Effects of discharge teaching and counselling on anxiety and depression level of CABG patients

Taburculuk eğitimi ve danışmanlık hizmetinin KABG hastalarının anksiyete ve depresyon düzeylerine etkisi

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Background: In this study we evaluate the effect of discharge teaching and counselling on anxiety and depression levels of patients undergoing coronary artery bypass graft surgery.

Methods: Hundred and nine patients were included in this quasi-experimental survey study and divided into two groups as; the intervention group (n=57) and the control group (n=52). Patients in the intervention group were given planned discharge teaching and counselling by the research nurse beginning from hospitalization while the patients in the control group did not receive planned discharge teaching and counselling other than the routine clinical procedures. The patient data were collected using the "Personal Information Form" and the Hospital Anxiety and Depression Scale. The anxiety and depression levels of the patients in the control and intervention groups were measured on the day of their admission to the hospital, on the day of discharge and one week and one month after discharge using the Hospital Anxiety and Depression Scale.

Results: It was found that the mean anxiety and depression scores of the patients in the intervention group were lower than in the control group at the time of discharge and one week and one month after discharge.

Conclusion: Discharge training and counselling service given to patients in the intervention group had a positive impact on alleviating the anxiety and depression they had. Therefore, the institutions may be recommended to support multidisciplinary patient training and counselling activities using the methods decribed in this study.

Key words: Anxiety; coronary artery bypass; counselling; depression; discharge teaching.

Amaç: Bu çalışmada taburculuk eğitimi ve danışmanlık hizmetinin koroner arter bypass greftleme ameliyatı geçiren hastaların anksiyete ve depresyon düzeylerine olan etkileri değerlendirildi.

Çalışma planı: Bu yarı deneysel anket çalışmasına toplam 109 hasta dahil edildi ve hastalar müdahale (n=57) ve kontrol (n=52) olmak üzere iki gruba ayrıldı. Müdahale grubundaki hastalara hastaneye yattıkları günden itibaren araştırma hemşiresi tarafından taburculuk eğitimi ve danışmanlık hizmeti verildi. Kontrol grubundaki hastalar ise rutin klinik uygulamalar dışında planlı bir eğitim ve danışmanlık almadı. Hasta verileri, "Kişisel Bilgi Formu" ile Hastane Anksiyete ve Depresyon Ölçeği kullanılarak toplandı. Müdahale ve kontrol grubundaki hastaların anksiyete ve depresyon seviyeleri hastaneye yattıkları gün, taburcu oldukları gün ve taburcu olmalarından bir hafta ve bir ay sonra Hastane Anksiyete ve Depresyon Ölçeği kullanılarak ölçüldü.

Bulgular: Müdahale grubundaki hastaların ortalama anksiyete ve depresyon skorlarının taburcu oldukları sırada ve taburcu olmalarından bir hafta ve bir ay sonra kontrol grubundakinden düşük olduğu bulundu.

Sonuç: Müdahale grubundaki hastalara verilen taburculuk eğitimi ve danışmanlık hizmeti, hastaların anksiyete ve depresyonunun hafifletilmesi açısından pozitif bir etki göstermiştir. Bu nedenle, kurumların araştırmadaki yöntemler kullanılarak multidisipliner hasta eğitim ve danışmanlık faaliyetlerini desteklemeleri önerilebilir.

Anahtar sözcükler: Anksiyete; koroner arter bypass; danışmanlık; depresyon; taburculuk eğitimi.

Coronary artery disease (CAD) is an important health problem that can cause sudden death and loss of the workforce and economy.[1,2] In Turkey, the incidence of atherosclerotic diseases has been increasing. It is estimated that 10.000 coronary artery bypass graft (CABG) procedures are performed annually, but this number constitutes only one-third of CABG procedures that need to be undertaken in Turkey.[1]

Although recent developments have increased the success rate of CABG surgeries, this is not enough to eliminate all physical, psychological, and social problems that the patients face after discharge.[3-5] Anxiety and depression are common among CABG surgery patients.[6-13] Anxiety and depression before and after CABG surgery negatively affect the individual's physical, social, family, work life and medical outcomes. They have a negative impact on patients' attempts to reduce risk factors, quality-of-life issues, patients' adaptation to treatment and exercise programs, patients' satisfaction, and increased length of hospitalization, readmission causing infection, respiratory complications and pleuritic chest pain.[9,14,15] As a result they experience further anxiety and depression.

