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Özgün Araştırma / *Original Article*

Frequency of Palliative Care Patients in a Second Level Intensive Care Unit: Retrospective Study

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İkinci Seviye Yoğun Bakım Ünitesinde Takip Edilen Palyatif Bakım Hastalarının Sıklığı: Retrospektif Çalışma

ABSTRACT

Objective: *Intensive care units (ICUs) are associated with high mortality rates. Therefore, intensive care physicians should have knowledge in terms of end-of-life care. Palliative care patients are often exposed to aggressive treatments instead of supportive care as they transfer to ICUs in the terminal period of their lives. The main aim of this study is to investigate the frequency, characteristics, duration of ICU stay, primary diseases and outcomes of palliative care patients followed up in our ICU.*
Method: *The data of 173 patients who admitted to the intensive care unit between 01.01.2017 and 08.31.2018 were retrospectively analyzed. According to the criteria set by the World Health Organization; the patients who could be considered as palliative care patients were picked up among the patients who were admitted in the ICU. Patients who met the study criteria were classified into two groups as palliative care patients (study group) and intensive care patients (control group). Sixty-two patients (39%) who met the palliative care criteria were accepted as the study group. The frequency, demographic characteristics, ICU stay times, diagnosis, APACHE II scores, death or discharge status of palliative care patients were listed.*
Results: *The mean age, causes of mortality, ICU stay and discharge rates were significantly different between the two groups. Most of the study group had advanced neurological diseases and terminal period of cancer. It was observed that the patients in the study group occupied 55% of the total ICU bed days.*
Conclusion: *In order to improve the quality of end-of-life care, to raise the awareness of ICU doctors about end-of-life care, to implement end-of-life decisions, to increase the number of beds of the palliative care unit, and to determine the guidelines in the decisions to be used in the care of palliative care patients and in intensive care admissions. Thus, inappropriate use of ICUs may be prevented.*

Keywords: *Intensive care units, length of stay, mortality, palliative care*

ÖZ

Amaç: *Yoğun Bakım Üniteleri (YBÜ) mortalite sıklığının yüksek olduğu ünitelerdir. Bu nedenle yoğun bakım doktorları yaşam sonu bakım konusunda da bilgili olmalıdır. Palyatif bakım hastaları da sıklıkla yaşamlarının son dönemlerinde YBÜ'lerine transfer olarak destek bakım yerine agresif tedavilere maruz kalmaktadır. Bu çalışmanın temel amacı, YBÜ'mizde takip edilen palyatif bakım hastalarının sıklığını, karakteristik özelliklerini, YBÜ'de kalış sürelerini, primer hastalıklarını ve sonuçlarını araştırmaktır.*
Yöntem: *YBÜ'mize 01.01.2017-31.08.2018 tarihleri arasında başvuran 173 hastanın dosyaları geriye dönük olarak incelendi. Dünya Sağlık Örgütü'nün belirlediği kriterlere göre; palyatif bakım hastası olarak kabul edilebilecek hastalar, YBÜ'de takip edilen hastaların arasından alındı. Çalışma kriterlerine uyan hastalar, palyatif bakım hastaları (çalışma grubu) ve yoğun bakım hastaları (kontrol grubu) olarak belirtilip 2 gruba ayrıldı. Palyatif bakım kriterlerini karşılayan 62 hasta (%39) çalışma grubu olarak kabul edildi. Palyatif bakım hastalarının sıklığı, demografik özellikleri, YBÜ kalış süreleri, tanı, APACHE II skorları, ölüm veya taburcu olma durumu listelendi.*
Bulgular: *Ortalama yaş, mortalite, hastanede kalış süresi ve taburculuk oranları 2 grup arasında anlamlı olarak farklıydı. Çalışma grubu hastalarının çoğunda ileri dönem nörolojik hastalıklar ve terminal dönem kanser olduğu görüldü. Çalışma grubu hastalarının toplam YBÜ yatak günlerinin %55'ini meşgul ettiği gözlendi.*
Sonuç: *Yaşam sonu bakım kalitesini arttırmak için yoğun bakım doktorlarını yaşam sonu bakım konusunda bilinçlendirmek, yaşam sonu kararları uygulamak, palyatif bakım ünitesi yataklarının sayısını artırmak ve palyatif bakım hastalarının bakımında ve yoğun bakım yatış kararlarında belirlenecek yönergeleri kullanmak gerekli olabilir. Böylelikle YBÜ'lerinin uygunsuz kullanımı da önlenebilecektir.*

