International Research Journal of Applied and Basic Sciences
© 2013 Available online at www.irjabs.com
ISSN 2251-838X / Vol, 4 (1): 86-90
Science Explorer Publications

The effect of self-care documented program on performance of patients undergoing coronary angioplasty

Vida Sadeghzadeh[1], Seyedeh Susan Raoufi Kelachayeh[1], Javad Naserian[2]

1. MSC in Nursing, Faculty member of Zanjan Branch, Islamic Azad University. Department of Nursing, Zanjan Branch, Islamic Azad University, Zanjan, Iran.
2. MSC in Statistics & mathematics, Faculty member of Zanjan Branch, Islamic Azad University. Department of Statistics & Mathematics, Zanjan Branch, Islamic Azad University, Zanjan, Iran.

Corresponding author email: vida_sadeghzadeh@yahoo.com

ABSTRACT: Patients who have undergone angioplasty experience difficulty modifying at-risk behaviors for subsequent cardiac events. The purpose of this study was to determine the effect of education on self-care behavior in patients undergoing coronary angioplasty.Patients with stable angina were recruited from the waiting lists for elective PCI at Ayatollah Mosavi Hospital. Eligible patients were randomly assigned to two groups. The groups represented alternate times for delivering education. Data were obtained at three occasions: pre-test, post-test and follow-up. The same intervention was given to the two study groups to ensure consistency of content. Self-care behaviors were measured using the Revised Heart Failure Self-Care Behavior scale (RSCB). Content validity was demonstrated through evaluations made by a panel of experts. The internal consistency reliability coefficient was found to be 0.8 in this study. Descriptive statistics were used to analyze demographic data and repeated measures analysis of covariance was used to determine differences in the outcomes in the groups.Results revealed that the mean of performance (pre and post-test) in the post-discharge group is higher than the pre-discharge group and also the mean of performance (pre-test and follow-up) in the post-discharge group is higher than the pre-discharge group. There were statistically significant differences between the two groups in the three phases.There has been a major reduction in mortality in the general population as a result of improved survival from coronary heart disease. PCI has played a large part in these reductions in mortality, especially in acute coronary syndrome
.

Key Words: Angioplasty, documented program, Performance, Self-Care.

INTRODUCTION

Percutaneous coronary intervention (PCI) is an increasingly important strategy in managing coronary heart diseases (CHD). This procedure revascularises coronary arteries through less invasive means than coronary artery bypass grafting (Popma et al. 2008). Percutaneous coronary intervention is emerging as a valuable tool in rapidly treating people with evolving myocardial infarction as well as in the elective setting (Scafato et al. 2003).

The use of primary angioplasty as an alternative to intravenous thrombolysis for patients with acute ST-elevation myocardial infarction (STEMI) has been shown to reduce mortality, reinfarction, stroke and the need for coronary artery bypass grafting (Keely et al.2003).

Self-care is defined as the decision and strategies undertaken by the individual in order to maintain life, healthy functioning and well being. Self-care behavior of a person can be universal (needed by every person), health-deviated (i.e. arises from health problems) and/or developmental (i.e. arises from a specific stage of life) (Orem 2001).

Improvement of self-care behavior is an aim of several non-pharmacological nurse-led management programs for patients undergoing coronary angioplasty. These programs are often evaluated based on their effects on readmission, costs and quality of life (Jaarsma et al. 2003).

Orem's Theory of Self-Care provided the basis of this study. The focus of this theory is on individuals deliberated performing regulatory self-care actions and sequences of actions directed toward themselves or their environment to regulate (maintain or change) their own functioning or development (Orem 2001).

Although several studies reported positive effects of these angioplasty management programs, there were also inconclusive or negative studies (Jaarsma et al. 2003; Fredericks 2009; Piepoli et al. 2010; Muller-Riemenschneider et al. 2010; Sadeghzadeh & Moshtagh Eshgh 2011).There still is debate on the effectiveness of various interventions and their underlying mechanisms.

Despite delivering reductions in mortality and morbidity in the field of acute coronary syndrome and overcoming in-stent restenosis, several challenges still remain. The aim of this study was to determine the effect of education on self-care behavior in patients undergoing coronary angioplasty.

METHODS

Patients with stable angina were recruited from the waiting lists for elective PCI at Ayatollah Mosavi Hospital.

