

Discharge training and counseling: Functional autonomy and post-discharge problems of elderly patients undergoing coronary artery bypass graft surgery

Taburculuk eğitimi ve danışmanlık: Koroner arter baypas greft ameliyatı geçiren yaşlı hastaların fonksiyonel otonomileri ve taburculuk sonrası sorunları

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Background: This study aims to investigate the possible effect of discharge training and counseling on functional autonomy and post-discharge problems of the elderly patients undergoing coronary artery bypass graft (CABG) surgery.

Methods: This randomized-controlled study was conducted in 36 patients (18 patients in the control group and 18 patients in the study group) aged 65 years and above who underwent elective CABG at a university hospital in Turkey. Data were collected by using three questionnaires and Functional Autonomy Measurement System. The control group receiving routine nursing care was assessed preoperatively and at the end of ninth week after surgery. The study group receiving discharge training and counseling by the investigator was assessed preoperatively and in the second and 10th post-discharge days and at the end of ninth week after surgery.

Results: The postoperative functional autonomy levels of the study group and control group were -8.8 ± 4.5 and -13.5 ± 8.5 , respectively. The control group experienced seven of a total of 11 problems compared to the study group after discharge. There was a statistically significant difference in shoulder, up and low back or neck pain between the groups ($p < 0.05$).

Conclusion: Our study results showed that discharge training and counseling given to the elderly patients undergoing CABG surgery had a positive impact on increasing their functional autonomy and decreasing post-discharge problems. Therefore, the institutions are recommended to set up homecare department and to offer discharge training and counseling service taking the functional autonomy levels of elderly patients into consideration.

Keywords: Coronary artery bypass graft; counseling; discharge training; elderly; functional autonomy.

Amaç: Bu çalışmada taburculuk eğitiminin ve danışmanlığın koroner arter baypas greft (KABG) ameliyatı geçiren yaşlı hastaların fonksiyonel otonomilerine ve taburculuk sonrası yaşanan sorunlarına olan muhtemel etkisi değerlendirildi.

Çalışma planı: Bu randomize kontrollü çalışma, elektif KABG ameliyatı geçiren 65 yaş ve üzeri 36 hasta (kontrol grubunda 18 hasta ve çalışma grubunda 18 hasta) ile Türkiye’de bir üniversite hastanesinde yürütüldü. Veriler üç anket ve Otonomi Değerlendirme Ölçeği kullanılarak toplandı. Rutin hemşirelik bakımı verilen kontrol grubu ameliyat öncesi ve ameliyat sonrası dokuzuncu haftanın sonunda değerlendirildi. Araştırmacı tarafından taburculuk eğitimi ve danışmanlık verilen çalışma grubu ise, ameliyat öncesi ve ev izlemleri boyunca taburculuk sonrası ikinci ve 10. günlerde ve ameliyat sonrası dokuzuncu haftanın sonunda değerlendirildi.

Bulgular: Çalışma grubu ve kontrol grubunun ameliyat sonrası fonksiyonel otonomi düzeyleri sırasıyla -8.8 ± 4.5 ve -13.5 ± 8.5 olarak bulundu. Çalışma grubuna kıyasla, kontrol grubunda taburculuk sonrasında toplam 11 sorundan yedisi deneyimlendi. Omuz, boyun, sırt veya bel ağrısı açısından gruplar arasında istatistiksel olarak anlamlı fark bulundu ($p < 0.05$).

Sonuç: Çalışma sonuçlarımız KABG ameliyatı geçiren yaşlı hastalara verilen taburculuk eğitimi ve danışmanlık hizmetinin, hastaların fonksiyonel otonomilerini artırması ve taburculuk sonrası yaşanan sorunları azaltması açısından olumlu bir etkisi olduğunu gösterdi. Bu nedenle, hastanelerde evde bakım birimlerinin kurulması ve yaşlı hastaların fonksiyonel otonomi düzeyleri göz önünde bulundurularak taburculuk eğitimi ve danışmanlık hizmetinin verilmesi önerilmektedir.

Anahtar sözcükler: Koroner arter baypas greft; danışmanlık; taburculuk eğitimi; yaşlı; fonksiyonel otonomi.



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Coronary artery disease (CAD) is one of the most prevalent chronic health problems that older adults face, and the most common treatment for this disease is coronary artery bypass graft (CABG) surgery.^[1-5] This procedure was performed on approximately 232,000 people in the United States in 2007,^[6] and according to Cebeci and Çelik,^[7] it is estimated that 10,000 patients undergo CABG annually in Turkey.

