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ORIGINAL ARTICLE

The Effect of Palliative Care Training on Symptom Management, Rehospitalization and Quality of Life in Chronic Heart Failure: A Randomized Controlled Trial

Kronik Kalp Yetersizliğinde Palyatif Bakım Eğitiminin Semptom Yönetimi, Yeniden Yatışlar ve Yaşam Kalitesi Üzerine Etkisi: Randomize Kontrollü Çalışma

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Abstract

Objective: Palliative care is of great importance because of the poor quality of life and high mortality risk in advanced heart failure. This study was planned as a randomized controlled trial to determine the effect of palliative care training on symptom management, rehospitalization, and quality of life among patients with heart failure.

Method: The study included 42 control and 42 intervention groups in patients with class III and IV heart failure according to New York Heart Association classification.

Results: According to the Edmonton symptom assessment scale, tiredness (p=0.044), nausea (p=0.016), depression (p=0.002), anxiety (p=0.004), feeling of well-being (p=0.009), leg edema (p=0.021), and total symptom burden (p=0.027) in the first month after discharge and tiredness (p=0.042), nausea (p=0.014) and leg edema (p=0.042) in the third month after the discharge of intervention group was found to be significantly better than the control group. There was no significant difference between groups in quality of life. The rehospitalization rate at the first (p=0.001), third (p=0.001), and sixth (p=0.001) months in the intervention group was found to be significantly lower than the control group.

Conclusion: The patients who received palliative care had a better symptom burden in the first month and a lower rehospitalization rate in the first, third, and sixth months. Palliative care should be integrated into the health care system to improve symptom management, increase the quality of life, and reduce rehospitalization among patients with heart failure. Trial Registration: clinicaltrials.gov Identifier: NCT05285163.

Keywords: Heart failure, palliative care, rehospitalization, symptom burden, quality of life

Öz

Amaç: İleri kalp yetersizliğinde kötü yaşam kalitesi ve mortalite riskinin yüksek olması nedeniyle palyatif bakım büyük önem taşımaktadır. Bu çalışma, kalp yetersizliği hastalarında palyatif bakım eğitiminin semptom yönetimi, yeniden hastaneye yatış ve yaşam kalitesi üzerine etkisini belirlemek amacıyla randomize kontrollü bir çalışma olarak planlandı.

Yöntem: Çalışmaya New York Kalp Derneği sınıflamasına göre sınıf III ve IV kalp yetersizliği olan 42 kontrol ve 42 deney grubu hastası dahil edildi.

Bulgular: Edmonton semptom tanılama ölçeğine göre, taburculuk sonrası birinci ay deney grubunun yorgunluk (p=0,044), bulantı (p=0,016), depresyon (p=0,002), anksiyete (p=0,004), kendini iyi hissetme (p=0,009), ayak ödemi (p=0,021) ve toplam semptom yükü (p=0,027) ve üçüncü aydaki yorgunluk (p=0,042), bulantı (p=0,014) ve ayaklarda ödem (p=0,042) puanı kontrol grubuna göre anlamlı olarak daha iyi olduğu bulundu. Yaşam kalitesinde gruplar arasında anlamlı fark saptanmadı. Deney grubundaki hastaların birinci (p=0,001), üçüncü (p=0,001) ve altıncı (p=0,001) ay hastaneye yatış oranı kontrol grubundan düşük olduğu bulundu.

Sonuç: Palyatif bakım alan hastaların birinci ay semptom yükü daha iyi ve birinci, üçüncü ve altıncı ay hastaneye yeniden yatışlarının daha az olduğu saptandı. Kalp yetersziliği hastalarında semptom yönetimini iyileştirmek, yaşam kalitesini artırmak ve hastaneye yeniden yatışları azaltmak için palyatif bakım sağlık sistemine entegre edilmelidir. Araştırma Kaydı: Clinicaltrials.gov Tanıtıcı: NCT05285163.

