chronic diseases should be confronted with the PC discipline as soon as possible as a standard approach, and even at the time of diagnosis if possible. The sooner a holistic approach is provided, the more opportunities may arise to capture foreseeable risks before maintain functional independence is impaired. Regardless

of age, individuals with chronic diseases must have access to PC inpatient services at an appropriate time. To increase access, health professionals must have adequate government policies, programs, resources, and PC training.

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REFERENCES

1. Mercadante S, Gregoretti C, Cortegiani A. Palliative care in intensive care units: why, where, what, who, when, how. BMC anesthesiology 2018;18(1):1-6. (DOI:10.1186/s12871-018-0574-9).

2. Rosenwax L, Spilsbury K, McNamara BA, et al. A retrospective population based cohort study of access to specialist palliative care in the last year of life: who is still missing out a decade on? BMC palliative care 2016;15:1-9.(DOI:10.1186/s12904-016-0119-2).

3. Ventura Mde M. Effectiveness and cost-effectiveness of home palliative care services for adults with advanced illness and their caregivers. Sao Paulo medical journal = Revista paulista de medicina 2016;134(1):93-94.(DOI:10.1590/1516-3180.20161341t2).

4. Gómez-Batiste X, Martínez-Muñoz M, Blay C, et al. Prevalence and characteristics of patients with advanced chronic conditions in need of palliative care in the general population: a cross-sectional study. Palliative medicine 2014;28(4):302-311. (DOI:10.1177/0269216313518266).

5. Organization WH. Integrating palliative care and symptom relief into primary health care: a WHO guide for planners, implementers and managers [e-book]. Geneva: World Health Organization; 2018. [Internet]. Available from: https://apps.who.int/iris/bitstream/handle/10665/274559/9789241514477-eng.pdf. Accessed:16.08.2023.

6. Olden AM, Holloway R, Ladwig S, et al. Palliative care needs and symptom patterns of hospitalized elders referred for consultation. Journal of pain and symptom management 2011;42(3):410-418.(DOI:10.1016/j.jpainsymman.2010.12.005).

7. Ferrell BR, Twaddle ML, Melnick A, et al. National Consensus Project Clinical Practice Guidelines for Quality

Palliative Care Guidelines, 4th Edition. Journal of palliative medicine 2018;21(12):1684-1689.(DOI:10.1089/jpm.2018.0431).

8. Crawley LM. Racial, cultural, and ethnic factors influencing end-of-life care. Journal of palliative medicine 2005;8(1):58-69.(DOI:10.1089/jpm.2005.8.s-58).

9. Evers MM, Meier DE, Morrison RS. Assessing differences in care needs and service utilization in geriatric palliative care patients. Journal of pain and symptom management 2002;23(5):424-432.(DOI:10.1016/s0885-3924(02)00377-9).

10. Saracino RM, Bai M, Blatt L, et al. Geriatric palliative care: Meeting the needs of a growing population. Geriatric nursing 2018;39(2):225-229.(DOI:10.1016/j.gerinurse.2017.09.004).

11. Rajabalee N, Joseph A, Tapper CX. Global Geriatric Palliative Care. Clinics in geriatric medicine 2023;39(3):465-473.(DOI:10.1016/j.cger.2023.05.002).

12. Bagshaw SM, Webb SA, Delaney A, et al. Very old patients admitted to intensive care in Australia and New Zealand: a multi-centre cohort analysis. Critical care 2009;13(2):1-14.(DOI:10.1186/cc7768).

13. de Rooij SE, Abu-Hanna A, Levi M, et al. Factors that predict outcome of intensive care treatment in very elderly patients: a review. Critical care 2005;9(4):307-314.(DOI:10.1186/cc3536).

14. de Rooij SE, Govers A, Korevaar JC, et al. Short-term and long-term mortality in very elderly patients admitted to an intensive care unit. Intensive care medicine 2006;32(7):1039-1044.(DOI:10.1007/s00134-006-0171-0).

15. Sim YS, Jung H, Shin TR, et al. Mortality and outcomes in very elderly patients 90 years of age or older admitted to the ICU. Respiratory care 2015;60(3):347-355.(DOI:10.4187/respcare.03155).