Coronary artery bypass graft surgery imposes a significant burden on patients and their families. Therefore patients and their relatives need help and support from professionals. After a short hospital stay following CABG surgery, patients spend most of their recovery time at home, and they or their family members provide necessary care.[15-17] To adapt to the new life situation, CABG surgery patients have to make considerable adjustments. These should be based on knowledge, thus allowing for competent and confident informed choices.[3,5,18] Besides increasing their knowledge and skills, Discharge teaching and counselling can provided to patients who have undergone CABG surgery to help ensure optimal recovery, to take responsibility for their own health, to decrease or eliminate problems faced by patients, to cope better with the problems and to reduce anxiety and depression.[8,15,16,18-20]

Although routine nursing care includes planned discharge teaching and counselling, nurses in our country generally don't give enough importance to these services. Besides, very little research has been conducted to measure the effects of teaching and counselling on anxiety or/and depression levels of patients having CABG surgery. Therefore, one of the main reasons for carrying out this study was to close this knowledge gap.

PATIENTS AND METHODS

The objective of this study was to investigate the effect of planned discharge teaching and counselling on anxiety and depression levels of patients undergoing CABG surgery. A prospective and quasi-experimental study was carried out to compare two groups: intervention and control. The intervention group (n=57) consisted of those patients who received planned discharge teaching and counselling services both during the time of their hospitalization and after discharge via telephone while the control group (n=52) had routine nursing care that included applying medicines and measuring vital signs with no planned teaching services. Discharge teaching and counselling services were administered according to patients' individual needs and a training booklet which was developed for this purpose. Inclusion criteria for the study population were those who had undergone their first and elective CABG surgery and had experienced no other surgical intervention during CABG surgery, had no prior psychiatric diagnosis or treatment in the last six months; had a cardiopulmonary bypass (CPB), were literate and had no hearing, comprehension or speech problems.

Instrument and analysis

Data collection tools

Two data collection tools were used in the study: The "Personal Information Form" (PIF) aimed at collecting patient characteristics, and the "Hospital Anxiety and Depression Scale (HADS)" to measure patients' anxiety and depression levels. The HADS is well documented in international research on heart patients (Hermann, 1997). The self-rating instrument HADS consists of 14 items in two subscales: seven for anxiety (HADS-A) and seven for depression (HADS-D).[21,22] The validity and reliability of the Turkish version of HADS was tested by Aydemir[22] and the Cronbach alpha for the HADS-A was found to be 0.85 and for HADS-D was found to be 0.77.

Development of the teaching booklet

The researchers developed a teaching booklet by using a wide variety of resources and by consulting expert opinion. The booklet entitled "Care Guidelines for Patients Who Have Undergone Coronary Artery Bypass Graft Surgery and Their Relatives" included such aspects as promotion of control, self-care and social support. The researcher delivered copies of the booklet to the patients in the intervention group on the day of their hospitalization, explained that reading the information provided inside the booklet would help them, and encouraged them to ask questions when they did not understand a topic and to express their problems clearly to explore possible solutions during teaching.

Data collection processes

The control group patients were interviewed a total of four times. During the first interview on the day of

hospitalization a part of the PIF and HADS were completed. The HADS was also administered on the day of discharge and at the first (one week following discharge) and second (one month following discharge) follow-up visits. The rest of the PIF was also completed on the day of their discharge.

After the researcher (FC) completed the interviews with the control group, the researcher gave a part of the PIF and the HADS to the patients on the day of their hospitalization, answered their questions, and provided the teaching booklet to each patient in the intervention group. The researcher determined the teaching time that was most appropriate for the patients and the hospital ward procedures for the interviews with the patients and developed a teaching schedule.

Following the prepared teaching schedule, the researcher provided teaching and counselling on the hospital ward between 08:30-20:30 for 8-12 times with the intervention group patients. Counselling sessions aimed at answering the questions of patients and relatives and correcting inappropriate practices which had not been covered in the teaching sessions.

In group teaching sessions provided to 2-6 patients, the main goal was to bring patients together who shared common problems. Individual teaching was also provided to all patients who received group teaching. Preoperative group teaching planned according to needs lasted 40-90 minutes, but individual teaching sessions lasted between 20-60 minutes. The mean education time per patient was 133.33 minutes (preoperative and postoperative). The teaching and counselling process was continued by telephone after the patients returned home as they called in for assistance.