Anahtar Kelimeler: Kalp yetersizliği, palyatif bakım, yeniden hastaneye yatış, semptom yükü, yaşam kalitesi

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Introduction

Chronic heart failure is an essential health problem due to mortality risk and high morbidity, which also, often leads to poor quality of life in individuals (1-3). Heart failure is increasing to ≥10% among people >70 years of age and nearly 1-2% of adult people in developed countries (4). One of six people has undiagnosed heart failure. The risk of having heart failure at 55 years is 33% for males and 28% for females. According to the latest data in Europe, 17% of all deaths in 12 months are caused by heart failure patients in the hospital and 7% are patients with outpatient heart failure (4). According to the study about heart failure prevalence and predictors conducted in Turkey, the absolute prevalence of heart failure was found to be 2.9%. The prevalence of heart failure in the country was found as 6.9% according to the results of prevalence analysis performed without echocardiography (5).

Although heart failure is an important problem and equivalent to malignant disease with regards to symptom burden and mortality risk, patients with heart failure receiving palliative care are very low (2). Also, the symptom burden of advanced heart failure patients is reported to be higher than in advanced cancer patients (6). However, there is little awareness of palliative care for other diseases than cancer (7,8) and therefore the integration of palliative care other than malignant diseases is poor (9). Although palliative care is of cancer origin, it has been extended to the care of individuals with all diseases that limit life today (2). Forty million people need palliative care every year. Of these, 39% are cardiovascular diseases, 34% are cancers and 10% are chronic lung diseases. However, 86% of people who need palliative care don't receive it (10). Since heart failure is a chronic and progressive disease, it is difficult to predict its course (11). While 61.9% of cancer patients receive palliative care, 21.2% of heart failure patients have palliative care (12). Palliative care should be integrated into the health care system to improve symptom management and quality of life and reduce rehospitalization in patients with heart failure (7,9,13).

Material and Methods

Aim of the Research

The study was planned as a randomized controlled trial to determine the effect of palliative care training given to patients with end-stage heart failure on symptom management, rehospitalization, and quality of life.

Main Points

- The study enhances the awareness of palliative care for other diseases than cancer.
- Palliative care can improve symptom management and reduce rehospitalization among patients with end-stage heart failure.
- Palliative care can improve the quality of life among patients with end-stage heart failure.
- Palliative care should be integrated into the health care system to improve symptom management, increase the quality of life and reduce rehospitalization among patients with heart failure.
- Health professionals can become more conscious about giving palliative care to patients with heart failure.

Hypothesis

H1: Palliative care increases the symptom management of patients with heart failure.

H2: Palliative care improves the quality of life of patients with heart failure.

H3: Palliative care reduces heart failure patients' rehospitalization.

Research Place/Time/Design

The research population consisted of patients who were referred to heart failure at a university in Turkey between January and December 2017. The data were collected in the hospital without discharge and in the first, third, and sixth months after discharge. The control group took usual care and the intervention group took both usual care and palliative care.

Description of Sample

The inclusion criteria of the patients of the study are 18-year-old or over, class III and IV heart failure patients according to the New York Heart Association (NYHA) classification, patients without any communication problem to prevent participation in the research (loss of hearing, visual impairment, lack of understanding/speaking in Turkish), can be contacted by telephone, are literate. The patients who were diagnosed with heart failure at least six months ago and accepted to participate voluntarily were also included in the study. Exclusion criteria; patients who wish to quit their study voluntarily during the study period and patients who died or worsened during the study period.

As a result of the Power analysis (G*Power 3.1.9.2) situated on a similar study previously conducted for the experimentally designed study (14); in the evaluation made according to the scale of quality-of-life scores: it was identified power: 0.80, β: 0.05 and α: 0.05 receiving as Δ:0.696, it was found that a total of 68 patients, the minimum number of patients for each group was 34 (Δ: Effect size).

It was aimed to reach a total of 84 patients 42 in the intervention group and 42 in the control group, as it could be the patients with the possibility of leaving. The patients were distributed with the minimization method of covariate-oriented randomization. According to NYHA (class III, IV), sex (male and female), and the number of hospitalizations (≤3 and ≥4) within one year, the patients were randomly appointed to the control and intervention groups. Thus, the patients in the intervention and control groups were distributed as homogeneous. As shown in Figure 1, the sample was distributed according to the consolidated standards trials (CONSORT) guide. The template for intervention description and replication checklist was used in the 5th item of CONSORT.