Eligible patients, who consented to the study, were randomly assigned to two groups. The groups represented alternate times for delivering education. The first group of participants received education within 24h, prior to discharge while in hospital, which is the usual time for providing education to post-angioplasty patients. The second group of participants received education within 24 h following discharge, while at home. Data were obtained at three occasions: pre-test, within 2-3 days prior to intervention; post-test, within 1 week following delivery of the educational intervention, and follow-up within 3 weeks post-discharge. Inclusion criteria: 1- Underwent angioplasty surgery for the first time, with no additional surgical interventions. 2- Literate in Persian. 3- Oriented to time, place, and person. 4- Have access to a working phone both in the hospital and at home. The same intervention was given to the two study groups to ensure consistency of content. The outcome of interest for this study was performance of self-care behaviors. Self-care behaviors were measured using the Revised Heart Failure Self-Care Behavior scale (RSCB), a 20-item, self-report, Likert-type scale that described behaviors patients must perform, to some degree, in order to regulate their own functioning. [5, 10] The total scale score was calculated by summing the scores across items and ranged from 0 to 100. Higher scores indicated more frequent performance of self-care behaviors. Content validity was demonstrated through evaluations made by a panel of experts. The internal consistency reliability coefficient of 0.80 was found in this study. Descriptive statistics were used to demographic data related to age, sex, educational level, marital status, and co-morbidity. Repeated measures analysis of covariance was used to determine differences in the outcomes in the groups of participants who received education pre-discharge and post-discharge. The study protocol was approved by the local ethics committee, and written informed consent was obtained.

RESULTS

There were 100 participants in the sample (50 & 50 subjects in the pre and post-discharge groups. On average, the subjects were predominantly male (61%), married (98%) and about 63 years old. The most frequently reported co-morbid conditions were: high blood pressure (52%) and diabetes (38%) and predisposing factors were: Smoking (39%) and obesity (33%) (table1). Independent sample t-tests were performed to compare the two groups on variables measured at pre-test and post-test (table 2). Also results indicated that the means of performance (pre and post-test) in the post-discharge group (41.94) is higher than pre-discharge group (29.58) and also the means of performance (pre-test and follow-up) in the post-discharge (50.80) is higher than pre-discharge (38.30) group. There were statistically significant differences between two groups in the three phases.

The mean scores on the outcome variable for the two groups over time are presented in table 3. Statistically significant differences in performance were found between the two groups and over time [group×time interaction] effects were significant for the performance of self-care behaviors (Table 3).

Within and between each group however the mean scores on the outcomes changed in the hypothesized direction, where the level of performance of self-care behaviors increased.

The post-discharge group had higher mean score on self-care behaviors than the pre-discharge group and this difference was statistically or clinically significant.

DISCUSSION

Self-care behavior is both an outcome to measure and a means to improve other important outcomes (Jaarsma et al. 2003). Most heart failure management programs emphasize that improved self-care behavior is the key to success in order to improve quality of life and reduce mortality, morbidity and health care costs (Deaton 2000.(

In our study, results indicated statistically significant differences in angioplasty patient's performance of self-care behaviors between study participants who received the individualized angioplasty patient education prior to and after discharge after controlling for relevant covariates. The findings of this study supported our hypothesis .Several studies have demonstrated positive effects of self care documented programs. For example, a study by Shahriari and colleagues showed that the mean scores of physical dimension of the quality of life have increased in the case group (Shahriari et al. 2005). Also, early studies by Charlson et al. demonstrated that Cardiac rehabilitation following coronary revascularization seeks to assist patients who have undergone PTCA with necessary lifestyle changes (Charlson et al. 2008; Masoumi et al. 2012).

Table 1 . Demographic data for pre- and post-discharge and total groups.

