

Anxiety, Self Efficacy Expectation and Social Support in Patients after Coronary Angioplasty and Coronary Bypass

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Abstract

Background: Coronary artery bypass grafting surgery (CABG) and percutaneous transluminal coronary intervention (PCI) are safe and effective in the treatment of coronary artery disease. The aim of this study was to determine and compare anxiety, self efficacy expectation and perceived social support between CABG patients and PCI patients referral to receiving cardiac rehabilitation programs.

Methods: In this descriptive- analytical study 150 patients with CABG and PCI were selected. The Spilberger state trait anxiety inventory, general self efficacy scale and perceived social support scale three instruments for collecting data in the present study.

Results: PCI patients as compared to CABG patients experience higher anxiety ($P= 0.02$) and lower perceived social support ($P= 0.02$). Self efficacy score in the PCI patients was higher than CABG patients ($P= 0.01$).

Conclusion: It is necessary to be more considerate to psychological problems in the PCI patients.

Keywords: Coronary artery bypass graft surgery, Coronary angioplasty, Self efficacy Expectation, Anxiety, Perceived social support

Introduction

Surgery is a life event of dramatic significant to many people. It disrupts their personal, professional, and economical lives, as well as their physical bodies (1). A number of psychological variables may predict new coronary events and quality of life of heart patients. Anxiety is a factor known to negatively influence recovery after a cardiac event (2). Patients with more anxiety after surgery have worse long-term psychological outcomes and poorer quality of life (3, 4). Anxiety exerts a profoundly negative effect on QOL and adversely influences outcomes of ischemic heart disease from many standpoints, including recurrent hospitalization, an increased incidence of ischemic events, and higher mortality. Studies have documented a three to six-fold increased risk of MI and sudden cardiac death among highly anxious patients (5). Also, several studies have identified social support and self efficacy as im-

portant determinants of survival and quality of life among patients with coronary artery disease (6, 7). Although medical outcomes following CABG or PCI are similar (8); few studies have determined and compared psychological outcomes after these procedures. For example, Sader et al. showed that PCI patients had more psychiatric abnormality than CABG patients (8). Patients undergoing PCI have substantial emotional and spiritual distress that may promote procedural complications (9). Also there are no differences in general health, social functioning, and emotional state in patients who had undergone either CABG or PCI (10). In order to provide evidence-based practice for each group of patients, assessment of the psychological problems seems necessary. Patients' needs for informational or emotional support are not well known than CABG patients. It is considering that, the patient who has undergone a PCI has a shorter hospital stay than the patient recov-

ering from CABG surgery, creating a challenge for the health professional. Less time is allowed for psychological interventions that provide education to the patient and family; however, teaching patients in preparation for discharge from the hospital is the health professional's responsibility. Because of the imposed time constraints, understanding what information the patient perceives as important aids in development of meaningful and effective interventions to help the health professional meet patient needs. Due to all aforementioned reasons, a need was felt to undertake the present study in the phase III cardiac rehabilitation. In this stage of cardiac rehabilitation, CABG patients and PCI patients participate in exercise and educational programs about 8 weeks and researcher has adequate time for assessing psychological problems and designing safe interventions for two groups.

Materials and Methods

This study is a descriptive-analytical type. The clients were cardiac rehabilitation clinic of Tehran Heart Center patients with one after PCI or CABG and were selected through simple sampling procedure. The patients had referred for receiving phase III cardiac rehabilitation programs. Phase III cardiac rehabilitation is late post discharge period. In this phase, patients receive the usual care (exercise training, life style education and psychological interventions) for 8 weeks. The study sample consisted of 75 PCI patients and 75 CABG patients. The selection criteria in this study were: clients' satisfaction to participate, undergoing of either treatment (PCI/CABG), or no history of a major comorbidity (e.g. cancer and major neurological disorder).

Anxiety, self efficacy and perceived social support of the CABG and PCI patients were measured by three questionnaires. The completion of the questionnaires lasted 10 to 15 min.

The State-Trait Anxiety Inventory (STAI) elaborated and developed by Charles Spilberger and his colleagues. This scale was adapted and translated into Persian (11). The state anxiety scale

consists of 20 statements that evaluate how respondents feel right now, at this moment and using a four point scale. The trait anxiety scale consists of 20 statements that assess how people generally feel and using a four point scale. The reliability estimate for STAI through Cronbach's α was 0.90. The Social Support Scale (SSS) is a 23-item measure that assesses perceived social support from three groups (i.e., family, friends, and others) using a four-point scale (12). This scale was adapted to Persian and was used two point scales instead the present (13). In the present study, the SSS has adequate two-week test-retest reliability ($r= 0.94$). The general self efficacy scale (GSFS) consists of 10 items. This scale was adapted to Persian (14), and the obtained Cronbach's α for GSFS was .85.