Data Collection Tools

A patient information form including demographic and disease-related questions was created. The Edmonton symptom assessment scale was used to assess the patient's symptoms, (ESAS), and the left ventricular dysfunction questionnaire (LVD-36) was used to determine the quality of life.

Patient Information Form

The patient information form was created as a questionnaire with 21 questions about the patient's demographics (such as age, height, household, occupation, smoking, and alcohol use status) and medical features (ejection fraction, drugs, creatine, hemoglobin value, ProBNP, etiology of heart failure, number of days in the hospital... etc.).

Edmonton Symptom Assessment Scale

The Edmonton Symptom Assessment System (ESAS) reported by Bruera et al. (15) was developed to evaluate the symptoms of patients receiving palliative care. ESAS consists of 10 symptoms as tiredness, pain, the feeling of well-being, nausea, depression, anxiety, lack of appetite, drowsiness, shortness of breath, and others. Each symptom was scored between 0 and 10. While zero points indicate no symptoms, 10 points are severe symptoms. The validity and reliability of ESAS were made by Yeşilbalkan et al. (16) in Turkey. ESAS was found to be a valid and reliable scale.

LVD-36

LVD-36 was developed by O'Leary and Jones (17). The aim of this questionnaire aims to evaluate the effect of left ventricular dysfunction on the state of well-being and daily life in patients with heart failure, the effect of the disease, and the effectiveness of the treatment. The questionnaire consists of 36 questions and the questions are answered as true or false. The correct answers are collected and indicated as the total percentage. The score is 0-100. High scores indicate poor quality of life (17). Reliability and validity of the questionnaire were performed by Özer and Argon (18) in Turkey.

Data Collection

Data collection in the hospital, training of the intervention group, and telephone follow-up were performed by the cardiology nurse. The cardiology nurse had a doctorate. The nurse has been working with heart failure patients for 10 years. Trained cardiology nurse worked as a case manager, training, and consultant for patients. The initial data from the patients in the intervention and control groups were collected from the hospital before discharge with patient data form, Edmonton symptom assessment scale, and LVD-36. The control group received the usual care. The intervention group, which was planned to be discharged, was given palliative care training and a booklet besides the usual care. During the first, third, and sixth-month

