



The Effect of Discharge Information Calendar on Healthy Lifestyle Behaviors of Patients After Coronary Artery Bypass Graft Surgery

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ABSTRACT

Introduction: To evaluate the effect of discharge information calendar on healthy lifestyle behaviors (HLB) of patients who underwent coronary artery bypass graft (CABG) surgery.

Patients and Methods: This randomized controlled study was carried out on 68 patients (experimental group= 33; control group= 35) who underwent CABG surgery between November 10, 2017 and October 10, 2018. Data were collected from the patient information form and HLB Scale-II. The patients were visited by the researcher one day before their discharge and verbal information was given about the HLB. Discharge information calendar that is designed as a desktop calendar and includes 14 main headings on HLB was used to inform the patients in the experimental group. HLB of the patients were evaluated at the day before discharge, 2nd and 6th weeks following discharge.

Results: The mean scale scores obtained from the 2nd and 6th weeks of the experimental group were significantly higher compared with the control group ($p < 0.001$).

Conclusion: The information provided using discharge information calendar to the patients after CABG surgery are effective in gaining HLB for the patients. It is recommended to use visual and written materials (such as the discharging information calendar) to inform patients and help patients to remember the information during the post-discharge period.

Key Words: Coronary artery bypass surgery; discharge information; patient discharge; patient education; surgical nursing.

Koroner Arter Baypas Grefti Ameliyatı Sonrası Taburculuk Bilgilendirme Takvimi Kullanımının Hastaların Sağlıklı Yaşam Biçimi Davranışlarına Etkisi

ÖZ

Giriş: Bu çalışmanın amacı, koroner arter baypas grefti (KABG) ameliyatı geçiren hastaların taburculuk bilgilendirme takviminin sağlıklı yaşam biçimi davranışlarına etkisini değerlendirmektir.

Hastalar ve Yöntem: Bu randomize kontrollü çalışma, 10 Kasım 2017-10 Ekim 2018 tarihleri arasında KABG ameliyatı geçiren 68 hasta (çalışma grubu= 33 hasta; kontrol grubu= 35 hasta) üzerinde gerçekleştirildi. Veriler hasta bilgi formu ve sağlıklı yaşam biçimi davranışları Ölçeği-II'den toplandı. Hastalar taburcu edilmeden bir gün önce araştırmacı tarafından ziyaret edilerek sağlıklı yaşam biçimi davranışları hakkında sözlü bilgi verildi. Çalışma grubundaki hastaları bilgilendirmek için masa üstü takvimi olarak tasarlanan ve sağlıklı yaşam biçimi davranışlarıyla ilgili 14 ana başlığı içeren taburculuk bilgilendirme takvimi kullanılmıştır. Hastaların sağlıklı yaşam biçimi davranışları taburculuktan önceki gün, taburculuk sonrası ikinci ve altıncı haftalarda değerlendirildi.

Bulgular: Çalışma grubunun ikinci ve altıncı haftalarından elde edilen ortalama ölçek puanları kontrol grubuna göre anlamlı olarak daha yüksek bulunmuştur ($p < 0.001$).

Sonuç: KABG ameliyatı sonrası hastalara taburculuk bilgilendirme takvimi kullanılarak sağlanan bilgiler, hastalara sağlıklı yaşam biçimi davranışları kazandırmada etkilidir. Hastaları bilgilendirmek ve taburculuk sonrası dönemde hastaların bilgileri hatırlamalarına yardımcı olmak için görsel ve yazılı materyallerin (taburculuk bilgilendirme takvimi gibi) kullanılması önerilir.

Anahtar Kelimeler: Cerrahi hemşirelik; hasta eğitimi; koroner arter baypas cerrahisi; sağlıklı yaşam biçimi davranışları; taburculuk bilgisi.

