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ARAŞTIRMA YAZISI / RESEARCH ARTICLE

PALYATİF BAKIM MERKEZİNDE TAKİP EDİLEN HASTALARIN NUTRİSYONEL DURUMLARININ VE SONUÇLARININ DEĞERLENDİRİLMESİ

EVALUATION OF THE NUTRITIONAL STATUS AND RESULTS OF PATIENTS FOLLOWED IN THE PALLIATIVE CARE CENTER

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ÖZET

AMAÇ: Bu çalışmanın amacı palyatif bakım merkezinde takip edilen hastaların nutrisyonel durumlarının ve sonuçlarının incelenmesidir.

GEREÇ VE YÖNTEM: Bu çalışmaya palyatif bakım merkezinde yatarak takip edilen 250 hasta ardışık olarak çalışmaya alındı. Hastalar yatış ve taburculuk durumlarındaki beslenme durumlarına göre gruplandırıldı.

BULGULAR: Çalışmaya katılan hastaların ortalama yaşı 73±19,22 olarak saptandı. Hastalardan 125'i kadın cinsiyete sahipti. Hastaların günlük ortalama ihtiyacı olan kalori 1463,71±21,55 kcal/gün olarak hesaplanırken yattığı dönemde hastalarımızın maksimum tolere edebildiği kalori 1030,54 ±320,54 kcal/gün olarak saptandı (P =0,039). Diyabetik bireylerde hesaplanan kalori ile alabildikleri kalori arasında anlamlı değişiklik saptanmadı (P=0,083). Beslenme şekilleri incelendiğinde palyatif bakım merkezine kabulleri sırasında hastaların %51,60' sının oral yolla beslendiği, perkütan gastrostomi (PEG)/perkütan jejunostomi (PEJ)/nasogastrik tüp ile beslenen hasta oranının ise %32,05 olduğu belirlendi ve hastaların %13,21' si total paranteral nutrisyon (TPN) almıştır. Hastaların %67,06'sı oral yolla beslenme, %30,53'ü PEG/PEJ/nasogastrik tüp ve 4'ü (%2,39) uzun süreli TPN beslenme yöntemleri ile taburcu edilmiştir. Hastalar kalori tüketimlerine göre yüzdelere ayrıldığında, 0-25 persantil kalori alan grupta hastanede yatış gününün anlamlı olarak daha kısa olduğunu tespit ettik (P=0,021) fakat mortalite oranı(%71,42) anlamlı olarak daha yüksekti (P=0,018). 50-75 persentil kalori alımı olan grupta 14(%13,59) hasta ile anlamlı olarak en az oranda yatış süresince mortalite gözlenmiştir(P=0,003). Enfeksiyonlar (%28,57) ise 0-25 grubunda anlamlı derecede yüksekti (P=0,051).

SONUÇ: Palyatif bakım merkezlerinde yaşam sonu yönetiminin yanı sıra hastanın tüm ihtiyaçlarının belirlenmesi gerekmektedir. Katı kalori hesapları yapmak yerine yeni tüm hastalar ile uyumlu beslenme hedeflerinin geliştirilmesi gereklidir.

ANAHTAR KELİMELER: Palyatif bakım, Nütrisyonel Risk Tarama-2002, Beslenme.

ABSTRACT

OBJECTIVE: The aim of this study is to examine the nutritional status and results of the patients followed in the palliative care center.

MATERIAL AND METHODS: 250 consecutive patients who were hospitalized in the palliative care center were included in this study. The patients were grouped according to their nutritional status during hospitalization and discharge.