The rest of the PIF was completed and the HADS was re-administered to the patients in the intervention group on the day of their discharge from the hospital. The HADS was repeated during the patients' first (one week following discharge) and second (one month following discharge) follow-up visits.

Ethical considerations

Ethical approval was obtained prior to the study. The researcher also obtained informed consent and permission from the patients.

Data analysis

Data were assessed with frequency and percent distributions. It was important to have similar patients in intervention and control groups to discuss whether discharge and counselling services had positive effects in decreasing anxiety and depression regardless of other demographic and clinical characteristics which might be important for anxiety and depression. Since it was

almost impossible to have patients in both groups who had same demographic and clinical characteristics, a special attempt was paid to close the patients in intervention and control groups in terms of demographic and clinical characteristics. Student's t-test, chi-square test of significance and general linear multivariate model (GLM) were used to determine whether social, demographic and clinical characteristics of the patients in both intervention and control groups had a significant effect on anxiety and depression scores of the patients. Beside these, t-test for independent samples was used to compare the anxiety and depression scores of the intervention and control groups while paired samples t-test was used to compare anxiety and depression score between the time of admission and discharge for the first and second follow-up visits.

RESULTS

Statistical analyses showed that the control and intervention groups did not differ significantly in terms of social, demographic and some clinical characteristics (Table 1). However they did differ significantly in terms of the total pump time, cross-clamping time and length of stay in the intensive care unit (on form B). The effects of these clinical variables on anxiety and depression scores was examined by the general linear multivariate model (GLM), and the results showed that these factors had no effect on the anxiety and depression scores of patients ($p>0.05$).

The mean HADS anxiety and depression scores of the control and intervention group patients are compared in tables 2 and 3. Patients in the intervention group had lower mean anxiety and depression scores (at admission to the hospital), respectively of 7.6 and 6.6 compared to the control group patients with 8.1 and 8.3 respectively. The difference between the anxiety scores of two groups at the time of admission to the hospital was not statistically significant ($p>0.05$).

Both the mean anxiety and depression scores (at the time of discharge, one week and one month after discharge) of the patients in the intervention group were lower than those of the patients in the control group, and the differences were found to be statistically significant ($p<0.05$).

The results in table 3 suggest that the control group patients had a small decrease from their mean depression level for their mean depression scores (0.61 point difference between the level measured at admission and the second follow-up visit). But the decreasing trend (2.9 point difference between the level measured at admission and the second follow-up visit) in the mean depression scores of the patients in the intervention group was much higher than that of control group patients.

Table 1. Descriptive characteristics and group equivalence

Variables	Control (n=52)				Intervention (n=57)				Statistical evaluation	
	n	%	Mean±SD	Range	n	%	Mean±SD	Range	t, χ^2	p
Social- demographic characteristics										
Age (years)			58±9.2	39-76			58±8.6	43-77	t=-0.079	>0.05
Male	42	80.8			46	80.7			χ^2=0.000	>0.05
Primary school graduates	31	59.6			31	54.4			χ^2=1.471	>0.05
Married	48	92.3			51	89.5			χ^2=0.262	>0.05
Unemployed	33	63.5			35	61.4			χ^2=0.825	>0.05
Resident in an urban area	28	46.2			24	57.9			χ^2=2.032	>0.05
Health insurance (government employees)	30	57.7			35	61.4			χ^2=0.156	>0.05
Middle-class economic status	35	67.3			32	56.2			χ^2=2.473	>0.05
Not living alone	51	98.1			54	94.7			χ^2=0.858	>0.05
Received good social support	28	53.8			34	59.6			χ^2=0.544	>0.05
Clinical characteristics										
Current smoker	40	76.9			40	70.2			χ^2=0.634	>0.05
History of hypertension (yes)	28	53.8			22	38.6			χ^2=2.547	>0.05
History of diabetes mellitus (yes)	13	25.0			15	26.3			χ^2=0.281	>0.05
History of hyperlipidemia (yes)	15	28.8			11	19.3			χ^2=1.365	>0.05
Family history of CAD** (yes)	24	46.2			32	56.1			χ^2=0.058	>0.05
Had two or more chronic diseases	28	53.8			22	38.6			χ^2=3.253	>0.05
Family history of CABG* (yes)	41	78.8			45	78.9			χ^2=0.000	>0.05
NYHA*** Class II	40	76.9			28	49.1			χ^2=1.270	>0.05
Vessels grafted 3+			2.7±0.7	1-4			2.6±0.6	1-4	t =-1.006	>0.05
Cross-Clamp time (minute)			61.4±13.8	25´-90´			55.4±9.8	30´-70´	t= -2.656	<0.05
Total pump time (minute)			120.9±31.0	60´-225´			103.4±20.2	60´-155´	t= -3.539	<0.05
Intensive Care Unit stay (hour)			82.6±34.1	36-168			66.6±29.6	14-162	t= 2.614	<0.05
Hospital stay (day)			15.4±4.8	7-30			15.2±3.8	7-25	t= -0.321	>0.05
Body surface area (m²)			1.7±0.6				1.7±0.6		t=-0.220	>0.05