INTRODUCTION

Coronary artery diseases (CAD), one of the most common heart and vascular diseases, occurs due to narrowing and blockage in the coronary vessels that supply the heart and adversely affect the lifestyle and quality of individuals^(1,2). It is among the leading causes

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of morbidity and mortality worldwide, especially in developed and developing countries^(3,4). According to a report published by the World Health Organization (WHO) in 2018, 17.5 million (31%) of the deaths are caused by cardiovascular diseases and this number will reach 22.2 million by 2030 worldwide⁽⁵⁾. Turkey Statistics Institute (TUIK) data regarding causes of death in 2018 indicates that cardiovascular disease was in first place with a ratio of 38.4%⁽⁶⁾.

Today, in addition to medical treatment, surgical methods are preferred in the treatment of CAD and coronary artery bypass graft (CABG) surgery is frequently performed⁽⁶⁻⁸⁾. Patients who have undergone CABG surgery are discharged within an average of one week in the absence of any complications and may return to their daily activities within approximately 2 months after discharge from the hospital⁽⁹⁾. After CABG surgery, it is reported that home care following discharge is as effective as the surgical process in improving the quality of life of patients⁽¹⁰⁾.

Patients who are discharged after CABG surgery encounter changes in their daily activities at home and should acquire healthy lifestyle behaviors (HLB) that should continue throughout their lives^(11,12). Healthy lifestyle is defined as the behaviors that individuals perform in order to control their behaviors that affect their health status, to determine actions aimed at protecting their health while performing daily activities, and to protect their health by changing their lifestyles after illness⁽¹³⁾. Studies have experienced in patients with CABG, experienced problems related to sleep (86.0%), pain (75.5%), respiratory system (64.5%), gastrointestinal system (63.6%), physical activity (49.5%) and wound healing (15.9%). In another study, the problems related to sleep (74%), chest pain (74%), fatigue (68%), loss of appetite (54%), respiratory distress (46%) and constipation (32%) after CABG surgery were reported in patients who had CABG surgery^(10,14).

It is crucial that patients are informed in the pre-discharge period in order to cope with these HLB that they need to gain throughout their lives⁽¹⁵⁾. Improving the health status of individuals and fulfilling their responsibilities during home care depends on their preparation for this process and receiving adequate information about this issue^(1,7,12,16). The most important independent role of the nurse in this stage is to determine the information needs of the patient for the post-discharge period and to inform them⁽⁷⁾. When providing information to the patient, the nurse should aim to develop HLB in the patients regarding the complications that the individual may encounter at home and the symptoms, signs and risk factors of these complications⁽¹⁷⁾.

Today, it is reported that the use of written or verbal narration as well as information booklets, brochures or audio-visual information materials are more effective in patient

information^(18,19). Studies conducted on the patients after CABG reported that the individual characteristics of the patients affected the effectiveness and usability of discharge training and therefore the information process should be supported with written, auditory or visual materials⁽¹⁸⁻²⁰⁾. Similarly, it has been reported in the literature that the written information booklets given to patients and their families eliminate the uncertainties of home care after heart surgery, support their care and reduce the problems they experience at home⁽²¹⁾. Unlike the information materials used in the literature, in this study, an information calendar was designed by the researchers to be used in informing the patients as they are discharged from the hospital after CABG surgery. This calendar included information topics that patients with CABG surgery most needed to gain HLB after their discharge.

The aim of this study was to evaluate the effect of discharge information calendar on HLB of patients who underwent CABG surgery.

Research Question

Does the use of discharge information calendar improve HLB of patients who underwent CABG surgery?

PATIENTS and METHODS

Study Design and Sampling

This randomized controlled study consisted of 70 patients (experimental group= 35 patients; control group= 35 patients) who underwent elective CABG surgery between November 10, 2017 and October 10, 2018 in the cardiovascular surgery clinic of a state hospital in Turkey. A power analysis was used to calculate the sample size and yielding the results of Healthy Lifestyle Behaviors Scale-II (HLBS-II) in a study performed authors⁽²⁴⁾. The calculation was based on the standard deviation value (SD= 16.4) with 95% confidence interval and desired effect size of 2. The resulting sample size was calculated to be 35 patients in each group, totaling 70 patients.