RESULTS: The mean age of the patients subjected to this study is 73±19.22 years. Out of these patients, 125 are female. The average daily calorie requirement of the patients was calculated as 1463.71±21.55 kcal/day, while the maximum tolerated calorie intake was determined to be 1030.54 ±320.54 kcal/day in our patient (P =0.039). No significant change was detected between the calculated calories and the calories consumed by diabetic individuals (P = 0.083). When the nutritional patterns were examined, it was determined that 51.60 % of the patients were orally fed at the time of admission to the palliative care center, the rate of patients fed with a Percutan gastrostomy (PEG)/Percutan jejunostomy (PEJ)/nasogastric tube was 32.05%, and 13.21% of the patients fed total parenteral nutrition (TPN). 67.06% of the patients were discharged with oral feeding, 30.53% with PEG/PEJ/nasogastric tube and 4 (2.39%) with long-term TPN feeding methods. When the patients were divided into percentages according to their calorie consumption, we found that the hospitalization day was significantly shorter in the group consuming 0-25 percentile calories (P = 0.021) but had a significantly higher rate of mortality (%71.42) (P=0.018). In the group with 50-75 percentile calorie intake, mortality was observed significantly at the lowest rate during hospitalization, with 14 (13.59%) patients. (P=0.003). Infections (28.57%) were significantly higher in the 0-25 group (P = 0.051).

CONCLUSIONS: At palliative care centers, besides end-of-life management, all needs of patients should be identified. Instead of making strict calorie calculations, it is necessary to develop new nutritional goals compatible with all patients.

KEYWORDS: Palliative care, Nutrition Risk Screening 2002, Nutrition.

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INTRODUCTION

According to former criteria of the World Health Organization, palliative care was supposed to be provided only to terminal cancer patients. However, it is now included in the same scope with trauma, frail elderly individuals, those with a history of stroke, chronic heart failure, and Alzheimer's disease. Patients begin to be followed in palliative services from the moment they are diagnosed with cancer (1). Nutrition support is among the most important components of palliative care in terms of ethics and sociology.

Although the main purpose of palliative care is to relieve symptoms by the end of life, due to socio-cultural conditions of Turkey, it's a way for patient relatives and health professionals to feel competent in caring for patients through nutrition. Treatment methods to be used in palliative care also remain unclear (2). Malnutrition has implications for catabolic processes and inadequate nutrient consumption, as well as morbidity and mortality in chronic patients (3). Replacement treatments for palliative care patients with malnutrition are carried out taking into account the individual needs. Many questions remain to be answered, such as when palliative care patients should start feeding, when their feeding should be stopped, how their nutritional complications should be challenged, and how caregivers will adapt to their nutritional methods (4). Nutritional methods, like treatment options in palliative care, are still controversial. In this study, we aimed to determine the nutritional status, complications and optimal calorie needs of our palliative care inpatients.

MATERIAL AND METHOD

Between January 2019 and August 2020, 250 patients hospitalized at Ankara City Hospital Palliative Care Center were consecutively included in the study. Patients' demographic data, nutritional screening levels, feeding methods, and nutritional status at discharge were evaluated retrospectively. Demographic features of the patients taken into account are age, gender, Alzheimer's Disease, dementia, Parkinson's Disease, diabetes mellitus (DM), heart failure, hypertension (HT), chronic kidney disease (CKD), hyperlipidemia (HL), documented coronary artery diseases (CAD), stroke history, chronic liver disease, rheumatoid arthritis. The daily caloric needs of the patients are calculated according to the Harris-Benedict formula with a nutritionist (5 - 7). All patients are evaluated for appropriate nutrition from admission to palliative care. Tube feeding methods are applied for those with swallowing dysfunction. Patients with gastrointestinal tract problems or those who could not tolerate enteral feeding methods were supported with total parenteral nutrition (TPN). For each patient, the caregiver was tried to adapt to the feeding method, daily food consumption, nutritional complications and prevention of complications through consecutive pieces of training. If the patient was in a condition such as septic shock, intravenous fluid replacement was put in use instead of nutrition. The nutritional status of patients both at the time of admission to the hospital and before discharge were recorded with the Nutrition Risk Screening 2002 (NRS2002) form. Patients with a score of ≥3 according to NRS2002 score were interpreted as the malnutrition risk group (8). Body mass indexes (BMI) of the patients were calculated on admission. The range of 18–24.9 was defined as normal BMI. Enteral (oral nutrition, percutaneous gastrostomy (PEG), percutaneous jejunostomy (PEJ) or nasogastric feeding (NG)) or total parenteral nutrition (TPN)) routes of the patients were recorded. The amount of calories calculated to be given to the patients was compared with the amount of calories the patients received. In-hospital all-cause mortality rates were recorded. The principles of the Helsinki Declaration were followed throughout this research.