Variable	pre-discharge group(n=50)	post-discharge group (n=50)	total group (N=100)
Age[mean(SD)]	64 (12)	61 (12)	63 (12)
Gender (%)			
Male	33 (66)	28 (56)	61 (61)
Female	16 (34)	22 (44)	39 (39)
Marital status [exact number (%)]			
Married	49 (98)	49 (98)	98 (98)
Non-married	1 (2)	1 (2)	2 (2)
Highest level of education received [exact number (%)]			
Less than high school	41 (82)	42 (84)	83 (83)
High school	8 (16)	8 (16)	16 (16)
BS/BA	1 (2)	0 (0)	1 (1)
Time of illness [exact number (%)]			
Less than 1 year	9 (18)	14 (28)	23 (23)
1-5 years	21 (42)	19 (38)	40 (40)
6-10 years	8 (16)	9 (18)	17 (17)
High than 10 years	12 (24)	8 (16)	20 (20)
Occupation status [exact number (%)]			
Worker	4 (8)	2 (4)	6 (6)
Farmer	8 (16)	9 (18)	17 (17)
Employee	4 (8)	4 (8)	8 (8)
Retired	4 (8)	4 (8)	8 (8)
Self-employed	13 (26)	6 (12)	19 (19)
Other jobs	17 (34)	25 (50)	42 (42)
Co-morbid conditions [exact number (%)]			
High blood pressure	29 (58)	23 (46)	52 (52)
High cholesterol	2 (4)	2 (4)	4 (4)
Diabetes	17 (34)	21 (42)	38 (38)
Arthritis	2 (4)	2 (4)	4 (4)
Predisposing factors [exact number (%)]			
Smoking	24 (48)	15 (30)	39 (39)
Obesity	14 (28)	19 (38)	33 (33)
OCP	3 (6)	2 (4)	5 (5)
Personality type A	1 (2)	4 (8)	5 (5)
Uric acid	4 (8)	5 (10)	9 (9)
Positive family history	1 (2)	1 (2)	2 (2)
Ovariectomy premenopausal	1 (2)	2 (4)	3 (3)
The number of hospitalization during past year			
None	23 (46)	15 (30)	38 (38)
Once	19 (38)	27 (54)	46 (46)
1-3 items	8 (16)	6 (12)	14 (14)
High than 3	0 (0)	2 (4)	2 (2)

Table 2 . Mean (SD) scores on the outcomes for the two groups over time.

Group		Pre-test	Post-test	Follow-up
Post-discharge Group	Mean	36.96	78.90	87.76
Std. Deviation		9.004	5.185	
Pre-discharge Group	Mean	28.18	57.76	66.48
Std. Deviation	6.311	7.029	4.657	
Total	Mean	32.57	68.33	77.12
Std. Deviation	7.369	13.320	11.764	

Table 3 . T-test for Equality of Means

	t-test for Equality of Means				
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Performance (pre-test & post-test)	5.866	98	.000	12.360	2.107
Performance (pre-test & follow-up	7.915	98	.000	12.500	1.579

Statistically significant differences in performance were found between the two groups and over time [group×time interaction] effects were significant for the performance of self-care behaviors.

In the study carried out by Hacihasanoglu and Gözum, results indicated the importance of receiving nursing intervention for controlled blood pressure, healthy lifestyle behaviors and medication adherence self-efficacy (Hacihasanoglu & Gözum, 2011).

Also, in the study led by Lack et al. indicated that there was a high degree of adherence to discharge recommendations, although participants' appreciation of the long term management of their chronic disease was limited. Same-day discharge PCI presents a sustainable option for delivery of care for most patients. Some clients may require additional support to manage the transition between acute intervention and chronic disease management (Lauck et al. 2009; Gürsoy et al. 20123; Khosravi et al. 2012). But based on of Fredericks' study, The findings indicated that the time at which the education was provided did not result in changes in outcomes between the group that received the teaching during hospitalization and the group that received the teaching at home. Hence, education can be given at any time without significantly influencing the outcomes of interest (Fredericks, 2009).

CONCLUSION

Educational interventions in angioplasty patients are efficacious in enhancing self-care and can make a major contribution to improvement in the patients' healthy lifestyle behaviors. Cardiovascular nurses need to engage in developing evidence to support guideline development (Rolley et al. 2009).

Conflict of interest

There is no Conflict of interest to declare.

Authors' Contribution

VS carried out the design, data collection, analysis and coordinated the study, participated in most of the experiments and prepared the manuscript. VS & SSRK participated in manuscript preparation. Both authors have read and approved the content of the manuscript.

Financial Support

This article is extracted from a research that has been funded by …, … University.
Grant number: 89/21604

RREFRENCES

Artinian NT, Magnan M, Sloan M & Lange MP. 2002. Self-care behaviors among patients with heart failure. Heart Lung. 31: 161-72.