Although recent developments have increased the success rate of CABG surgery, not all physical, psychological, and social problems that the patients face after discharge have been eliminated. Various studies have found that chest and leg pain, edema in the leg incision, numbness in the arms, dyspnea, arrhythmia, constipation, nausea, vomiting, loss of appetite, weight loss, sleep disorders, fatigue, weakness, dizziness, anxiety, and depression are common complications that occur after CABG surgery, and these cause difficulty in activities of daily living (ADLs) in older adults by restricting their functional independence.^[1,2,7-12]

Comprehensive nursing care, discharge training, and counseling after discharge are crucial components which can decrease the postoperative problems of older adults and increase their functional independence. Discharge training and counseling can also decrease the length of hospital stays, reduce the number of postoperative complications, lower healthcare expenses, limit the chances for rehospitalization/admission after discharge, and increase functional independence levels and the patients' quality of life (QoL).^[4,10,11,13-15] In the studies carried out by Cebeci and Çelik,^[2,7] they determined that discharge training and counseling have positive effects on self-care abilities and that they decrease the postoperative problems of patients who undergo CABG surgery. In addition, Altay^[16] concluded that home nursing care for the elderly had a positive effect on ADLs by resolving health issues and providing self-care interventions.

Our observations as well as other reports in the literature^[13,16-18] demonstrate that healthcare services are provided to elderly patients in the same manner as patients in other age groups; however, these services are not comprehensive and are generally only related to physical care. In addition, nursing care is not organized according to the characteristics of older adults, and the discharge training and counseling are not given in an effective way.^[13-18] The aim of this study was to provide direction regarding the discharge training content for older adults, decrease the problems faced by these patients and their families, and increase the functional autonomy of the patients.

PATIENTS AND METHODS

This randomized controlled study was conducted on elderly patients who underwent CABG surgery in order to investigate the effects of discharge training and counseling on their functional autonomy and assess their impact on postoperative complications.

The study sample was comprised of 36 patients (18 in the study group and 18 in control group) out of a total of 65 elderly patients (over 65 years old) who were admitted to the cardiovascular surgery (CVS) clinic of a university hospital between December 2010 and March 2012. Twenty-nine patients were excluded for the following reasons: death, prolonged intensive care unit (ICU) stays, delirium, and intracoronary stent implantation. Furthermore, some refused to participate in the study, and those who did not undergo surgery were also not included. Hence, the study was made up of patients for whom this was their first, elective open CABG surgery as well as those who experienced no other surgical intervention during CABG surgery and those with no psychological and mental disorders. Furthermore, the participants had to live in the city where the surgery took place and enroll voluntarily.

We determined that the pre- and postoperative care given to the elderly patients was similar to that received by the patients in other age groups at the clinic. The nurses provided no planned discharge training or home visits, and no consultancy service was offered. However, on an as-needed basis, a few patients called the clinic to arrange a consultation with either a doctor or nurse prior to their follow-up visits.

Data was obtained from the personal information form, surgical process information form, post-discharge home follow-up form, and Functional Autonomy Measurement System (SMAF), and these were completed by the patients via a face-to-face interview with the researcher.

The personal information form included questions about the sociodemographic characteristics of the patients along with their health status and daily habits. The surgical process information form consisted of three parts (A, B, and C). Part A contained information about the CABG surgery, part B focused on the ICU period, and part C was composed of questions regarding the postoperative patient care process. In addition, the post-discharge home follow-up form contained questions related to post-discharge care and the patients' postoperative complications.

The SMAF was developed by Hebert et al.^[19] in 1984 to determine the level of functional independence of patients aged 65 or older. Researchers conducted

a validity and reliability study of this scale for Turkey, and the adapted scale consists of items related to various subscales such as ADLs (19 functions), communication (three functions), and mental functions (three functions). The researchers also determined that Cronbach's alpha coefficient value was 0.95 for the disability part of the adapted Turkish scale. Each item can receive a score of between 0 and -3, and the total dependency score of the adapted scale was -75 points.^[20]

After the development of the data collection tools, the discharge training booklet was prepared by the researchers who took into consideration the characteristics of older adults by using large-print text, non-glossy paper, and black color over a white background, which was in line with other literature.^[1,2,8-10,12,21] The discharge training booklet, "Your Heart, Your Home and You", was organized to cover pre- and postoperative care associated with CABG surgery in accordance with the topics of the SMAF. The booklet included the following headings:

- Coronary artery disease and CABG
- Preparation for surgery.
- Life after surgery (ADLs, transportation, medications, surgical wounds, pain, elastic support stockings, weight monitoring, mobility, return to normal activities, mental functions, communication, visitors, mood, sexual life, sleeping, healthy behaviors, chest corset, when to call the physician, and follow-up times)

The researcher selected the patients for the study and control groups from those who had given their written informed consent. In order to avoid interaction between the patients in the two groups (information exchange, etc.), the patients were randomly selected for participation at two different times.

The researcher applied the Personal Information Form and SMAF to the control group within the first 24 hours after they were admitted to the CVS clinic. In addition, records from the patients' files, nursing follow-up forms, and clinical visits were used to fill out the Surgical Process Information Form after the patients were transferred from the CVS ICU to the clinic. The control group also received routine nursing care that included administering medications and measuring vital signs, but they received no planned discharge teaching and counseling while they were hospitalized. The researcher telephoned the patients on the second and 10th days after being discharged and at the end of the postoperative ninth week to collect information for the Post-Discharge Home Follow-up

Form, and information from the last call was used to complete the SMAF.

The researcher also applied the Personal Information Form and SMAF to the study group within the first 24 hours after they were admitted to the CVS clinic. The Discharge Training Booklet, developed in line with the SMAF, was given to the patient as well as their relatives, and they were asked to read and mark the parts they did not understand. The researcher also determined the best time for the training after the patients were transferred from the CVS ICU to the clinic. This took place in the morning when the patients were not tired and when it did not disrupt the patients' care and treatment. The discharge training was conducted in the patients' rooms during the designated training hours via a Microsoft Office Power Point 2007 presentation with a laptop computer set up on a table at a distance where both the patient and relatives could easily see the screen. During the training, question and answer, discussion, and demonstration methods were used, feedback was obtained, correct information was reinforced, and important points were highlighted and summarized. Since the patients easily became tired and distracted, the training was given in two parts. In addition, the nurses provided routine care to the patients in the study group during their stay in the clinic. The same forms that were used for the control group were also used to complete the Surgical Process Information Form, and during the visits, the patients' clinical conditions were evaluated and their questions about their care after CABG surgery were answered. The researcher also obtained the information needed for the next three patient visits. Furthermore, the Post-Discharge Home Follow-up Form and SMAF were applied, and counseling was provided by the researcher to the patients and their relatives in accordance with their needs. This counseling, when necessary, was also provided on the telephone between the second and third follow-up visits. Moreover, the researcher called up the patients one week after the third home visit and evaluated whether the problems that had been determined in the last home visit had been resolved.

In the evaluation of the data, the SPSS for Windows version 16.0 (SPSS Inc., Chicago, IL, USA) software package was used, and the Kolmogorov-Smirnov test was used to compare the normally distributed data. The patients' descriptive characteristics were given as numbers and percentage distributions, and the mean, standard deviation (SD), median, minimum, and maximum values were also utilized to evaluate the scale scores. The variables related to the descriptive characteristics, health status, habits, and intra- and

postoperative experiences of the patients in both groups were evaluated by the Yates' corrected Chi-square test, Fisher's exact test, Student's t-test, repeated measures analysis of variance (rANOVA), and the Mann-Whitney U test, with the t-test and Mann-Whitney U tests being used to determine the differences between the mean scale scores of the study and control groups in the pre- and postoperative periods.^[22]

We also obtained the necessary written permissions from the general directorship of the hospital, the Head of Cardiovascular Surgery Department, and the Local Ethics Committee for Medical Research for this study.

RESULTS

Our findings showed that the patients in the study and control groups were similar in terms of their descriptive and clinical characteristics, and a statistical analysis revealed no significant differences between the groups (p>0.05) except for those who had a family history of CAD (p<0.05) (Table 1). The effects of this variable on the functional autonomy scores were then examined by rANOVA, which indicated that this factor had no effect (p>0.01).

All of the patients in the study experienced at least one problem (Table 2), but the patients in the control group experienced more problems than those in the study group. However, no significant differences were detected between the two groups in terms of the post-discharge problems they experienced (p>0.05) other than for upper and lower back and shoulder or neck pain (p<0.05).