The study included patients who (a) were aged 18 and over, (b) volunteered to participate in the study, (c) had CABG surgery for the first time, (d) received saphenous vein for bypass graft surgery, (e) were literate and understand what is read.

The study was completed with 68 patients (experimental group= 33 patients; control group= 35 patients) because two patients in the experimental group did not come to the outpatient control at the 6th week after discharge. The steps of the study were given in the randomization flow chart (Figure 1).

Data Collecting Tools

Data were collected by using the patient information form, HLBS-II and Discharge Information Calendar.

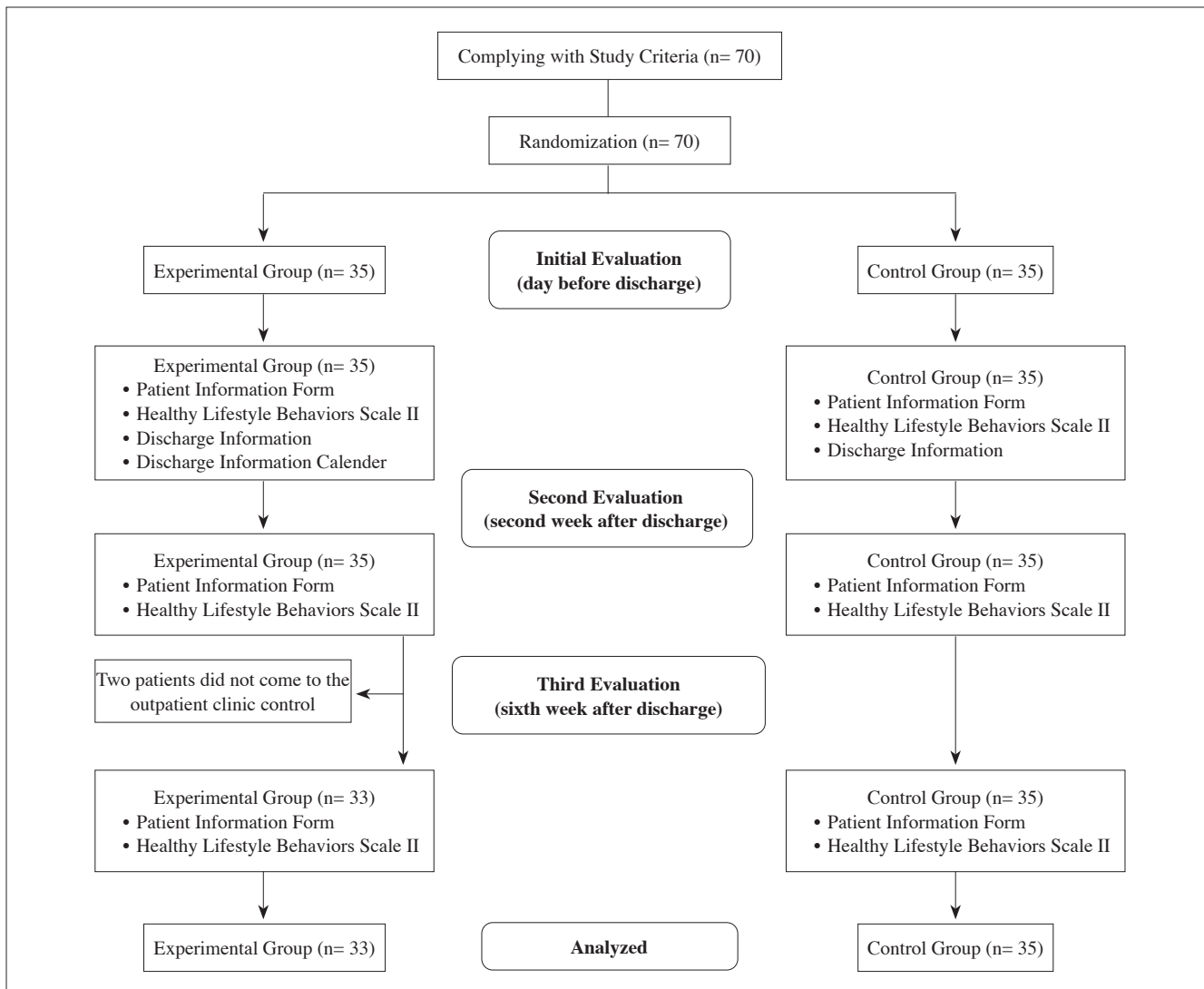


Figure 1. Randomization Flow Chart.

The patient information form was prepared by the researchers in order to determine the socio-demographic characteristics of the patients such as age, gender, height, marital status, presence of accompanying having chronic disease and discharge status in accordance with the literature and contained 20 questions^(25,26).

HLBS was developed by Walker, Sechrist and Pender to evaluate the health-promoting behaviors of individuals with regard to healthy lifestyle. The scale was revised by Bahar, Beşer, Gördes, Ersin & Kışsal and referred as “HLBS-II”. The Turkish validity and reliability of the scale were performed by authors and it has been reported in the literature that it can be used to assess the health promoting behaviors of patients with CABG surgery^(11,12,25,27). The scale consists of 52 items and six sub-dimensions including health responsibility, physical activity, nutrition, mental development, interpersonal relationships and stress management. Since all the items in the scale are presented positively, there are no items to be reversed. According to the

four-point Likert scale (1= never, 2= sometimes, 3= often, 4= regularly), the lowest score that can be obtained is 52 and the highest score is 208. The high scores obtained from the scale indicate that individuals’ level of HLB is high.

In the study in which the original scale was developed, the Cronbach α reliability coefficient was 0.94 in the whole scale and 0.79-0.87 in the sub-dimensions, whereas in the study authors, it was found that it ranged between 0.92 and 0.64-0.80 in the sub-dimensions^(13,28). In this study, the Cronbach α coefficient of the scale was 0.89 for the whole scale and ranged between 0.64-0.83.