Significance level p<0.05; *: Coronary artery bypass graft; **: Coronary artery disease; ***: New York Heart Association; SD: Standard deviation; ´: Minute.

The mean anxiety and depression scores of intervention and control group patients were also tested using paired samples t-test to see how significant was the decrease that occurred in the anxiety and depression levels of the individual patients (Table 4). In these comparisons, the levels of anxiety and depression measured at the time of admission to the hospital were accepted as their baseline, and this score was compared with the second, third and fourth measurement of anxiety and depression. The difference between the mean anxiety and depression scores measured at the time of admission and the other three measurements of the patients in the control group were not statistically significant (p>0.05). However in the intervention group there were statisti-

cally significant differences (p<0.05) for mean anxiety and depression scores at the other three measurements, compared to that at the time of admission.

DISCUSSION

Depression and anxiety following CABG surgery cause myocardial ischemia and infarction, chest pain, and dyspnea, leading to revisits to hospital, and even re-hospitalization associated with cardiovascular problems.[7,10,13,23] The results of this study showed that patients in both the control and intervention groups had higher anxiety and depression levels at the time of admission to hospital than those levels at the time of discharge and one week and one month after discharge. The high

Table 2. The mean HADS*-anxiety scores of patients in the study groups

	HADS-anxiety		Statistical evaluation	
	Control (n=52)	Intervention (n=57)		
	Mean±SD	Mean±SD	t**	p
At the time of admission	8.1±3.1	7.6±4.1	t=-.67	>0.05
At the time of discharge	8.2±4.1	4.0±3.5	t=-5.68	<0.05
1 week after discharge	8.4±4.6	3.9±3.4	t=-5.75	<0.05
1 month after discharge	7.3±4.7	4.0±4.3	t=-3.79	<0.05

Significance level p<0.05; *: HADS: Hospital anxiety and depression scale; **: t: Test for independent samples; SD: Standard deviation.

Table 3. The mean HADS*-depression scores of patients in the study groups

	HADS-depression		Statistical evaluation	
	Control (n=52)	Intervention (n=57)		
	Mean±SD	Mean±SD	t**	p
At the time of admission	8.3±3.6	6.6±3.8	t=-.67	<0.05
At the time of discharge	7.9±4.2	4.0±3.6	t= -5.68	<0.05
1 week after discharge	8.2±4.5	4.2±4.0	t=-5.75	<0.05
1 month after discharge	7.7±4.3	3.7±3.8	t=-3.79	<0.05

Significance level p<0.05; *: HADS: Hospital anxiety and depression scale; **: t: Test for independent samples; SD: Standard deviation.

levels of anxiety and depression can be explained by the fact that the patients were having difficulties with hospitalization, were in an unfamiliar environment, were separated from loved ones, were dependent on others, and had lack of information about CABG surgery.[5,14] However the high levels of anxiety and depression decreased as the recovery time progressed (Table 2, 3). In spite of decreasing, one of the clearest findings of this study was the fact that the patients in the control group had higher anxiety and depression scores at the time of discharge, and one week and one month after discharge compared to the patients in the intervention group

(Table 4). Based on the results, the research hypothesis was accepted. The lower level of anxiety and depression of intervention group patients in this study can be attributed to the planned teaching and counselling given. It can be concluded that discharge and counselling may have a positive effect on decreasing anxiety and depression scores by building patients' self-confidence in continuing their care at home. The existing literature indicates a high incidence of depression or depressive symptoms in patients who have undergone CABG surgery and the results of the control group patients in our study are similar to literature findings.[8,10,12,14] Another