The general functional autonomy mean scores of the study and control groups were -8.5±4.2 and -7.7±5.2 at hospitalization and -8.8±4.5 and -13.5±8.5 at the end of the ninth postoperative week, respectively. In addition, the mean subscale scores of the study group were lower than the controls during hospitalization but higher at the end of the postsurgical ninth week (Table 3). However, no statistically significant difference was detected between the mean and subscale scores of the two groups at either time. (p>0.05).

DISCUSSION

Numerous studies^[2,12] have agreed that patients need assistance to accomplish functional independence and self-care and that proper training, counseling, and home visits can play a key role in helping them succeed. Providing training as well as counseling and support services while taking into account the physiological and psychological changes that occur with aging patients who undergo CABG and their relatives can help them develop self-care behaviors, increase their functional independence levels, and ensure continuity of care at home when away from the hospital environment, thereby significantly averting potential problems and rehospitalizations.^[2,12]

This study found that older adults who underwent CABG experienced some problems in the postoperative period that affected their functional autonomy levels, with these levels being higher in the study group. In addition, they experienced

Table 1. Descriptive characteristics and group equivalence

	Study group (n=18)				Control group (n=18)				Statistical evaluation	p*
	n	%	Mean±SD	Min.-Max.	n	%	Mean±SD	Min.-Max.		
Socio-demographic characteristics										
Age			72.3±4.8	65-80			69.5±5.5	65-83	Z= -1.65	0.09
Male	14	77.8			12	66.7			Fisher	0.71
Literate/illiterate/primary school graduates	12	66.7			8	44.4			X ² =1.01	0.31
Body mass index			27.6±4.5	22.10-38.37			25.7±4.3	16.41-34.11	t=1.28	0.20
Time spent in bed during daytime (hours)			1.0±1.1	0.00-3.00			0.8±1.1	0.00-4.30	Z= -0.80	0.42
Time spent in chair/couch (hours)			4.8±2.7	1.00-10.00			4.3±2.9	1.00-10.00	t=-0.53	0.60
Exercised regularly‡	5	27.8			9	50.0			X ² =1.05	0.30
Clinical characteristics										
History of chronic diseases	17	94.4			16	88.9			Fisher	1.00
History of previous surgeries	14	77.8			14	77.8			Fisher	1.00
Family history of CAD§	9	50.0			16	88.9			Fisher	0.03
Current smoker	4	22.2			2	11.1			Fisher	0.65
EuroSCORE			3.9±2.0	1.00-8.00			4.3±2.6	1.00-9.00	t= -0.42	0.67
Number of grafted vessels			2.9±0.9	1.00-4.00			2.8±0.8	2.00-5.00	Z= -0.70	0.48
Total perfusion time (minutes)			84.9±20.6	37.00-120.00			80.3±21.2	54.00-140.00	Z= -1.23	0.21
Aortic cross-clamping time (minutes)			48.3±12.2	21.00-65.00			47.4±15.6	28.00-85.00	t=0.17	0.86
Length of surgery (hours)			5.5±1.3	3.30-7.30			5.4±1.2	3.30-8.00	t=0.25	0.80
Intensive care unit stay (hours)			64.6±25.9	43.00-118.30			61.2±35.8	41.30-167.00	Z= -1.10	0.26
Hospital stay (days)			22.7±13.2	9.00-52.00			14.8±6.1	8.00-33.00	Z= -1.85	0.06

SD: Standard deviation; Min.: Minimum; Max.: Maximum; * p<0.05 is accepted as being significant; ‡: Walking, knee exercise and sport activities; §: Father, mother, siblings and children; CAD: Coronary artery disease; EuroSCORE: European System for Cardiac Operative Risk Evaluation; Z: z score of standardized test statistic; t: t score of Student's t-test; x2: Score of Yates corrected Chi-square; Fisher: Fisher's exact Chi-square test.