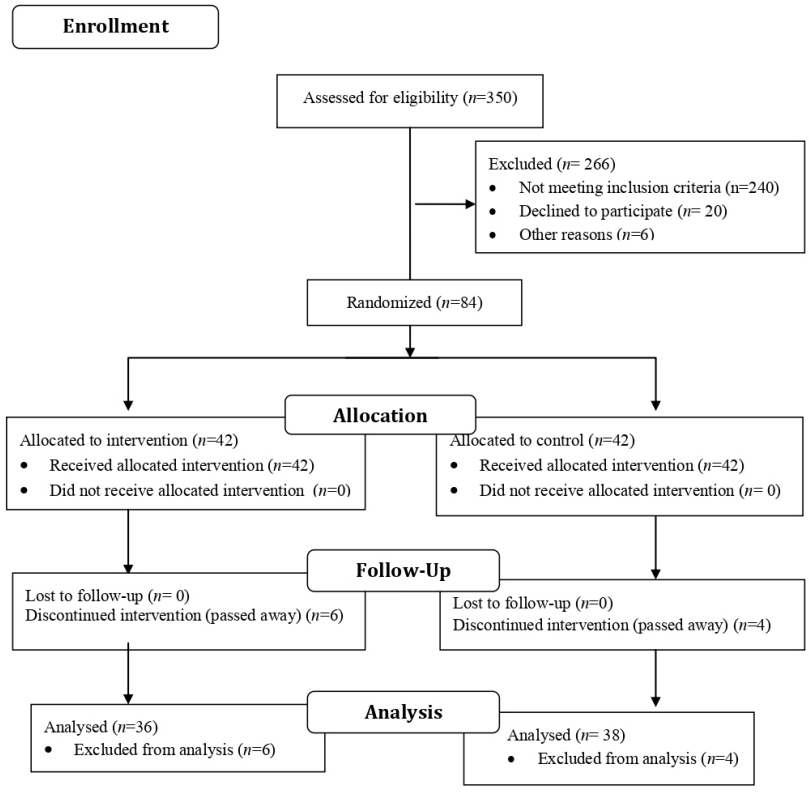

Figure 1.
CONSORT flow diagram
CONSORT=consolidated standards trials

follow-up visits, the patients were contacted by telephone, and the Edmonton symptom diagnostic scale, LVD-36, and rehospitalization were evaluated.

Usual Care

Firstly, the usual care provided to patients was described. It was determined that patients were not given regular and comprehensive training on heart failure, and no training was given on palliative care. Written educational material was not given to the patients. Patients were not followed up after discharge. Palliative care was not discussed with patients and their relatives. Also, they were not asked about their preferences. In usual care, heart failure patients received medical treatment for their symptoms during hospitalization.

Palliative care

The patients in the intervention group were presented with palliative care training in addition to their usual care. The training period lasted at least 45 minutes. After the training, the patients were given the booklet "palliative care in heart failure". In this training, patients were informed about heart failure and pharmacological and non-pharmacological methods for symptoms such as dyspnea, pain, constipation, depression, edema, tiredness, and nausea. The patients were followed up by telephone during the first, third, and sixth months after discharge. The patient's symptoms and quality of life were reevaluated in a telephone follow-up. During the follow-up period, the patient's training related to symptoms was repeated. The patients were referred to the physician for the symptoms and problems they experienced in the house.

Training booklet: "Palliative care in heart failure" training booklet was created for the intervention group. The palliative care in the heart failure training booklet consisted of what is heart failure, causes of heart failure, symptoms, treatment, changes in life behaviors in heart failure (diet, physical activity/exercise, alcohol, smoking, weight tracking, stress, drug use), symptom management (shortness of breath, pain, nausea-vomiting, constipation, mouth sores, tiredness, sleep problems, anxiety, edema, loss of appetite/nourishment) and warning signs in heart failure. It is a 32-page color booklet formatted as A4.

Data Collection Process

After the control group patients have finished, the intervention group was passed. Thus, the control group was prevented from the training given to the intervention group. Patients were informed about the research and written informed consent was obtained. Data were collected by face-to-face interviews within two days before discharge. Patient information forms and scales were applied to patients in the intervention and control groups. Patients in the intervention group received education after filling out the forms. The training was given one by one at the hospital. One or two relatives of patients were included in the training. The patient was comfortably seated, the room door was closed, and face-to-face interaction was conducted. The patient and his/her relatives were allowed to ask questions during the training. The patient in the intervention group received at least 45 minutes of data collection from a case because of detailed training. It took about 15 minutes to collect data from a patient in the control group. In some patients, the training program was divided to be clearer. The patients were traced by telephone during the first, third, and sixth months after discharge. The investigator's phone number was presented to the patients and they were told that they could call at any time. Continuous communication was ensured by giving the educator's phone number to the patients. The planned training was repeated by contacting the phone. However, more attention was paid to the severe symptom experienced by some patients, especially. More detailed training was given on this symptom. Phone calls lasted about 30 minutes. The intervention group was retrained the symptoms they experienced during their telephone interview. The training was given to the experimental group as planned. No modifications/changes were made to the intervention during the study. Special notes were taken for each patient. The effect of the education given on the quality of life and symptom management was evaluated with questionnaires. The intervention was adhered to as planned.

Statistical Analysis

A statistical program was used to evaluate the findings of the study. Shapiro-Wilks test was used to determine the normal distribution of variables. In the evaluation of the study data, descriptive statistical methods were used to mean, frequency, standard deviation, and percentage. Student's t-test was used in the inter-group evaluations for quantitative data showing normal distribution. The Mann-Whitney U test was utilized for the intergroup evaluation of quantitative data that did not show normal distribution. The chi-square test, Continuity (Yates) correction, and Fisher's Exact test were utilized for the evaluation of qualitative data. Significance was measured at $p<0.05$ level.