Charlson ME, Peterson JC, Boutin-Foster C, Briggs WM, Ogedegbe GG, McCulloch CE & et al. 2007. Changing health behaviors to improve health outcomes after angioplasty: a randomized trial of net present value versus future value risk communication. Health Educ Res. 23: 826-839.

Deaton C. 2000. Outcome measurement: self-management in heart failure. J Cardiovasc Nurs. 14: 116-8.

Fredericks S. 2009. Timing for delivering individualized patient education intervention to Coronary Artery Bypass Graft patients: An RCT. Eur J Cardiovasc Nurs. 8: 144-150.

Gürsoy G. Ulu S. Acar Y. Demirbas B. Alkan S. Erol B & Özaşik I. 2012. Relation of resistın with obesity and some cardiovascular risk factors in hypertensive women. JRMS. 17: 443-447.

. Hacihasanoglu R & Gözum S. 2011. The effect of patient education and home monitoring on medication compliance, hypertension management, healthy lifestyle behaviours and BMI in a primary health care setting. JCN. 20: 692-705.

Jaarsma T, Strömberg A, Mårtensson J & Dracup K. 2003. Development and testing of the European Heart Failure Self-Care Behaviour Scale. Eur J Heart Failure. 5: 363-370.. Keeley EC, Boura JA & Grines CL. 2003. Primary angioplasty versus intravenous thrombolytic therapy for acute myocardial infarction: a quantitative review of 23 randomized trials. Lancet. 361: 13-20. . Khosravi AR.

Kelishadi R. Sarrafzadegan N. Boshtam M. Nouri F. Zarfeshan S & Esmail A. 2012. Impact of a community-based lifestyle intervention program on blood pressure and salt intake of normotensive adult population in a developing country.JRMS. 17: 235-241.

Lauck S, Johnson JL & Ratner PA. 2009. Self-care behaviour and factors associated with patient outcomes following same-day discharge percutaneous coronary intervention. European J cardiovasc Nurs. 8: 190-9

Masoumi G. Hidar Pour E. Sadeghpour A. Ziayeefard M. Alavi M. Javid Anbardan S & shirani SH. 2012. Effect of different dosages of nitroglycerin infusion on arterial blood gas tensions in patients undergoing on- pump coronary artery bypass graft surgery. JRMS. 17: 123-127.

Muller-Riemenschneider F, Meinhard C, Damm K, Vauth C, Bockelbrink A, Greiner W & Willich SN. 2010. Effectiveness of nonpharmacological secondary prevention of coronary heart disease. Eur J Cardiovasc Prev Rehab. 17: 688-700.

Orem D. Nursing: concepts of practice. 6th ed. St. Louis: Mosby. USA; 2001.

Piepoli MS, Corra U, Benzer W, Bjarnason-Wehrens B, Dendale P, Gaita D & et al. 2010. Secondary prevention through cardiac rehabilitation: from knowledge to implementation. A position paper from the cardiac rehabilitation section of the European Association of cardiovascular prevention and rehabilitation. Eur J Cardiovasc Prev Rehab. 17: 1-17.

Popma JJ, Baim DS & Resnic FS. 2008. Percutaneous coronary and valvular intervention. In Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine, 8th edn. Edited by Libby P, Bonow RO, Mann DL & Zipes DP. Saunders - Elsevier, Philadelphia.

Rolley JX, Davidson PM, Salamonson Y, Fernandez R & Dennison C. 2009. Review of nursing care for patients undergoing percutaneous coronary intervention: a patient journey approach. JCN. 18: 2394-405.

Sadeghzadeh V & Moshtagh Eshgh Z. 2011. Effect of cardiac rehabilitation on quality of life in myocardial infarction patients in Zanjan. Fac Nurs Midwifery Q Shaheed Beheshti Univ Med Sci Health Serv. 21: 8-13.

Scafato E, Galluzzo L, Gandin C, Ghirini S, Baldereschi M, Capurso A, Maggi S, Farchi G, for the IWG. Marital and cohabitation status as predictors of mortality: a 10-year follow-up of an Italian elderly cohort. Soc Sci Med. 67: 1456-1464.

Shahriari M, Jalalvandi F, Yousefi H, tavakol K & saneei H. 2005. The effect of self-care education program on the quality of life of patients with permanent pacemaker. Iran J Med Educ. 5: 45-51 .