Ethical Committee

This Study was approved by Ankara Bilkent City Hospital Ethical 1 committee (Number: E1-20-1150, Date: 30/09/2020) institutional review board and waived the requirement for informed consent.

Statistical Analysis

The data obtained from the Hospital Information Management Systems (HIMS) notes, and nurse, dietitian, and doctor daily evaluations were entered into IBM SPSS Statistics for Win-

dows 26.0 (IBM Corp., Armonk, NY, USA). Normality distributions of the data were made. Descriptive analyses were performed. Normally distributed data were compared using the Spearman correlation method. P < 0.05 was considered statistically significant. In the presence of two variables, an analysis of T-tests was used. In the presence of more than two variables, analysis of variance (ANOVA) was used.

RESULTS

250 consecutive patients were included in the study. It was determined that 125 patients were female and 125 patients were male. The mean age of the patients was 73±19.22 years. The most common co-morbidity in the patients was HT at a rate of 53.6 % in 134 patients, cerebrovascular disease was the second most common, and cancer was the third **(Table 1)**.

Table 1: The Basic Clinical Characteristics of the Patients.

		N	%
Gender (Female)		125	50.0
Hypertension		134	53.6
Cerebrovascular disease		99	39.6
Alzheimer/Dementia/Parkinson disease		47	18.8
Heart failure		43	17.2
Chronic renal failure		43	17.2
Diabetes mellitus		74	29.6
Coronary artery disease		66	26.4
Chronic obstructive lung disease		40	16
Liver failure		9	3.7
Rheumatoid arthritis		3	1.2
Nonsurvival		83	33.2
Body mass index	<18.5	33	13.2
mean (23.34)	18.5-24.99	148	59.2
min-max (15.2-70.3)	25-29.99	49	19.6
	30-34.99	10	4
	35-39.99	8	3.2
	>40	2	0.8
Age		73.31±14.48	
Hospitality Days		19.22±22.46	
Calculated Calories (Ckal/Day)		1463.71±215.51	
Maximum Tolerated Calories (Ckal/Day)		1030.56±322	
Percentile of Maximum Tolerated Calories (%)	0-25	7	2,8
	25-50	42	16.8
	50-75	103	41.2
	75-100	98	39.2
CRP (mg/dl) (mean, ±STD)		69.14±19.97	
Albumin (gr/dl)		3.045 ±5.38	
Protein intake (gr/kg/day)		0.98±0,3	

BMI of 59.2% (140) of patients was found to be in the normal range. While the average calorie intake of the patients was calculated as 1463.71 ± 21.55 kcal/day, the number of calories that could be tolerated by the patients while lying down was determined as 1030.54 ± 320.54 kcal/day. There was a significant difference between the calculated calories and the calories consumed by the patients (P =0.039). There was no significant difference between the calories calculated and the calories they could consume in the diabetic individuals (P=0.083). When the nutritional patterns were examined, it was determined that 51.6 % of the patients were orally fed at the time of admission to the palliative care center, the rate of patients fed with a PEG/PEJ/nasogastric tube was 32.0 %, and 13.2% of the patients received total TPN. Nutritional status and NRS2002 scores of the patients at the admission and discharge are given in **Table 2**.

Table 2: Nutritional status and NRS2002 scores of the patients at the admission and discharge.

	Admission(N)	%	Discharged(N)	%	P Value
Oral nutrition	129	51.6	112	67.06	P=0.0063
PEG/PEJ/NG[1]	78	32.05	51	30.53	P=0.0841
TPN[2]	33	13.2	4	2.39	P=0.0038
No Feeding	6	0.02	0	0	
NRS2002 score[3]	5	Min-1 Max7	3	Min1-Max6	P=0.0136

[1] PEG: Percutaneous gastrostomy. PEJ: Percutaneous jejunostomy. NG: Nasogastric feeding. [2]TPN: nutrition. [3] NRS2002 score: Nutritional risk score.