Ethical Aspect of Research

Verbal and written informed consent from the participants were obtained. Ethical approval was obtained from the Kocaeli University where the study was conducted (research project number: KU GOKAEK 2016/295). Since individual rights are to be protected, this study has thoroughly abided by the human rights Helsinki Declaration.

Results

The CONSORT diagram shows the flow of the study in Figure 1. Three hundred and fifty patients with heart failure were evaluated for the study. Two hundred and sixty six patients were excluded because they did not meet the study criteria. A total of 84 patients (42 intervention and 42 control) were included in the study. Six patients from the intervention group and four from the control group were excluded from the study due to passed away. An analysis of the study was performed on survivors (Figure 1).

Socio-demographic Characteristics of Patients

The study was performed on all 74 patients with 47 (63.5%) males and 27 (36.5%) females. The patients were 38 (51.35%) control and 36 (48.65%) intervention group. The age of the patients ranged from 43 to 86 years, the mean was 67.50±11.01 years, 59.5% of the patients were over 65 years old, 70.3% were married, 60.8% of them were primary or secondary school graduates, 64.9% were retired, economic status of 95.9% was just enough, 86.5% of patients lived with their families and average body mass index was 30.47±5.51 kg/m^2, it was determined that 63.5% of the patients were active/left smokers, and 71.6% no drink any alcohol. There was no significant difference between the groups in terms of the general characteristics of the patients. Both groups were similar in terms of their socio-demographic characteristics (Table 1).

Symptom Management of Patients

According to the Edmonton symptom assessment scale; the tiredness score of the control group was found to be higher than the intervention group in the first (p=0.044) and the third month (p=0.042) after the discharge. The nausea score of the control group was found to be higher than that of the intervention group in the first (p=0.016) and third month (p=0.014) after the first discharge. Lack of appetite (p=0.030), depression (p=0.002), anxiety (p=0.004), and feeling of well-being (p=0.009) scores of the control group were found higher than those of the intervention group in the first month after discharge. The leg edema score of the control group was found higher than that of the study group in the first (p=0.021) and third month (p=0.042) after discharge. The total ESAS score in the first month after the discharge of the control group was found higher (p=0.027) than that of the intervention group. Conclusively, tiredness, nausea, loss of appetite, depression, anxiety, feeling of well-being, leg edema, and total symptom burden of the intervention group was better than those of the control group in the first month after discharge and tiredness, nausea, and leg edema of the intervention group in the third month after discharge were better than those of control group (Table 2).

Table 1.
Comparison of the Socio-demographic Characteristics of the Patients

Variable		Intervention (n=36)	Control (n=38)	Total (n=74)	Test value	p
		n (%)	n (%)	n (%)		
Gender	Female	13 (36.1)	14 (36.8)	27 (36.5)	[2]0.004	0.948
	Male	23 (63.9)	24 (63.2)	47 (63.5)		
Age (year)	Min-max	47-83	43-86	43-86	[1]0.210	0.834
	Mean ± SD (median)	67.77±10.08 (68.5)	67.23±11.95 (68)	67.50±11.01 (68)		
Age group	65 years and under	13 (36.1)	17 (44.7)	30 (40.5)	[2]0.571	0.450
	Over 65 years	23 (63.9)	21 (55.3)	44 (59.5)		
Marital status	Married	27 (75)	25 (65.8)	52 (70.3)	[2]0.751	0.386
	Single	9 (25)	13 (34.2)	22 (29.7)		
Education	Literate	9 (25.0)	5 (13.1)	14 (18.9)	[2]1.890	0.389
	Primary/secondary	21 (58.3)	24 (63.2)	45 (60.8)		
	High school/university	6 (16.7)	9 (23.7)	15 (20.3)		
Employment	Housewife	12 (33.3)	14 (36.8)	26 (35.1)	[2]0.100	0.752
	Retired	24 (66.7)	24 (63.2)	48 (64.9)		
Economic status	Just enough	34 (94.4)	37 (97.4)	71 (95.9)	[2]0.406	0.610
	Not enough	2 (5.6)	1 (2.6)	3 (4.1)		
Household	Alone	4 (11.1)	6 (15.8)	10 (13.5)	[2]0.346	0.737
	With family	32 (88.9)	32 (84.2)	64 (86.5)		
BMI (kg/m^3)	Min-max	21.88-45.71	22.86-47.75	21.88-47.75	[1]0.831	0.408
	Mean ± SD (median)	31.04±5.92 (28.80)	29.94±5.51 (28.74)	30.47±5.51 (28.76)		
Smoking	Never used	15 (41.7)	12 (31.6)	27 (36.5)	[2]0.812	0.368
	Active/left	21 (58.3)	26 (68.4)	47 (63.5)		
Alcohol	Never used	27 (75)	26 (68.4)	53 (71.6)	[2]0.394	0.530
	Active/left	9 (25)	12 (31.6)	21 (28.4)		