The discharge information calendar was used by the researchers based on the literature information and the opinions of 5 different experts (3 physicians, 2 nurse supervisors) were taken into consideration. Designed by researchers for desktop use the calendar was 21 cm wide, 18 cm long, weighted 200 g, formed with spiral skin, consisting of duplexed 15 pages in total, with pages printed as colored sheets for visualization and



Figure 2. Discharge Information Calendar.

bound with a plastic spiral so that the pages could be turned like calendar sheets^(22,23,29,30). In the calendar, discharging information topics on HLB were collected under 14 main headings. These headings were as follows; postoperative medication, coping with pain, care of surgical wounds, prevention of swelling (edema), healthy nutrition, prevention of constipation, physical activity and exercise, smoking and alcohol use, hygienic care, sexual activity, mood change, sleep and rest, starting work, housework and travel, social activity, emergencies, and attending follow-ups (Figure 2).

Study Protocol and Data Collection

The distribution of the patients into groups was achieved using random assignment according to the protocol numbers of the patients. The protocol numbers of the patients were written in the list in the order of their arrival to the clinic and the patients with odd protocol numbers were included in the control group and those with even protocol numbers were included in the experimental group. In order to prevent the patients in the experimental and control groups to be affected from each other, the patients were placed in separate rooms according to the protocol numbers.

Patients in both groups who underwent CABG surgery and planned to be discharged from the hospital were visited by the researcher in their room one day before the discharge (pre-intervention). After explaining the purpose of the study, verbal and written permission was obtained from the patients who agreed to participate in the study. Then, data collection forms were filled in approximately 20-30 minutes by using the patient identification form to collect data about the individual characteristics of the patients and the HLBS-II to evaluate the health promoting behaviors of the patients.

