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Comparing patients' quality of life before and after Coronary Artery Bypass Graft surgery (CABG)

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ABSTRACT

Aims: Cardiovascular diseases are one of the main causes of mortality in the world. Coronary Heart Disease (CHD) is one of the cardiovascular diseases that influence patients' quality of life. Evaluating quality of life of these patients is one of the components of treatment; this study is done with the aim of comparing patients' quality of life before and after CABG.

Methods: This cross-sectional study was conducted on 90 patient's candidate for CABG in Baqiyatallah and Jamaran Heart hospitals of Tehran in 2013. Sampling was done among the patients who had the inclusion criteria through convenient sampling method. Collecting data was done before and two months after surgery; MacNew specific Questionnaire of heart patients' quality of life was used for this purpose. Paired t-test and $SPSS_{17}$ software were used for statistical analysis.

Results: The mean score for quality of life before and two months after surgery was respectively 225.4 (24.88) and 168.6 (34.7). Also quality of life had significant decrease before surgery in compare with after surgery regarding emotional, physical and social dimensions ($p<0.001$).

Conclusions: Quality of life will be decreased in a short period of time due to surgical complications. Conducting longitudinal studies is recommended for more accurate assessment of this concept.

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1. Introduction

Nowadays, Coronary Heart Diseases (CHD) is a health problem and it is one of the main causes of mortality in the world [1]. It is estimated that ischemic heart diseases are going to be at the top of fifteen cause of global diseases [2]. This disease does not only influence patients' health, but also social relationships, life pattern, family atmosphere, occupation and income levels are influenced by it too [3]. CHD has many pathological effects on different aspects of physical, psychological, social and spiritual health [4-5]. Actually quality of life is a sign of quality of health cares and it is a part of treatment program. Evaluating

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quality of life in chronic diseases provides more information for the treatment team about patients' health status [6-7].

One of the causes of decrease in mortality due to coronary artery diseases is using Coronary Artery Bypass Graft (CABG) surgery technique [8]. Almost 60 percent of all the patients with coronary artery ischemic diseases experience CABG [9].

Although techniques and medical sciences progresses decrease cardiac patients' mortality, many patients who underwent surgery should pass their life with its psychological consequences such as lack of self-confidence, loss of confidence in performing daily activities, anxiety and depression due to lack of good recovery; these consequences can decrease quality of life of these patients to a high extent [10]. From the other side, not treating patients' psychological consequences after surgery imposes huge costs to the government and people in the society [11].

Quality of life is a multidimensional concept which includes an individual's physical, psychological and social status; it is a sense of well-being which is due to satisfaction or dissatisfaction with different aspects of life which are important for an individual. Quality of life is recognized as an important outcome and a patient's response to the disease treatment or a special process [12]. Change in patients' quality of life is one of the important outcomes of CABG surgery [12]. Therefore evaluating quality of life is one of the main parts of treatment [13-14].

Dehdari et al. believe that post-surgery anxiety and stress decreases quality of life in these patients [15]; but Louonen believes that CABG decreases mortality and relieves angina pains and increases quality of life in these patients [16]. Quality of life is recognized as a valuable index for measuring health status by public health and medical researches. Considering increasing rates of CABG and evaluating quality of life as an important index in these patients, we decided to conduct a study with the aim of assessing quality of life of the patients before and after CABG.

2. Methods

90 patients candidate for CABG in Baqiyatallah and Jamaran Heart hospitals in 2012 and 2013 were selected for this cross-sectional study. Sampling was done through convenient sampling method among the patients who had the inclusion criteria. Related information was collected before and two months after surgery. Inclusion criteria included; EF(Ejection Fraction) higher than 40 percent, being a male, lack of experiencing surgery before and being 20 to 60 years old. Exclusion criteria included; post-surgery complications which cause physical impairment and patient's longer discharge such as long-term stay in ICU and lack of patient's cooperation.

The questionnaire includes a part of demographic information. MacNew heart special tool was used for measuring quality of life. Quality of life self-assessment tool includes a translated version of MacNew which is designed for measuring the effect of treatment and education on cardiac rehabilitation patients. MacNew has a rapid response and it is sensitive to health changes related to quality of life following various interventions for cardiac patients. This questionnaire is performed successfully for at least twelve clinical and experimental studies and it has been tested on more than 5200 patient with cardiac problems [17]. This questionnaire includes three emotional (14 questions), physical (12 questions) and social (13 questions) dimensions.

The maximum score of every question was seven (the best present conditions of quality of life) and the minimum score was one (the worst present conditions of quality of life). Higher score in every area means higher quality of health. Validity and reliability of MacNew questionnaire has been proved by Stephen Houfer et al. in 2004. Houfer et al. measured quality of life of the patients suffering from MI in 2004 by using this questionnaire on 465

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patients in three time dimensions including baseline, one and three months later; it had an acceptable reliability by internal correlation and dependence coefficient of 0.73 [18]. Asadi Lari believed that the above tools are valid for measuring quality of life [19]. Informed written consent was taken from the patients for considering ethical points. Data analysis was done by paired t-test and $SPSS_{17}$ software.

3. Results

90 male patients candidate for CABG were assessed in this study. Their age mean was 52.4±5.52. 12.2 percent of the participants had elementary education, 13.3 percent secondary education, 30% Diploma and 44.4 percent had university education. 30 percent of them were military patients, 17.8 percent were clerks, 34.4 percent were retired and 17.8% were self-employed.