[1]Student t-test, [2]chi-square test, continuity (Yates) correction, and Fisher's Exact test, BMI=body mass index, SD=standard deviation

Table 2.
Comparison of the Edmonton Symptom Assessment Scale of the Patients

Edmonton symptom assesment scale		Intervention (n=36)	Control (n=38)	Z	p
		Mean ± SD (median)	Mean ± SD (median)		
Pain	T0	3.05±2.65 (4)	2.02±2.83 (0)	-1.801	0.172
	T1	1.69±2.21 (0)	1.60±2.19 (0)	-0.272	0.786
	T2	1.63±2.17 (0)	1.60±2.56 (0)	-0.509	0.610
	T3	2.17±2.17 (2.5)	1.92±2.73 (0)	-0.703	0.482
Tiredness	T0	7.72±2.1 (8)	8.42±1.78 (9)	-1.716	0.086
	T1	4.88±2.88 (4.5)	6.28±2.78 (6.5)	**-2.011**	**0.044***
	T2	5.22±2.93 (5.5)	6.63±2.59 (7)	**-2.038**	**0.042***
	T3	6.19±2.32 (6.5)	7.16±1.50 (7)	-1.702	0.089
Drowsiness	T0	5.94±3.60 (7)	6.07±3.32 (6.5)	-0.174	0.862
	T1	3.91±3.14 (4)	4.02±3.46 (3)	-0.022	0.983
	T2	3.11±3.03 (3)	3.97±3.26 (3.5)	-1.152	0.250
	T3	3.14±3.10 (3)	3.68±3.27 (3.5)	-0.720	0.471
Nausea	T0	0.63±1.58 (0)	1.15±2.17 (0)	-1.240	0.215
	T1	0.55±0.33 (0)	0.76±1.90 (0)	**-2.410**	**0.016***
	T2	0.05±0.32 (0)	0.63±1.56 (0)	**-2.469**	**0.014***
	T3	0.11±0.67 (0)	0.24±0.85 (0)	-0.938	0.348
Lack of appetite	T0	2.08±2.94 (0)	1.55±2.43 (0)	-0.534	0.593
	T1	0.27±1.25 (0)	1.18±2.45 (0)	**-2.167**	**0.030***
	T2	0.36±1.01 (0)	1.05±1.88 (0)	-1.525	0.127
	T3	0.89±2.16 (0)	0.63±1.38 (0)	-0.135	0.893
Shortness of breath	T0	9.02±1.25 (10)	8.78±2.01 (10)	-0.124	0.901
	T1	3.88±2.51 (4)	5.15±2.99 (4)	-1.651	0.099
	T2	4.50±2.68 (4)	5.73±2.84 (6)	-1.903	0.057
	T3	5.22±2.19 (5)	6.29±2.37 (6)	-1.818	0.069
Depression	T0	6.22±3.30 (6.5)	8.28±2.31 (9)	-3.022	0.051
	T1	4.30±2.94 (4)	6.50±2.72 (6.5)	**-3.042**	**0.002****
	T2	5.66±3.11 (5)	6.60±2.82 (7)	-1.243	0.214
	T3	5.86±2.62 (6)	6.21±2.60 (6)	-0.419	0.675
Anxiety	T0	6.30±3.37 (7.5)	8.05±2.67 (9)	-2.555	0.052
	T1	4.50±2.90 (4.5)	6.60±2.63 (7)	**-2.917**	**0.004****
	T2	5.80±3.00 (5)	6.65±2.65 (7)	-1.112	0.266
	T3	6.06±2.55 (6)	6.24±2.50 (6)	-0.223	0.823
Feeling of well-being	T0	7.47±2.40 (8)	8.34±2.30 (9)	-2.113	0.055
	T1	4.72±2.58 (4.5)	6.42±2.75 (6)	**-2.594**	**0.009***
	T2	5.63±2.76 (5)	6.84±2.597 (7)	-1.830	0.067
	T3	6.36±2.36 (6)	6.50±2.32 (6)	-0.158	0.874
Leg edema	T0	7.08±3.36 (8)	8.34±2.20 (9)	-1.497	0.134
	T1	2.36±3.13 (0)	3.94±3.43 (3)	**-2.308**	**0.021***
	T2	2.66±3.25 (0.5)	4.13±3.33 (4)	**-2.032**	**0.042***
	T3	3.22±3.43 (3)	3.76±3.23 (3)	-0.787	0.431
	T0	5.02±1.45 (4.82)	5.19±1.19 (5.25)	-0.806	0.420
	T1	2.64±1.51 (2.39)	3.59±1.89 (3.03)	**-2.207**	**0.027***
Total	T2	2.61±2.54 (1.75)	3.69±2.87 (3.50)	-1.582	0.114
	T3	3.24±1.50 (3.03)	3.56±1.61 (3.10)	-0.795	0.426