After completing the forms, the patients in the control group were informed about discharge by the researcher through verbal narration in approximately 20-30 minutes. During the information, individual differences were also taken into consideration and necessary repetitions were done. The patients who were included in the experimental group were informed about the discharge by the researcher through verbal expression and by turning the pages of the discharge information calendar one by one. After the information, the calendar was given to the patients as a guide. It was explained to the patients that the calendar was a guide to improve the HLB during the post-discharge period. Patients in both groups were informed about their 2nd and 3rd appointments (date, time, and place) to the cardiovascular surgery outpatient clinic for follow-up. Appointment information was given to the patients by writing on a paper in the control group and by writing on the discharge information calendar in the experimental group.

Patients in both groups were seen at the outpatient clinic by the researcher on the appointment day at the 2nd and 6th weeks after the discharge. The patients who came for follow-up were taken to the outpatient clinic room before the physical examination and their health promoting behaviors were evaluated using HLBS-II within approximately 10-15 minutes.

Ethical Principles

In order to conduct the study, ethical permission was obtained from the Ethics Committee (2017/212) and required permission from the Provincial Health Directorate for the state hospital where the study was conducted. For the use of the scale, permission through e-mail was received from the authors who performed validity and reliability study. The purpose, content and application steps of the study were explained to the patients who met the inclusion criteria. The patients were informed that the information obtained from them would be kept confidential, that these data would be used only for research purposes, that they could leave the research at any time and an informed consent was taken verbally and in writing from those who agreed to participate in the study.

Data Analysis

All data were analyzed by using SPSS 22.0 package program (Statistical Package for Social Sciences for Windows). The mean and standard deviations, the lowest, highest and frequency values were used in descriptive statistics of the data. The distribution of variables was measured by Kolmogorov Smirnov test. Independent sample t test and Mann-Whitney U tests were used for the analysis of the independent data. A p value < 0.05 was considered as statistically significant.

Table 1. The differences between the two groups based on demographic characteristics

Characteristics	Experimental group (n= 33)		Control group (n= 35)		Total (n= 68)		p
	n	%	n	%	n	%	
Age (mean ± SD)	58.2	8.6	60.5	7.6	59.4	8.1	U= 488.500 p= 0.273
Gender							
Female	12	36.4	11	31.4	23	33.8	X ² = 0.185 p= 0.667
Male	21	63.6	24	68.6	45	66.2	
Educational status							
Primary-secondary school	24	72.7	26	74.3	50	73.6	X ² = 2.023 p= 0.364
High school	6	18.2	3	8.6	9	13.2	
University	3	9.1	6	17.1	9	13.2	
Having chronic disease							
Yes	26	78.8	27	77.1	53	77.9	X ² = 0.027 p= 0.870
No	7	21.2	8	22.9	15	22.1	

X²= Chi-squared test; U= Mann-Whitney U test.

RESULTS

The mean age of the participants was 59.4 ± 8.1 years. Sixty-six-point two percent of the patients were male, 73.6% had primary-secondary education, and 77.9% had an accompanying having chronic disease. The individual and disease characteristics of the patients in both groups were similar and there was no statistically significant difference between the groups (p> 0.05) (Table 1).

Total scale score averages obtained from the 2nd and 6th weeks evaluations of the HLB of the patients in the experimental group were significantly higher when compared with the control group (U= 133.000, p= 0.000; U= 59.500, p= 0.000, respectively) (Table 2).

The comparison of all sub-dimension mean scores changes at the 2nd and 6th weeks after discharge revealed that the increase in the mean scores changes of the whole scale sub-dimension of the

Table 2. Comparison of mean scores of HLBS-II between groups

	Experimental group (n= 33)	Control group (n= 35)	Statistics
Total	Mean ± SD	Mean ± SD	
Pre-intervention	129 ± 13	130.6 ± 15.0	p= 0.971 U= 574.500
2 nd week	152.4 ± 9.3	126.7 ± 15.1	p= 0.000 U= 133.000
6 th week	156.4 ± 8.9	125.7 ± 13.5	p= 0.000 U= 59.500

U= Mann-Whitney U test.

experimental group was statistically higher than the mean scores changes obtained from the control group (p= 0.000) (Table 3).