16. Barba R, Martínez JM, Zapatero A, et al. Mortality and complications in very old patients (90+) admitted to departments of internal medicine in Spain. European journal of internal medicine 2011;22(1):49-52.(DOI:10.1016/j.ejim.2010.11.001).

17. Zafrir B, Laor A, Bitterman H. Nonagenarians in internal medicine: characteristics, outcomes and predictors for in-hospital and post-discharge mortality. IMAJ 2010;12(1):10-15.

18. Saint Jean O, Thibert JB, Holstein J, et al. [Hospitalization in internal medicine of nonagenarians. Study of 150 cases]. La Revue de medecine interne 1993;14(9):825-831.(DOI:10.1016/s0248-8663(05)81140-3).

19. Yust-Katz S, Katz-Leurer M, Katz L, et al. Characteristics and outcomes of ninth and tenth decade patients hospitalized in a sub-acute geriatric hospital. IMAJ 2005;7(10):635-638.

20. Formiga F, Ferrer A, Mascaró J, et al. Predictive items of one-year mortality in nonagenarians. The NonaSantfeliu Study. Aging clinical and experimental research 2007;19(4):265-268.(DOI:10.1007/bf03324700).

21. Kelley AS, Morrison RS. Palliative Care for the Seriously Ill. The New England journal of medicine 2015;373(8):747-755.(DOI:10.1056/NEJMra1404684).

22. Fried LP, Ferrucci L, Darer J, et al. Untangling the concepts of disability, frailty, and comorbidity: implications for improved targeting and care. The journals of gerontology Series A, Biological sciences and medical sciences 2004;59(3):255-263.(DOI:10.1093/gerona/59.3.m255).

23. Buntinx F, Niclaes L, Suetens C, et al. Evaluation of Charlson's comorbidity index in elderly living in nursing homes. Journal of clinical epidemiology 2002;55(11):1144-1147.(DOI:10.1016/s0895-4356(02)00485-7).

24. Aslakson RA, Reinke LF, Cox C, et al. Developing a Research Agenda for Integrating Palliative Care into Critical Care and Pulmonary Practice To Improve Patient and Family Outcomes. Journal of palliative medicine 2017;20(4):329-343.(DOI:10.1089/jpm.2016.0567).

25. Byock I. Improving palliative care in intensive care units: identifying strategies and interventions that work. Critical care medicine 2006;34(11):302-305.(DOI:10.1097/01.ccm.0000237347.94229.23).

26. Angus DC, Truog RD. Toward Better ICU Use at the End of Life. Jama 2016;315(3):255-256.(DOI:10.1001/jama.2015.18681).

27. Ho A, Tsai DF. Making good death more accessible: end-of-life care in the intensive care unit. Intensive care medicine 2016;42(8):1258-1260.(DOI:10.1007/s00134-016-4396-2).

28. Edwards JD, Voigt LP, Nelson JE. Ten key points about ICU palliative care. Intensive care medicine 2017;43(1):83-85.(DOI:10.1007/s00134-016-4481-6).

29. Puntillo KA, Arai S, Cohen NH, et al. Symptoms experienced by intensive care unit patients at high risk of dying. Critical care medicine 2010;38(11):2155-2160.(DOI:10.1097/CCM.0b013e3181f267ee).

30. Pandharipande PP, Girard TD, Jackson JC, et al. Long-term cognitive impairment after critical illness. The New England journal of medicine 2013;369(14):1306-1316.(DOI:10.1056/NEJMoa1301372).

31. Saunders C, Baines M, Dunlop R. Living with dying: a guide to palliative care (3rd edn) [e-book]. Oxford University Press Publication; 2011. [Internet]. Available from: https://doi.org/10.1093/acprof:oso/9780192625144.001.0001. Accessed: 18.08.2023

32. Ersin F, CADIRCI D, DEDEOGLU GK. Investigation of mental well-being status and social support levels of patients hospitalized in palliative care clinic. Ege Journal of Medicine 2022;61(3):379-386.