*Z: Mann-Whitney U test, *p<0.05; **p<0.01, T0=before discharge, T1=first month after discharge, T2=third month after discharge, T3=sixth month after discharge, SD=standard deviation*

Quality of Life of Patients

There was no significant difference between groups in quality of life according to the LVD-36 questionnaire before discharge (p=0.054) and first (p=0.484), third (p=0.750), and six months (p=0.201) after discharge (Table 3).

Rehospitalization of Patients

Readmission to the hospital of the intervention group was found to be lower than the control group in the first (p=0.001), third (p=0.001), and sixth (p=0.001) months. There was no difference between the groups in terms of patients' visits to the emergency department (p>0.05) (Table 4).

Discussion

In the study, according to the Edmonton Symptom Assessment Scale, tiredness, nausea, loss of appetite, depression, anxiety, the feeling of well-being, leg edema and total symptom burden in the first month after discharge and tiredness, nausea, and leg edema in the third month after the discharge of the intervention group were found to be better than those of the control group. In a randomized controlled study by Evangelista et al. (19), symptom burden and depression of patients with heart failure who received palliative care were found lower than those of the control group. It was determined that the healing of symptoms such as fatigue, pain, bad feeling, depression, dyspnea, and nausea were better than those of the control group. In a randomized controlled trial of Brännström and Boman (20), total symptom burden, self-efficacy, and quality of life of patients receiving palliative care were found an improvement by 18%, 17%, and 24%, respectively. Eight of the nine symptoms in the experimental group revealed a numerical improvement in four of the control group (20). Depression scores of the patients receiving palliative care were found significantly low in the meta-analysis of seven randomized controlled studies by Zhou and Mao (21). The quality of life, anxiety, depression, and mental well-being of the patients with heart failure who received palliative care was found significantly better in a randomized controlled study by Rogers et al. (22). Fourty-three experimental group and 41 control group patients with heart failure have included in a randomized controlled study conducted by Wong et al. (14), depression, dyspnea, and total ESAS scores were found low in patients receiving palliative care. In other randomized

Table 3.
Comparison of LVD-36 Questionnaire Scores of the Groups Before and After Discharge