Anahtar kelimeler: *Mortalite, palyatif bakım, yatış süresi, yoğun bakım üniteleri*

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INTRODUCTION

Intensive care units (ICU) are the places where patients with a high risk of severe morbidity or mortality due to serious illnesses are admitted. High technology and expensive treatments are used to sustain the patient's life. Sometimes, ICUs become the units where terminal patients are admitted to delay their deaths. The ICU admissions of these patients reduce the quality of end of life care, and lead to inappropriate use of ICUs [1].

Most frequently elderly patients are admitted to the ICUs due to acute exacerbations or complications of their chronic diseases [2]. The proportion of the elderly population (age 65 and over) in the total population is increasing. In Turkey, the ratio of the elderly population increased from 7.7% in 2013 to 8.5% in 2017 according to the Turkish Statistical Institute data [3]. The aging of the population has led to the spread of chronic diseases, especially in the old population [4].

Another patient group, who was admitted to the ICUs most commonly, is palliative care patients. Except for acute exacerbations, which could be resolved, admissions of these patients to the ICU deteriorate the quality of life of the patients. According to the World Health Organization (WHO) criteria, the following patients require palliative care [5]: patients with motor neuron diseases (patients with the sequel of cerebrovascular disease) and progressive neurological diseases (Alzheimer's, etc.), advanced organ failure (heart, lung, kidney, liver, brain), cancer, HIV/AIDS, genetic, and children with congenital or progressive diseases.

The main aim of palliative care patient's treatment is to improve the quality of their remaining lives, by means of treating pain, delirium, constipation, nausea, dyspnea, etc. without using aggressive methods. In this way, inappropriate treatments are avoided [6]. Hospices and palliative care units are very cost-effective alternatives compared to the ICUs for palliative care patients [7]. The palliative care patients' admissions to the ICUs may create a disadvantage for the other patients' admissions, who might get benefit from the ICUs due to their acute diseases. Applying end-of-life decisions in palliative care patients in ICUs provide two significant gains; ie. it improves quality of life and avoids inappropriate use of ICUs. However, we think that end-of-life care in palliative care patients is still not frequently practiced in ICUs.

The purpose of this study was to determine the frequency, characteristics, length of ICU stay, primary diseases, and outcomes of palliative care patients in our ICU.

MATERIAL and METHODS

The data of 173 patients, who were admitted to the second-level ICU between 01.01.2017-08.31.2018, were retrospectively reviewed. According to WHO criteria, palliative care patients were selected among all ICU patients. The patients who were referred to the third level intensive care unit for the continuation of their treatment and the patients who stayed less than 24 hours in the ICU were excluded from the study. The study protocol was approved by the local ethics committee (09.20.2018/MH 32). The ICU investigated in the study is a second level ICU with 4 bed-capacity.

All patients were divided into two groups as palliative care and intensive care patients. Sixty-two patients, who met the criteria of palliative care, were accepted as the study group. The control group consisted of 98 patients, who did not correspond to palliative care criteria and required intensive care admission (Figure 1). The demographic characteristics, the duration of ICU stay, the diagnosis, acute physiological and chronic health status scores (APACHE II), and the death or discharge status were listed.

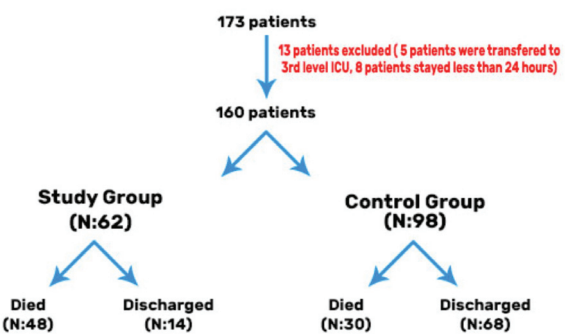

Figure 1. Flow chart.

The statistics of the study was done with IBM SPSS Statistics 23 software. The numbers, percentages, means and the standard deviation values were given as the descriptive statistics. The statistical analyses were performed using chi-square and independent t-test. $p<0.05$ was considered statistically significant.