Table 2. Problems experienced by the patients after discharge

Problems	Study group (n=18)		Control group (n=18)		p‡
	n*	%	n*	%	
Weakness, tiredness, or fatigue	18	100	17	94.4	1.00
Insomnia	17	94.4	18	100	1.00
Shoulder, upper and lower back, or neck pain	13	72.2	18	100	0.04
Loss of appetite	12	66.7	13	72.2	1.00
Constipation or diarrhea	10	55.6	15	83.3	0.15
Pain, discharge, redness, swelling, or warmth along the leg incision area	10	58.8	6	33.3	0.18
Pain, discharge, redness, swelling, or warmth along the chest incision area	9	50.0	11	61.1	0.74
Easily getting hurt or crying	9	50.0	6	33.3	0.50
Difficulty lying in the supine position	8	44.4	4	22.2	0.29
Respiratory difficulty	7	38.9	13	72.2	0.92
Leg swelling§	7	38.9	11	61.1	0.32

* If patients experienced any problem at least once during follow-up, it is assessed as a “problem”. The patients gave more than one answer; ‡ p<0.05 is considered to be significant; § Leg swelling occurred in seven patients in the study group from whom the vein was taken, in three in the study group from whom the vein was not taken, in 10 in the control group from whom the vein was taken, and in eight in the control group from whom the vein was not taken.

fewer problems in the postoperative period than the patients in the control group, although their descriptive and clinical characteristics were similar (Tables 1, 2, and 3). Furthermore, the patients in the study group experienced fewer problems and usually received help resolving them. The patients in the control group were not given any information about how to cope with their problems at home, when to return to normal activities, and what activities they could do in the postoperative period; therefore, they experienced more problems. Moreover, the existing literature related to CABG surgical patients who have received discharge training, counseling, and home follow-up visits indicates that they have a low incidence of complications, and the results of the study group patients in our study verified this.^[2,4,12,15] For example, in the study by Cebeci and Çelik,^[2] discharge training and counseling were given to patients who underwent CABG, and the patients in the study group had fewer problems than the patients in the control group.

Weakness, fatigue, tiredness, insomnia, pain, loss of appetite, constipation, and diarrhea were among the most frequent problems experienced by the two groups in our study (Table 2), but these were less frequent in the study group. Other studies have also found that weakness, fatigue, sleep disorders, pain, and gastrointestinal system problems are frequently seen in patients after CABG surgery.^[2,8,11] The presence of fatigue for up to several weeks following surgery can also be attributed to the loss of muscle tissue and function, the cardiovascular deconditioning response to exercise, and the patients’ preoperative levels of fatigue and can also be related to decreased cortisol levels.^[23] The reason why we saw fewer problems in the study group might be attributed to the fact that those patients learned how to cope with their problems since they were providing with information regarding pain control and arm-shoulder exercises within the scope of discharge training and the home follow-up visits. In addition, performing the demonstrated exercises proved to be effective in our study for reducing pain in

Table 3. The mean functional autonomy scores of the patients in the study groups

Subscales of SMAF	Mean scores of functional autonomy										
	At hospitalization				p*	At the end of the postoperative ninth week after surgery					
	Study group (n=18)		Control group (n=18)			Study group (n=18)		Control group (n=18)		Range	p*
Mean±SD	Min.-Max.	Mean±SD	Min.-Max.	Mean±SD	Min.-Max.	Mean±SD	Min.-Max.				
Activities of daily living	-7.52±4.01	-13.0-0.0	-7.11±4.95	-17.0-0.5	0.56	-8.33±4.30	-19.0-0.0	-12.63±8.01	-28.5-5.0	0-57	0.29
Communication	-0.22±0.42	-1.0-0.0	-0.11±0.32	-1.0-0.0	0.38	-0.05±0.23	-1.0-0.0	-0.11±0.32	-1.0-0.0	0-9	0.55
Mental functions	-0.72±0.66	-2.0-0.0	-0.44±0.51	-1.0-0.0	0.21	-0.44±0.51	-1.0-0.0	-0.77±0.64	-2.0-0.0	0-9	0.12
General SMAF mean score	-8.47±4.23		-7.66±5.17		0.61	-8.83±4.47	-20.0-1.0	-13.52±8.50	-30.5-5.0	0-75	0.19

SD: Standard deviation; Min.: Minimum; Max.: Maximum; * p<0.05 is considered to be significant; SMAF: Functional Autonomy Measurement System.

the patients in the study group, and the regular use of analgesics and massage was also beneficial.

Among the wound-related problems after CABG surgery are infection and dehiscence in the wound, tenderness, local swelling, redness, pain, warmth around the wound, and hematomas,^[8,9] and 58.8% of study group patients, 61.1% of control group patients developed complications related to wound healing. The most common problem in the patients in the study was related to their leg incision while the main issue in the control group concerned their chest incision (Table 2). However, wound healing is a physiological process that can lead to other negative factors, including advanced age, chronic disorders like diabetes mellitus (DM) and chronic obstructive pulmonary disease (COPD), the use of multiple drugs, poor nutrition, low cardiac output, and osteoporosis of the sternum.^[8,12] Therefore, it is reasonable to assume that the problems associated with the wound healing process could have developed in the elderly patients in our study.