It was determined that 41.2% (103) of the patients consumed between 50%–75% of the calculated calories. When the patients were divided into percentages according to their calorie consumption, we found that the hospitalization day was significantly shorter in the 0-25 percentile calorie intake group (P= 0.021), the mortality rate (%71.42) was also significantly higher in the 0-25 group (P=0.018), and infections (%28.57) were significantly higher in the 0-25 group (P=0.035). In terms of CRP, albumin and protein intake no significant difference was detected between the groups. Considering that the 0-25 calorie percentage group is an unstable patient population; When patients with calorie intake percentages of 25-50, 50-75,75-100 were compared among themselves, significant difference was found between them in terms of hospitality day (P=0.021), mortality (P=0,003), metabolic and infectious complications **(Table3)**. Mortality during the hospitalization period was observed in 14 (%13.59) patients at least in the 50-75 group.

Table 3: Comparison of the patients' maximum tolerated calories percentage and demographic data.

Percentile of Maximum Tolerated Calories (%)	0-25	25-50	50-75	75-100	P Value
Hospitality day (mean ± SD)	10.14±3.05	16.52±2.05	18.55±1.33	21.73±3.20	P=0.021
Protein nutrition (gr/kg/day) (mean ± SD)	0.6±0.2	0.96±1.4	1.02±1.01	1.04±1.00	P=0.096
Albumin(gr/dl)	3.18±1.3	2.99±0.85	3.14±0.61	3.01±0.2	P=0.070
CRP (mg/dl)	64.80±35	94. 46±15.90	63.07±7.83	59.96±9.9	P=0.063
Infectious complications (N (%))	2(%28.57)	7(%16.66)	14(%13.59)	10(%10.20)	P=0.051
Metabolic complications N (%)	3(%42.85)	15(%35.71)	33(%32.03)	28(%26.53)	P=0.057
Nonsurvival	5(%71.42)	7(%16.66)	14(%13.59)	25(%26.53)	P=0.003

CRP: C-reactive protein

Mortality was observed in 83 (33.2%) patients during hospitalization. It was found that the mortality rates of patients fed with TPN at admission to the palliative care center were sta-

tistically higher than those of patients fed with other types of nutrition (P=0.0007). No significant difference was observed between the calories calculated in the mortality group and the calories that the patients could consume (P=0.079). Nutrition percentages at the time of discharge were transferred to home health units or nursing homes with oral nutrition in 67.06% of patients, feeding with PEG/PEJ/nasogastric tube in 30.53% of patients, and long-term TPN in 4 (%2.39) patients. Mortality was observed during hospitalization in the palliative care center in 83 patients (33.33%). It was determined that 13.03% the patients who received TPN. Mortality was observed to be significantly higher in patients who were fed with TPN at admission to the palliative care center (P=0,002). No significant difference was observed between the calories calculated in the mortality group and the calories that the patients could consume (P=0,059). Nutrition percentages at the time of discharge were transferred to home health units or nursing homes with oral nutrition in 67.06% of patients, feeding with PEG/PEJ/nasogastric tube in 30,53% of patients, and long-term TPN in %2 patients.

DISCUSSION

All over the world, life expectancy is increasing day by day. Thus, the elderly population with high co-morbidity is increasing day by day in Turkey as well as all over the world. Palliative care centers, which can provide the best service to these patients and their relatives who provide care, are now recognized as necessary in Turkey. Although the primary purpose of palliative care centers is pain palliation, considering the socio-cultural habits of Turkey, ignoring the nutritional needs of the patients creates a psychological burden on the patients, their relatives, and health professionals. According to our research, there are a very limited number of studies in Turkey where nutritional assessments were discussed in palliative care.

In this study, the mean age was found to be 73 years. The mean palliative performance score of the patients was 40. According to a study conducted by palliative care centers, the average was 74 in a study comparing non-cancer and cancer patients. As shown in our study, the need for palliative care for elderly patients is increasing (9). In the current study, the mean hospitalization time was 19.2 days, and in a retrospective study conducted in Turkey, the mean hospitalization day was found to be approximately similar to 15.4 days (10).