RESULTS

One hundred and seventy-three patients, who were admitted to the intensive care unit within 20 months, were assessed. Five patients were referred to the intensive care unit from a tertiary health institute for the continuation of their treatment and 8 patients who stayed less than 24 hours in the unit were excluded from the study. A total of 160 patients (100 male and 60 female) with a mean age of 73.14±15.11 (17-98) years were included in the study. Geriatric patients (>65 years) represented 75.47% of the study population. The mean length of hospitalization was 18.47±40.3 days. Seventy-eight patients (49.4%) died.

Table I. Demographic data

	All patients	Study Group	Control Group	p value
Number (n)	160	62 (39%)	98 (61%)	
Gender Female	60	25	35	1.000
Male	100	37	63	1.000
Average age (Year/Mean±SD)	73.14±15.11	77.23±13.54	70.55±15.57	.006*
Mortality n (%)	79 (49.4%)	49(79%)	30(30.6%)	.002*
APACHE II scores (Mean±SD)	23.26±6.68	24.40±6.20	22.54±6.90	.086
Length of ICU stay (Day/Mean±SD)	18.47±40.33	25.96±46.38	10.19±12.60	.002*
Discharge (n)	81	13	68	.000*

**p<0.01*

Table II. Diagnosis of patients in control group and study group

	All patients	Control Group	Study Group
Endocrine system diseases	6 (%3.75)	6 (%6.12)	0 (%0.00)
Intoxication	2 (%1.25)	2 (%2.04)	0 (%0.00)
Terminal period cancer	27 (%16.88)	6 (%6.12)	21 (%33.87)
Cardiovascular diseases	23 (%14.38)	22 (%22.45)	1 (%1.61)
Advanced neurological diseases	41 (%25.63)	1 (%1.02)	40 (%64.52)
Respiratory tract diseases	61 (%38.13)	61 (%62.24)	0 (%0.00)
Total	160 (%100.00)	98 (%100.00)	62 (%100.00)

The average age, mortality, duration of ICU stay and discharge rates of the two groups were significantly different (Table I). Diagnoses were significantly different between the two groups ($p<0.001$). The majority of the study group patients had advanced neurological diseases and terminal period cancer patients. The majority of the control group had respiratory diseases (Table II).

The mean duration of ICU stay was 25.96±46.38 days for the study group, and 10.19±12.60 days for the control group patients. There was a statistically significant difference between the duration of stay in ICU ($p<0.01$). In the ICU with 4 beds, the total number of bed days is 2428, if all beds are occupied for 607 days. Sixty-two study group patients were observed to occupy intensive care beds for 1056 bed days (55.31%) (Figure 2).

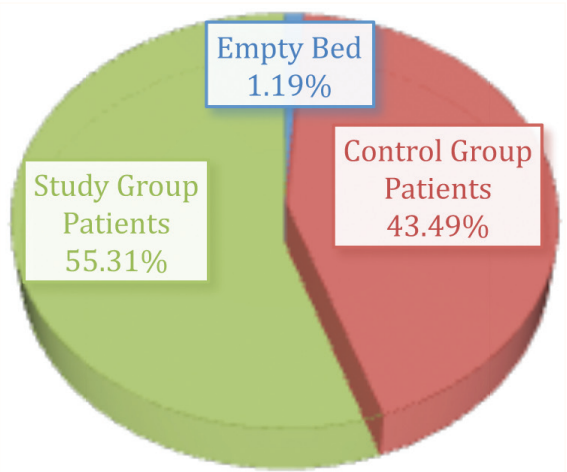

Figure 2. Rates of use of intensive care beds (bed day)

DISCUSSION

Our results showed that the palliative care patients were older and stayed longer in the ICU. Age is an important trigger factor for palliative care. Norton et al. [8] described 5 trigger factors for referral of the patients to palliative care ICU as follows: age > 80 years; presence of ≥ 2 comorbidities, more than 10 days of hospitalization before admission to ICU, stage 4 malignancy, postcardiac arrest, intracerebral hemorrhage with mechanical ventilation. Outcomes of these referrals were decreased ICU length of stay, and increased

ICU patients referral to palliative care.