Table 3. Comparison of all sub-dimension mean scores changes between the groups

Scale sub-dimension	Pre-intervention-2 nd week		Pre-intervention-6 th week	
	Mean score changes	Statistics	Mean score changes	Statistics
1. Health responsibility				
Experimental group	3.5 ± 3.6	p= 0.000	3.8 ± 4.0	p= 0.000
Control group	0.1 ± 3.3	U= -3.981	-0.3 ± 3.8	U= -3.999
2. Physical activity				
Experimental group	5.6 ± 3.8	p= 0.000	6.7 ± 3.8	p= 0.000
Control group	-1.5 ± 4.1	U= -5.712	-1 ± 3.8	U= -5.972
3. Nutrition				
Experimental group	7.1 ± 4.1	p= 0.000	8.4 ± 4.5	p= 0.000
Control group	-0.5 ± 4.4	U= -5.658	-0.4 ± 4.7	U= -5.951
4. Spiritual development				
Experimental group	1.5 ± 2.5	p= 0.000	1.6 ± 2.7	p= 0.000
Control group	-0.7 ± 2.6	U= -3.903	-1.3 ± 2.5	U= -4.554
5. Social relationships				
Experimental group	1.5 ± 1.8	p= 0.000	1.9 ± 2.6	p= 0.000
Control group	-0.3 ± 2.0	U= -3.666	-0.6 ± 2.5	U= -4.301
6. Stress management				
Experimental group	4.1 ± 2.9	p= 0.000	4.9 ± 3.8	p= 0.000
Control group	-1 ± 2.7	U= -5.845	-1.3 ± 3.1	U= -5.613

U= Mann-Whitney U test.

DISCUSSION

In this study, it was found that the level of HLB of the patients in the experimental group increased at the 2nd and 6th weeks following discharge and decreased in the control group. Accordingly, it was seen that the discharge information calendar given in addition to the discharge information contributed positively to the increase in the HLBS-II level of the patients in the experimental group. It is reported in the literature that verbal information can be forgotten and persistence is low and verbal information given to patients should be supported with visual materials^(18,19). In their study, Fagermoen and Hamilton, stated that the information booklet given to patients who underwent surgery was useful in improving the care of patients at home and their knowledge levels increased because they could read this booklet again⁽³¹⁾. Similarly, written information leaflets given to patients after heart surgery have been reported to eliminate the uncertainties of home care, support their care and reduce the problems they encounter at home⁽²¹⁾. In the study Yaman and Bulut, in patients with valve surgery, it was reported that the experimental group patients who were informed about discharge and who were given booklets had higher levels of knowledge compared to the control group patients⁽²⁶⁾. In similar studies conducted in patients with heart disease, it was reported that training booklets and telephone-aided training helped to improve the health-related quality of life in these patients^(32,33). These results show that, in addition to verbal information given to patients who are planned to be discharged, providing informational materials (such as calendars, booklets) is effective in gaining HLB in the post-discharge period.

In this study, it was concluded that the mean score changes of the sub-dimension of the “health responsibility” scale of the experimental group was significantly higher in the 2nd and 6th week follow-ups compared with the control group. Similarly, in the literature a study conducted on patients with heart disease reported that patients who received training support via booklet and telephone increased their compliance to treatment⁽³³⁾. In their study on patients with CABG surgery, Alkan et al., reported that the group who received adequate information when discharged came to the outpatient follow-ups more regularly and the average health responsibility sub-dimension score was higher than the non-informed group⁽¹²⁾. Alcan et al., in their study on patients undergoing CABG surgery, stated that the average score of sub-dimensions of health responsibility at the end of 6 weeks was reduced in patients who were not informed⁽¹¹⁾. In another study, it was reported that the problems encountered by patients in the experimental group receiving discharge training and counseling after CABG surgery were less compared with the control group⁽¹⁴⁾. These results showed that verbal information using the discharge information calendar

improved the patients’ health responsibilities and self-care in the post-CABG surgery period.