Essential hypertension was observed as the most common co-morbidity in hospitalizations. It was also observed in patients followed up in our palliative care center. The major reason requiring hospitalization was determined as a cerebrovascular disease. Cancer was recorded as the second most common reason for hospitalization. A mortality rate of 33% was found in patients who were hospitalized in our palliative care center. In Turkey, Miniksar et al. found that cerebrovascular disease is the second most common comorbidity with Alzheimer's and cancer (10).

Malnutrition is one of the important factors prolonging the length of hospital stay. Many tests are applied to recognize malnutrition and create a treatment plan in hospitalized patients. One study has shown that 95.8% of patients hospitalized in a palliative care center are at risk of malnutrition (11). Malnutrition screening and monitoring aredone with many scores around the world, but none of them is the gold standard method. Since all hospitalized patients are at risk of nutritional deficiencies, screening is recommended for all patients. One of the important factors prolonging the length of stay of hospitalized elderly patients is the high probability of nutritional deficiency in nutritional screening (8, 12, 13). The NRS2002 score is accredited in Turkey (14). In this study the median NRS2002 score was determined as 5 at the first admission of the patients who came to our palliative care center. The median NRS2002 score at discharge was 3. There was a significant difference between them. Investigating the clinical features of palliative care patients, Yuruyen et al. found that the average NRS2002 score was 3 (15). In the current study, the caloric needs of the patients were not interfered with in our palliative care center due to their critical clinical conditions in the last days. We did not receive their evaluations, maybe we have mortality rates due to significant changes in the NRS2002

scores. According to the European Society for Parenteral and Enteral Nutrition (ESPEN) guidelines, the provision of nutrition in the patient group with many comorbidities should be considered as multiple factors. In the guidelines, it is recommended to ensure optimal food consumption by observing the patients instead of health professionals making strict rules. Based on the daily caloric needs of the patients followed up in our palliative care center, it is aimed to provide carbohydrate, protein, fat, essential amino acid, vitamin, and mineral balances by considering their accompanying co-morbidities and laboratory findings (16). It has been shown that meeting adequate nutritional needs is effective in increasing the quality of life in elderly individuals and in preventing depression (17). Even when our patients' daily needs were calculated (18), it was observed that most of the patients could tolerate only 50%–75% of that. At the same time, no significant difference was observed in the percentages of nutrition in the group with cancer and mortality compared to the other patient groups. Although there are no targets set for palliative care, intensive care nutrition recommendations are similar to starting with 70% of the already calculated calories. Instead of making strict calorie calculations for nutrition in palliative care centers, it may be a more accurate target to provide calories that will meet the optimal expectation of the patients and their relatives (19). Tube feeding is recommended in cases where the swallowing reflex is lost, especially in cerebrovascular patients. In the study of Klek et al., the most common morbidity observed in patients receiving enteral nutrition at home was cerebrovascular disease (20).

In palliative care patients, feeding with TPN at home is still a controversial issue in developed countries due to the necessity of close follow-up, as well as the complications that may disrupt the comfort of the patient, such as catheter infection, sepsis, and catheter thrombosis, as well as pain and agitation, which can reach 42% (21). It was seen that the most common indication for TPN in inpatients who received TPN was that they could not consume calories orally because of gastrointestinal lumen pathologies. Electrolyte disturbances are the most common complication, followed by catheter-related sepsis. While four of the cancer patients in our palliative care center received inpatient TPN due to intestinal failure, they were discharged with home TPN at their own request because there was no withdrawal withholding, they had a life expectancy of more than 2–3 months, and their relatives or caregivers were physicians. One of the patients was admitted back to our palliative care center because they felt agitated during TPN follow-up at home.

The limitations of this study were that, since it was evaluated retrospectively, it was not possible to investigate the sense of competence of nutrition on the patients' relatives and caregivers. Prospective studies are needed to evaluate nutritional goals in palliative care as well as their impact on patients, healthcare professionals, and caregivers.

Instead of making strict calorie calculations for nutrition in palliative care centers, it may be a more accurate target to provide calories that will meet the optimal tolerance of patients.

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