In our study we described patients aged ≥ 65 years as geriatric patients. Ten years ago Uysal N et al. [9] assessed ICU patients, and reported in addition to younger mean age (55 years old), lower APACHE II scores, lower mortality rate (43%), and a very short length of ICU stay (4.3 days) for ICU patients when compared to our study (18 days). In contrast to Uysal N et al. [9], Ceylan E et al. [10] found the mean age of ICU patients as 63.7±16.4 years and the mortality rate of 40.23%. Ceylan et al. [10] performed their study in an internal medicine ICU and these ICUs usually admitted older patients with chronic diseases. In addition to that, age is a very important predisposing factor and it is directly proportional to the duration of ICU stay.

Our other finding was longer ICU stays of palliative care patients. The length of ICU stay is associated with APACHE II scores, which show the severity of diseases and predict mortality. The APACHE II score is calculated during hospitalization for early detection of the patients with high risk [11]. In contrast to other studies, which showed the APACHE II score was stronger than other scores in distinguishing survivors from non-survivors [12], Ceylan et al. [10] showed that APACHE II alone was insufficient to demonstrate mortality rate, furthermore they found a negative correlation between APACHE II scores and length of stay in ICU. Unlike Higgins TL et al. [13], we observed a direct correlation between APACHE II scores, mortality rates, age and length of ICU days. Palliative care patients with high APACHE II scores may increase healthcare expenditures.

Our findings related to mortality rates agree with those found by Uysal N et al. [9], and Ceylan E et al. [10], who reported mortality rates between 40-50%. However in the Intensive Care Over Nations Study (Europe, Asia, the Americas, Oceania, the Middle East, and Africa), the ICU mortality rates were reported to range between 22.4% and 35.3% in the whole population [14]. In contrast to the studies done in Turkey, the World's mean mortality rate was very low. However, the mortality rates in general ICUs are between 21-61% in different studies. With advanced age, the presence of concomitant diseases, development of septic shock, need for mechanical ventilation, development of acute respiratory distress syndrome (ARDS), worsening of radiographic abnormalities, complications other than pneumonia and inadequate antibiotic use were reported as factors that increase mortality [8,11-15].

In our study, most of the palliative care patients had diagnoses of terminal cancer and advanced neurological disease (Table II), which are defined by WHO as characteristics of palliative care patients. In this situation, use of advanced directives may improve the patients' quality of end of life. Admissions to the ICU, hospitalization or emergency department visits within the last 30 days of life are some of the poor quality of life indicators for palliative patients [16]. Propose directives for the management of palliative care patients, learn their wishes and help to increase patient's quality of life in the terminal period. Most people prefer not to die in hospitals or ICUs, but still most of them die in hospitals or ICUs. This outcome dissatisfies the patient and the family [17]. ICU physicians should evaluate all characteristics of patients to decide if patients could benefit from ICU treatment or it would be an inappropriate treatment by setting goals of care every day. Sometimes it is too hard to decide whether the patient is palliative or intensive care patient. Also, it is really hard to decide the time to change the treatment from intensive care to supportive care. Quill and Holloway [18] suggest time-limited trials for palliative care patients in ICUs. For example; hypoxic-ischemic encephalopathy patients should be treated with mechanical ventilation for the clinical outcome of regaining pupillary responses for 72 hours or end-stage congestive heart failure patients should be treated with mechanical ventilation for the clinical outcome of the ability to breath without ventilator support for 3-7 days [18]. Time-related trials protect patients from inappropriate treatments, help patients' families to understand their patients' condition better, give the families the opportunity to understand the risk of diseases, and give ICU team a chance to evaluate and understand the patient properly.

In the literature there were 7 quality indicators for the end of life care including patient and family-centered decision making, communication within the team and with patients and families, continuity of care, emotional and practical support for patients and families, symptomatic management and com-

fort care, spiritual support for patients and families, and emotional and organizational support for ICU clinicians [19]. For a good death, physicians should be aware of these items for the terminal patients.

Our study has a limitation. Although our results are consistent with the literature, the bed number of our ICU is our limitation.

CONCLUSIONS

Palliative care is an essential management method in the intensive care units. Intensivists come across dying patients commonly and must be trained about the end -of- life care. Training ICU physicians, using advance directives, increasing number of palliative care units, and quality of home care services and family education, not only improve end -of- life care but also increase efficient use of high-cost ICU beds and reduce inappropriate treatments. In order to generalize the results of the study, more comprehensive studies are needed. It can be said that this study will provide a basis for comprehensive studies to be carried out.

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