LVD-36		Intervention (n=36)	Control (n=38)	Z	p
		Mean ± SD (Median)	Mean ± SD (Median)		
Average of accuracy percentages	T0	84.79±15.40 (88.88)	89.54±11.91 (97.22)	-1.924	0.054
	T1	60.10±28.60 (70.83)	64.83±26.73 (68.05)	-0.699	0.484
	T2	53.31±32.04 (62.50)	55.55±28.32 (52.77)	-0.319	0.750
	T3	49.00±28.91 (45.83)	56.65±28.12 (56.94)	-1.278	0.201

T0=before discharge, T1=first month after discharge, T2=third month after discharge, T3=sixth month after discharge, Z=Mann-Whitney U test, SD=standard deviation, LVD-36=left ventricular dysfunction questionnaire

Table 4.
Comparison of the Patients' Readmission to the Hospital and Applications to Emergency After the Discharge

Variables		Intervention (n=36)		Control (n=38)		*χ^2	p
		n	%	n	%		
Readmission in the first month	Yes	2	5.6	14	36.8	10.678	0.001**
	No	34	94.4	24	63.2		
Readmission in the third month	Yes	10	27.8	25	65.8	10.716	0.001**
	No	26	72.2	13	34.2		
Readmission in the sixth month	Yes	13	36.1	28	73.7	10.563	0.001**
	No	23	63.9	10	26.3		
Application for emergency in the first month	Yes	1	2.8	5	13.2	2.673	0.200
	No	35	97.2	33	86.8		
Application for emergency in the third month	Yes	8	22.2	8	21.1	0.015	0.903
	No	28	77.8	30	78.9		
Application for emergency in the sixth month	Yes	8	22.2	11	28.9	0.438	0.599
	No	28	77.8	27	71.1		

**chi-square test and Fisher's Exact test, **p<0.01*

controlled trials, it was found that symptom management of patients with heart failure receiving palliative care was better (23-26). In the above studies, it was determined that patients with heart failure who received palliative care had better depression, nausea, tiredness, and total symptom burden than the control group. It was similar to this study. In addition, although there was no significant difference between the two groups, the experimental group had better scores. As a result, palliative care can be improved symptom management in patients with heart failure.

In the study, no important difference was found between the groups in the first, third, and sixth months according to the LVD-36 quality of life questionnaire. In the randomized controlled trials of Brännström and Boman (20) and Yu et al. (27), there was no important difference in the quality of life between heart failure patients receiving palliative care and the control group. In a randomized controlled study by Wong et al. (28), an important difference wasn't observed between the quality of life of the patients with end-stage heart failure who received palliative care at home. In the meta-analysis of five randomized controlled trials by Xu et al. (29), there wasn't a difference between the control group and the palliative care group from the point of quality of life and mortality. The study was found to be similar to the above study results. Palliative care given to patients with heart failure may be helpful in terms of controlling some symptoms but the quality of life of the patients was poor due to recurrent symptoms.

In the study, the hospitalization rate of the patients in the intervention group was lower than the control group. There was no difference between the groups in terms of patients' visits to the emergency department. Approximately 25% of patients with heart failure go back to the hospital within 30 days after discharge (30) and % ≥50 are re-hospitalized every six months (31). In many studies, it was found that patients with heart failure who received palliative care had fewer hospitalizations and emergency admissions (27,32-35). However, in some randomized controlled trials, it was determined that there was no difference in the re-hospitalization of patients with heart failure who received palliative care (21,22,25), but this study was found to be similar to the above study results. It is thought that if patients' symptom management and quality of life are supported, their re-hospitalization rate will decrease in heart failure patients receiving palliative care.

Study Limitations

The study was conducted only in an institution.

Conclusion

Palliative care was found to increase symptom management and reduce re-hospitalization in patients with heart failure. There was no difference in the quality of life between the groups. It is recommended that patients with heart failure should be directed to palliative care and awareness of health professionals for palliative care should be increased in patients with heart failure.

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Informed Consent: Verbal and written informed consent from the participants were obtained.

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