In this study, the mean scores changes of the “physical activity” scale sub-dimension of the experimental group increased significantly after the discharge compared with the control group at the 2nd and 6th week follow-ups compared with the control group. Several studies reported that patients limit their physical activities especially in the first 6 weeks after CABG surgery due to the pain they experience in the sternum region, for prevention of damage to the sternum region and the because of the assumption that the activities will harm themselves^(25,34). In the study conducted by Kurçer and Özbay the ability of CAD patients to participate in physical and social activities increased when the necessary health counseling and training were provided⁽³⁵⁾. Yan et al., in their study on heart patients, stated that the discharge training given to the patients when they were discharged and the follow-up phone calls afterwards resulted in a significant contribution to the improvement of their physical activities at the 12th week after discharge⁽³⁶⁾. These results show that, the visual materials given along with the information to the patients at the time of discharge, allowed the patients to read the information about the activities they need to do at home and help them to perform regular physical activity.

In this study, it was found that the mean scores changes of the “nutrition” sub-dimension in the experimental group increased significantly at the 2nd and 6th week follow-ups compared with the control group. In their study conducted on patients with heart failure, Wang et al., reported that the training patients by supplying a booklet about daily weight monitoring and what to do in case of sudden weight gain was effective in weight control⁽³⁷⁾. In another study, it was reported that the discharge training given to the patients at discharge and the telephone follow-up contributed significantly to the improvement of their nutritional status at the 12th week after discharge⁽³⁶⁾. Similarly, in a study examining the effect of web-based training on post-discharge period in prevention of primary and secondary heart diseases, it was reported that training enabled the patients gain nutritional habits and control weight⁽³⁸⁾. According to these results, it can be stated that the information given to the patients about nutrition and weight control contributed to the positive change in the nutritional behaviors.

In the study, it was found that the mean score changes of the “spiritual development”, “interpersonal relations” and “stress management” sub-dimensions were significantly higher at the 2nd and 6th week follow-ups compared with the control group. In the literature, it is reported that negative psychosocial responses developed in patients due to lack of information are eliminated by informing patients and their support for interpersonal

relations increases in the postoperative period^(11,39). In a study examining the effect of voice recording on the anxiety and depression levels of the patients after CABG, it was reported that the anxiety and depression levels of the group informed by voice recording were reduced after six weeks⁽⁴⁰⁾. These results show that informing the patients and information materials provided to the patients support the spiritual development of the patients in the post-discharge period, increase the interpersonal relations and support the stress management.

LIMITATIONS

There are some limitations in this study. The first limitation of the study is that there was no blinding. The second limitation is the inclusion of patients who received saphenous vein as graft in CABG surgery. The third limitation of the study is that the research results are limited to the sample in this study.

CONCLUSION

The results obtained from the study show that the information provided using discharge information calendar to the patients after CABG surgery are effective in gaining HLB for the patients.

Implications for Practice

Discharge information material used in the study is a reminder for 6 weeks after discharge, which includes the HLB that the patients should acquire after CABG surgery, and allows them to use at home. In addition, it can be concluded that the use of this visual material is beneficial in increasing the HLB of the patients because of the low cost and ease of use by the nurses in the discharge planning. In line with these results, we recommend that patients who are planned to be discharged after CABG surgery be given verbal discharge information in order to gain health improving behaviors in the post-discharge period and that these information is supported with visual material (discharge information calendar) to be used as a reminder. In addition, it will be useful to conduct further studies in different sample groups in order to investigate the long-term effects of the discharge information calendar.

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Informed Consent: Informed consent was obtained.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept/Design - MA, SÜ; Analysis/Interpretation - MA, SÜ; Data Collection - MA; Writing - MA; Critical Revision - MA, SÜ; Statistical Analysis - MA, SÜ; Overall Responsibility - MA, SÜ; Final Approval - All of Authors.

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