The survey of association of sex with anxiety, self efficacy and perceived social support was analyzed using independent sample *t*-tests between two groups. Correlation of age with anxiety, self efficacy and perceived social support were analyzed through Pearson correlation analysis. Differences in anxiety, self efficacy expectation and perceived social support between two groups were tested using independent sample *t*-tests. All *P*-values were two-tailed and regarded significant if below 0.05.

Results

The average age of participants in the CABG groups was 58 yr and for PCI group was 55 yr. In the CABG group, 77.3% of patients were male and the others were female. In the PCI group, 74.4% of patients were male. The survey to level of education showed that major of patients in the CABG groups (33.4%) had primary education and in the PCI group 34.7% were graduated and had high school. Thirty eight percent of patients employed in the two groups. Majority of patients (92% in the CABG group and 89.3% in the PCI group) were married. The mean scores of the anxiety, self efficacy and perceived social support of the patients of two groups are shown in Table 1. Independent sample *t* test shows sig-

nificant differences between the groups in the self efficacy score ($P= 0.01$), state ($P= 0.01$), trait ($P=0.01$) and total mean score of anxiety ($P=0.02$), perceived social support of friends ($P= 0.02$) and total score of perceived social support ($P= 0.02$). Findings in the PCI group show that 28% of patients had mild anxiety, 65.3% moderate anxiety and 6.7% severe anxiety. In the CABG group

46.7% of patients had mild anxiety, 50.7% moderate anxiety and 2.7% severe anxiety.

Table 2 shows the correlation between age and each of anxiety, self efficacy and perceived social support in the two groups. Table 3 shows the correlation between sex and three variables of anxiety, self efficacy and perceived social support in the two groups.

Table 1: Comparison of anxiety, self efficacy and perceived social support scores between two groups.

Items	CABG	PCI	P value
General self efficacy	26.3 ± 6.8	28.8± 6.2	0.01
State anxiety	40.6 ± 10.9	45.1±10.4	0.01
trait anxiety	41.5 ±10.6	45.3±10.4	0.02
Total score of anxiety	82.1 ± 19.5	90.6± 18.4	0.007
Perceived social support of friends	7.05± 1.3	6.5±1.6	0.02
Perceived social support of family	7.3 ± 1.2	7.1± 1.3	0.2
Perceived social support of others	6.3 ± 1.5	6.09 ± 0.9	0.2
Total score of perceived social support	20.7 ± 2.7	19.7± 2.9	0.02

Values are mean ± SD

P value<0.05 accounts for significant

Table 2: Correlation of age with each of anxiety, self efficacy, and perceived social support in two Groups

Items	Age	CABG		PCI	
		P value	r	P value	r
State anxiety		-.31	.005	.01	0.8
Trait anxiety		-.33	.004	.10	0.3
Total of anxiety		-.35	.002	.06	0.5
Self efficacy		.09	0.4	-.03	0.7
Perceived social support		.24	.03	.01	0.8

P value< 0.05 accounts for significant

Table 3: Correlation of sex with each of anxiety, self efficacy and perceived social support in the two groups

Items	Sex	CABG			PCI		
		Men	Women	P value	Men	Women	P value
State anxiety		40.9	42.7	0.3	43.4	47.7	0.06
Trait anxiety		39.9	47.1	0.01*	43.7	47.4	0.1
Total of anxiety		79.8	89.8	0.06	87.1	95.5	0.05*
Self efficacy		27.6	21.6	0.01*	30.3	26.9	0.02*
Perceived social support		20.6	20.7	0.8	19.7	19.5	0.7

Values are mean

Result of Independent sample t test; P *< 0.05 compared to men.

Discussion

Dominant belief was that CABG patients experience higher psychological problems compared to PCI patients. An evidence for this is that, unlike patients recovering from coronary bypass, patients who have undergone angioplasty do not experience the extensive post event physical disability. In opposite, angioplasty is a procedure that is relatively non-invasive, less dramatic and yields rapid symptom relief dramatic (15, 16).

Psychological and psychiatric disorders independently increase the risk of cardiovascular disease and worsen the prognosis in patients with established cardiovascular lesions. What is notable here is that characteristics such as self efficacy, anxiety and social support have been shown to influence adopting and sustaining healthy behaviors and quality of life of heart patients. It is necessary performing safe psychological interventions based on needs and problems of each group of heart patients due to improving emotional and psychological well-being of them. Also, there is rare information about psychological status before and after surgery (PCI or CABG) in Iran. Due to all aforementioned reasons, a need was felt to undertake the present study.