The patients in the control group also experienced respiratory difficulty and developed leg edema more frequently than the patients in the study group (Table 2). Similarly, Direk and Çelik^[8] detected dyspnea and leg edema in some of the patients in their study who underwent CABG surgery. The most important cause for the respiratory difficulty in the control group was that they were not sufficiently informed about deep breathing and coughing exercises. They were also not told about the importance of mobility, and their leg edema usually developed due to their low physical activity levels in the postoperative period.

We also found that the functional autonomy levels of patients decreased less in the study group than in the control group at hospitalization and the end of the ninth postoperative week (Table 3). Decreases such as this are frequently associated with advanced age, the presence of comorbid disorders, vision and hearing loss, low education levels, and the presence of cognitive disease and are also more common in females. Physiological changes take place in conjunction with aging in all systems, including the musculoskeletal and cardiovascular systems, and the loss of some abilities have negative effects on physical capacity. Furthermore, a decrease in physical activity levels due to these negative effects causes older adults to have difficulty when performing their ADLs. This results in functional loss, thus making them more dependent on others.^[3,21,24] Although there are more factors (advanced age, physical inactivity, prolonged hospitalization, etc.) that could have affected the functional autonomy

of the patients in the study group, these levels were lower in the control group. In addition, the patients in the study group were encouraged to take walks and perform deep breathing and coughing exercises with a spirometer during their hospitalization periods and home visits. Furthermore, during the home visits, the researcher also recommended that the patients to climb stairs for exercise and encouraged them to repeat these interventions throughout the day to help them stay active. Hence, the functional autonomy levels of the patients in the study group were better than those of the control group. Moreover, studies have found that discharge training and counseling along with home visits results in increased activity, higher independence levels, and a greater self-care ability in patients who undergo CABG surgery.^[2,25]

The different functional autonomy scores between the two groups in our study might be attributed to the following: the concurrent use of a multitude of teaching methods, the individual training patients received related to adult learning principles, the immediate counseling and support given to patients throughout their hospital stay, the attention paid to the physical condition and motivation of individual patients, the establishment of adequate and effective communication, and the existence of a favorable training environment. Additionally, having enough time for training and counseling and providing a cooperative environment between the patients, their companions, and the healthcare team also played a significant role.

This study had several limitations. For example, the nine-week interval between the surgery and follow-up is relatively short. Furthermore, our findings cannot be generalized because of the small sample size and the single research site. Another limitation was that the functional autonomy levels of the older adults included in the sample group were limited to the data obtained via the SMAF.

Conclusion

Although there was not a statistically significant difference between the functional autonomy levels in the patients in the study and control groups, the overall means as well as the mean subscale scores of the functional autonomy for the study group were higher. We also determined that the discharge training given to the older adults who underwent CABG surgery based on their functional autonomy levels along with the postoperative home visits contributed to an increase in their functional independence and a decrease in the number of problems they experienced

after being discharged. In line with these results, we recommend that discharge training be provided for elderly hospitalized patients while taking into account the physiological and psychological changes that occur with aging. Moreover, continued counseling through home visits should be encouraged because it decreases the problems they encounter and increases the patients' functional autonomy after they are discharged. However, further studies should be conducted at different institutions with a larger number of patients and a longer follow-up period to reach more valid and generalizable results.

Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

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REFERENCES

1. Mahmood KT, Khalid AT, Ali S. Management of post operative CABG patients - A review. *Journal of Pharmaceutical Science and Technology* 2011;3:456-61.
2. Cebeci F, Celik SS. Discharge training and counselling increase self-care ability and reduce postdischarge problems in CABG patients. *J Clin Nurs* 2008;17:412-20.
3. Gökçe-Kutsal Y, editor. *Temel geriatri (Basic geriatrics)*. Ankara: Güneş Tıp Kitabevleri; 2007.
4. Kleinpell RM, Avitall B. Integrating telehealth as a strategy for patient management after discharge for cardiac surgery: results of a pilot study. *J Cardiovasc Nurs* 2007;22:38-42.
5. The World Health Report 1998 Life in the 21st Century A Vision For All. World Health Organization. Available from: http://www.who.int/whr/1998/en/whr98_en.pdf [Accessed June 19, 2013].
6. Roger VL, Go AS, Lloyd-Jones DM, Adams RJ, Berry JD, Brown TM, et al. Heart disease and stroke statistics--2011 update: a report from the American Heart Association. *Circulation* 2011;123:e18-e209.
7. Cebeci F, Çelik SŞ. Effects of discharge teaching and counselling on anxiety and depression level of CABG patients. *Turk Gogus Kalp Dama* 2011;19:170-6.
8. Direk F, Çelik SŞ. Postoperative problems experienced by patients undergoing coronary artery bypass graft surgery and their self-care ability after discharge. *Turk Gogus Kalp Dama* 2012;20:530-5.
9. Lie I, Bunch EH, Smeby NA, Arnesen H, Hamilton G. Patients' experiences with symptoms and needs in the early rehabilitation phase after coronary artery bypass grafting. *Eur J Cardiovasc Nurs* 2012;11:14-24.
10. Mullen-Fortino M, O'Brien N. Caring for a patient after coronary artery bypass graft surgery. *Nursing* 2008;38:46-52.
11. Barnason S, Zimmerman L, Nieveen J, Hertzog M. Impact of a telehealth intervention to augment home health care on functional and recovery outcomes of elderly patients undergoing coronary artery bypass grafting. *Heart Lung* 2006;35:225-33.
12. Aydın FÇ. Koroner arter bypass greft ameliyatı geçiren hastaların taburculuk sonrası iki aylık dönemde yaşadıkları güçlükler [Yayınlanmamış Bilim Uzmanlığı Tezi] Ankara: Hacettepe Üniversitesi Sağlık Bilimleri Enstitüsü Cerrahi Hastalıkları Hemşireliği Anabilim Dalı; 2000.
13. Karahan A, Güven S. Homecare for elderly. *Turkish Journal of Geriatrics* 2002;5: 155-9.
14. Naylor MD, McCauley KM. The effects of a discharge planning and home follow-up intervention on elders hospitalized with common medical and surgical cardiac conditions. *J Cardiovasc Nurs* 1999;14:44-54.
15. Naylor MD, Brooten D, Campbell R, Jacobsen BS, Mezey MD, Pauly MV, et al. Comprehensive discharge planning and home follow-up of hospitalized elders: a randomized clinical trial. *JAMA* 1999;281:613-20.
16. Altay B. Yaşlılara evde verilen hemşirelik hizmetlerinin değerlendirilmesi [Yayınlanmamış Doktora Tezi]. Ankara: Hacettepe Üniversitesi Sağlık Bilimleri Enstitüsü Halk Sağlığı Hemşireliği Anabilim Dalı; 2005.
17. Demir-Korkmaz F. Yaşlı birey için taburculuk planlaması. In: Aslan D, Başar MM, editors. 4th National Older Health Congress: Geriatric Nursing Course Proceedings. Ankara: Turkish Geriatric Society; 2010. p. 95-9.
18. Oğlak S. Evde bakım hizmetleri ve bakım sigortası. *İskenderun: Color Ofset*; 2007.
19. Hebert R, Carrier R, Bilodeau A. The Functional Autonomy Measurement System (SMAF): description and validation of an instrument for the measurement of handicaps. *Age Ageing* 1988;17:293-302.
20. Tuna Z, Çelik SS. The validity and reliability study of the "Functional Autonomy Measurement System" among 65 years and over age group. *Hacettepe University Faculty of Health Sciences Nursing Journal* 2012;19:16-23.
21. Tabloski P. *Gerontological nursing*. New Jersey: Prentice Hall; 2006.
22. Alpar R. Spor, sağlık ve eğitim bilimlerinden örneklerle uygulamalı istatistik ve geçerlik-güvenirlilik. 2. Baskı. Ankara: Detay Yayıncılık; 2010. s. 140-231.
23. Barnason S, Zimmerman L, Nieveen J, Schulz P, Miller C, Hertzog M, et al. Relationships between fatigue and early postoperative recovery outcomes over time in elderly patients undergoing coronary artery bypass graft surgery. *Heart Lung* 2008;37:245-56.
24. Graf C. Functional decline in hospitalized older adults. *Am J Nurs* 2006;106:58-67.
25. Yılmaz M, Çiftçi SE. A model defining the needs of patient care at home after open heart surgery: functional health patterns. *Turk Gogus Kalp Dama* 2010;18:183-9.