Regarding satisfaction with income; 13.3 percent were completely satisfied, 50% satisfied, 28.9 percent dissatisfied and 7.8 percent were completely dissatisfied. 66.3 percent did not have regular exercise. 78.9% did not smoke and 21.1 percent were smokers. Table 1 shows mean and standard deviation of the quantitative variables in the samples of the study.

Komolgraph-Smironof one-sample statistical test was used to assess the distribution of quantitative data in the groups of the study. Results indicated that quantitative variables had normal distribution ($p>0.05$).

Table 2 shows distribution of absolute and relative frequency of the qualitative variables in the samples of the study.

The score mean was measured in three dimensions of quality of life before surgery; the score mean in the emotional dimension,

Table 1: Mean and standard deviation of demographic quantitative variables

Variable	Mean	Standard deviation	Minimum	Maximum
Age	52.4	5.52	40	60
BMI	28.69	3.39	19	37.49
Cigarette	11.3	5.43	0	20

Table 2: mean and standard deviation of demographic qualitative variables

Variable	Have Number (percent)	Don't have Number (percent)
Diabetes	25(27.8)	65(72.2)
High blood pressure	32(35.6)	58(64.4)
High blood fat	46(51.1)	44(48.9)
Physical activity	33(36.7)	57(63.3)
Family history of heart disease	29(32.2)	61(67.8)

Table 3: comparing mean and standard deviation of different dimensions of quality of life before and two months after surgery

Stage Area	Before surgery Mean (standard deviation)	Two months after surgery Mean (standard deviation)	Paired t-test
Emotional	76.6(10.5)	58.1(12.9)	$t=14.6$, $p<0.001$
Physical	76.2(7.76)	57.5(11.56)	$t=17.06$, $p<0.001$
Social	72.5(7.65)	53.01(11.25)	$t=16.4$, $p<0.001$
Total	225.4(24.88)	168.6(34.7)	$t=16.9$, $p<0.001$

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physical dimension and social dimension were respectively; 76.6 (10.5), 7.76(76.2) and 7.65(72.5).

Two months after surgery the scores mean in emotional, physical and social dimensions were respectively 58.1(12.9), 57.5 (11.56) and 53.01(11.25), which have been decreased in compare with before surgery and there was significant different between them (table 3).

4. Discussion

The score mean of quality of life in the samples of the study in three emotional, physical and social dimensions before surgery were more appropriate than after surgery. Findings of this study are in consistent with the findings of the study of Bahramnejad et al. In the study of Bahramnejad et al. quality of life was measured before surgery and the group of the study was in an appropriate situation [20].

In this study, quality of life was measured two months after CABG; the results of our study indicate decrease in quality of life of the patients in three emotional physical and social dimensions and the total quality of life. In the study of Rava et al. quality of life was decreased after CABG too. Rava believes that decrease of quality of life in these patients is due to depression after CABG [21]; they believe that CABG does not improve quality of life of the patients after surgery alone, but also controlling anxiety and stress before and immediately some days after surgery is very important in long-term improvement of patients' quality of life [21]. Quality of life has been decreased in its emotional dimension in this study too.

Results of the study of Bahramnejad et al. were similar to ours. Bahramnejad et al. achieved that patients have inappropriate quality of life three months after surgery [20]. Quality of life is in a low level in a short period of time due to complications of the surgery and disease such as patient's post-surgery anxiety regarding the result of the surgery, duration of hospital stay and surgery and hospital expenses.

Misterig et al. in a study stated that sooner discharge leads to higher quality of life [22-23]. Results of the study of Lopunen et al. were not in consistent with ours; it can be because of sampling time, sample size, being single-gender study and also educations that the patients received after surgery [16]. The researcher believes that some factors such as physical and mental weakness and involvement of the patients before surgery, stress and anxiety, fear of death, concern about the future and concerns of the cost of discharge are factors that influence patients' quality of life. The researcher believes that some factors such as severity and duration of disease and its complications can influence patients' quality of life. Probably family supports and economic and social status are among the factors, which influence quality of life.

Considering the results of the present study and the conducted studies in this regard, the researcher believes that disease symptoms and complications are not fully resolved in months after surgery and probably because of this patients suffer from anxiety and it influences thier quality of life. Sadeghi et al. showed that quality of life has been decreased one month after CABG in control group in which post-surgery routine follow-up was done; this decrease in the score of quality of life can be because of problems and complications due to surgery and decrease in patients' functions [24]. Branason et al. also believes that patients talk about several types of emotional problems and decrease in theire activity one to three months after surgery [25].

Chan and Leon believe that different physiological and psychological problems are going to be seen in the patients after coronary artery surgery, which are basically due to fear, anxiety and immobility and consequently health related quality of life will be distorted in these patients [26-27]. Also Kouinski et al. studied quality of life of Postmenopausal Women undergoing CABG and found out that quality of life has been decreased after surgery [28]. Therefore findings of our study are in

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consistent with the findings of the studies of Sadeghi, Branason, Chan, Leon and Koinski. Being a single-sex study, little time for evaluating quality of life are among the limitations of the study, therefore, it is recommended to assess the quality of life in a longer period of time after surgery and to conduct the studies about both men and women in the future studies.

5. Conclusions

Quality of life is recognized as a valuable indicator for measuring health status by the public health and medical researches. Considering the results of the present study, it is necessary to pay more attention to mental and psychological conditions of the patients candidate for CABG and patients should be ready for encountering the future conditions through providing necessary educations before, during and after surgery. Post-surgery cardiac rehabilitation and improving the culture of participating in cardiac rehabilitation programs are recommended due to their proved results regarding promotion of quality of life.

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