Present study showed that, although PCI procedure is minimally invasive and threatening, PCI patients experience more anxiety and lower social support compared with CABG patients. Findings of such studies lend support for the closer surveillance of emotional status and more attention to psychological support in angioplasty population (2, 17).

In this study, it is observed that PCI patients had higher state and trait anxiety scores compared to CABG patients. High level of anxiety in the PCI patients can be explained due to uncertainty of PCI procedure. Sources of such uncertainty for PCI patients included the documented risk of the return of symptoms (30% risk of restenosis or artery renarrowing) and the limited time available during the short hospital stay for adequate education of the patient and family (18). Anxiety can also be seen as a product of uncer-

tainty. Ambiguous situations, particularly ambiguous stressors, are associated with both uncertainty and anxiety. The uncertainty regarding these situations highlights a lack of control that contributes to feelings of anxiety and makes coping more difficult. When a person is unsure about what course an event will take, they may also be not certain as to what type of coping response will be required in order to meet the demands of the impending situation. If the event itself is unclear, there are no effective means of assessing available coping supports and identifying coping options that will be effective (19). PCI patients with higher baseline uncertainty, more likely to have lower levels of perceived control, higher levels of anxiety, and higher levels of depression at 1 yr than did patients with lower uncertainty at baseline (20). Anxiety was associated with 'uncertainty over future health in the PCI patients (17).

A small number of studies have compared prevalence of anxiety after PCI and CABG. More than 70% of PCI patients were categorized as anxious at the 12-month follow-up. Furthermore, approximately three quarters of the sample were said to be experiencing significant anxiety 1 yr after PCI (21). These findings are consistent with Gulanick et al. (22). They reported uncertainty of recovery patterns after angioplasty and emphasis that health care professionals need to be more open about uncertainty.

In the present study women had more trait anxiety than men in the CABG group. In the PCI patients, there was not a drastic significant association between sex and total score of anxiety. In this study, it was also found that by increasing age in the CABG patients anxiety decreases. In a similar vein, it was indicated that in PCI patients, by increasing anxiety, perceived social support decreased. It is considering that anxiety has negatively related to perceived social support (23). Evidences showed that PCI patients with high levels of perceived social support had significantly less psychological stress and uncertainty than those with low levels of support (24).

Present study demonstrated that PCI patients had fewer score in perceived social support compared with CABG patients. There was no significant association between sex and perceived social support in the two groups. In the CABG groups, by increasing age perceived social support increased as well. In one study the trajectory of uncertainty and symptoms of psychological stress was examined during the first 3 months after PCI and CABG and was studied the impact of social support on uncertainty and psychological stress in these patient populations. Findings revealed that social support was a significant mediator of the relationship between uncertainty and stress only among patients undergoing PCI. The findings showed too that there was little evidence of a mediating role for social support in the coronary artery bypass grafting group (18). In this study, the PCI patients had more score of self efficacy than CABG patients. In the two groups, men had more self efficacy than women. Also, there wasn't any significant association between age and self efficacy expectation. In this study, the results of Pearson correlation within the groups showed that, by increasing anxiety; self efficacy decreased. While more anxiety in the PCI patients must accompany with lower self efficacy expectation, outcome was contradictory. These findings are contrary to reviewed literature, since its shows that application of self efficacy theory to anxiety treatment has proven useful. Here, the assumption is that anxiety reduction will be facilitated when self efficacy is reinforced and that treating anxiety will be more difficult when evaluations of efficacy yield poor self assessments. Anxiety is associated with low self efficacy or other problems that interfere with one's perceived ability to cope with fear or with anxiety-arousing events (19). Self-efficacy is related to psychological well-being in heart patients (25). Higher self efficacy in the PCI group can be explained by greater score of physical function in this group as compared with CABG patients. It is suggested that studies can be deemed on the

relation between anxiety and self efficacy expectation after control of physical function in future. Meantime, General Self Efficacy scale isn't a specific instrument for heart patients in special and it is much more assessing to use specific instruments such as Cardiac Self Efficacy Scale or Jenkins Self Efficacy Expectation.

As a shortcoming to the study in hand was the lack of information about the prevalence of anxiety and other psychological problems before CABG or PCI. Another limitation concerned the nonrandomized design of this study.

What can be concluded is that specific educational programs and psychological interventions for both CABG and PCI patients in confined, release terms and post release be planned differently. As the type and rate of psychological problems in these two groups of patients is different, what is suggested is that a more comprehensive longitudinal study of these problems among PCI patients be done.

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