Table 4. The results of paired samples t-test by study groups

	HADS*-depression		HADS*-anxiety	
	Control (52)	Intervention (n=57)	Control (52)	Intervention (n=57)
	Mean±SD	Mean±SD	Mean±SD	Mean±SD
At the time of admission (A)	8.3±3.6	6.6±3.8	8.1±3.1	7.6±4.1
At the time of discharge (B)	7.9±4.2	4.1±3.6	8.2±4.1	4.0±3.5
A*B	t=.744	t=4.16	t=-.186	t=6.763
	p>0.05	p<0.05	p>0.05	p<0.05
1 week after discharge (C)	8.2±4.5	4.2±4.0	8.4±4.6	3.9±3.4
A*C	t=.130	t=3.74	t=-.418	t=7.011
	p>0.05	p<0.05	p>0.05	p<0.05
1 month after discharge (D)	7.7±4.3	3.7±3.8	7.3±4.7	4.0±4.3
A*D	t=1.00	t=4.62	t=1.394	t=5.886
	p>0.05	p<0.05	p>0.05	p<0.05

A*B: The comparison of depression and anxiety scores on control and intervention groups at the time of admission and discharge; A*C: The comparison of depression and anxiety scores on control and intervention groups at the time of admission and one week after discharge; A*D: The comparison of depression and anxiety scores on control and intervention groups at the time of admission and one month after discharge; Significance level p<0.05; *: HADS: Hospital anxiety and depression scale.

possible reason for the lower level of anxiety and depression scores in the intervention group is the successful completion of surgery since the related literature concludes the anxiety and depression level is likely to be lower if the patients feel that they were cured, prepared for discharge and care, and ready to return to their own environment and families.[14,18] Higher patient anxiety and depression scores in the control group at the time of discharge, and one week and one month after discharge could be related to concerns about the future and lack of knowledge of appropriate practices at home and how to manage potential problems since they did not receive planned discharge and counselling.

Discharge teaching and counselling are one of the important nursing roles. McHugh et al.[20] noted that a program including health teaching and counselling provided by a nurse based on individual requirements reduces the anxiety and depression levels of patients who are awaiting CABG surgery. During the study, it was observed that intervention group patients were very willing to ask questions and learn about the CABG surgery and its intended results. All of the patients in the intervention group had wanted to receive information and counselling about their surgery and care. The questions were about what they should do, which medications they should take and which diet they should follow. Another important observation in this study was the fact that the majority of the patients (55.8%) had preferred to ask their physicians about these questions. If a patient requires any kind of teaching or counselling service about his/her surgery, care, disease or condition, nurses usually direct patients to their physicians. This finding suggests that physicians also need to be part of teaching and counselling programs in order to ensure good quality health outcomes. Patients cannot be expected to retain all of the information they receive during their hospital stay. Therefore, it is important to continue the evaluation, teaching and counselling initiated during hospitalization after discharge.[17,19] The educational intervention should be individualized, addressing the patients' learning needs. Nurses may consider incorporating individualized patient education into their plan of care.[18] Krannich et al.[24] countered a study related to patients' needs during hospitalization in a cardiac surgery unit before and after CABG surgery. According to results of this study, it was found that before CABG, patients rated the need for "preparation for surgery", and after CABG the need for "information about the correct handling of drugs", as most important. Contrary to this result, psychological support was not rated as very helpful.

Limitations

This study has several limitations. First, the interval time for one-month follow-up is relatively short. Second, findings of this study cannot be generalized because of the small sample size and the single research site. Third, the intervention and control groups were studied at different points in time to avoid contamination. Fourth, 74 patients in both intervention and control groups had to be excluded from the study because of incomplete data.

In conclusions, hospital and nurse administrators should set clear policies and procedures about discharge teaching and counselling services. Hospital administrators should support patient teaching activities by providing sufficient time and personnel and developing teaching skills among health professionals. Further researches are needed to generate methods related to planned discharge teaching and counselling services for patients undergoing CABG surgery. This study guides future research related to testing the effects of discharge teaching and counselling in CABG patients with a high level of presurgical anxiety and depression. In addition, the replication of the study should be carried out with a larger sample, longer period, and multiple locations.

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