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Original Article

Quality of life and its influencing factors in patients with acute coronary syndrome

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ABSTRACT

Background & Aim: Acute coronary syndrome (ACS) is a life-threatening condition. Considerable doubts exist over the effects of this disease on patients' quality of life (QOL). The aim of this study was to Survey QOL and its influencing factors in patients with ACS.

Methods & Materials: A convenience sample of 300 patients with ACS was drawn from Shahid Beheshti Hospital, Kashan, Iran, to this cross-sectional study. Sampling was performed from March to September 2014. We employed the Short Form Health Survey Questionnaire for gathering the data. Study data were analyzed by conducting the descriptive parameters, the one-way ANOVA test and the independent-samples t-test as well as logistic regression analysis using the SPSS version 13.0.

Results: The means of QOL in patients with ACS were 56.30 ± 17.15. The QOL Score in mental and physical component were 61.15 ± 19.46 and 51.57 ± 24.56, respectively. However, the logistic regression showed that male gender [odds ratio (OR): 1.88, confidence interval (CI): 1.04-3.43], coronary stenosis < 50% (OR: 3.25, CI: 1.48-7.13), and normal ejection fraction (OR: 3.41, CI: 1.31-8.89) increase the QOL ($P < 0.050$).

Conclusion: The results of this study showed that the QOL in patients with ACS is low. Female gender, low ejection fraction and coronary stenosis over 50% causes of reduction in their QOL. Hence, it is recommended that in nursing care during hospitalization and after discharge attend these problems.

Introduction

Acute coronary syndrome (ACS) includes unstable angina, myocardial infarction with or without ST-segment elevation (1, 2). This syndrome is the leading cause of mortality and morbidity in the worldwide (3, 4). The study in Iran reported the prevalence of coronary artery disease based on the Rose questionnaire and Minnesota coding, in aged above 35 years, 37.5% in women and 22.2% in men. In another study aged-adjusted prevalence of coronary heart disease was reported 21.8% (22.3% in women and 18.8% in men) (5).

ACS is a debilitating condition which causes different physical and psychosocial problems (6, 7). Ineffective coping with ACS as well its associated problems may impair patients' quality of life (QOL). Factors such as vascular disorders, side effects of medications, and age-related changes in the functioning of body systems can compromise the functions of body organs among patients with ACS (8). Furthermore, new innovations in the field of vascular reconstruction such as coronary artery bypass graft (CABG), angioplasty, and the entry of new drugs, are increased survival and can affect the QOL for patients (9). In chronic illness, the QOL is

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equal with length of life. In fact, disease processes and treatment impact on all aspects of life (10).

Some studies show that in patients with coronary artery disease, by going time and receipt health cares, physical limitations reduced, general health status, and subsequent QOL significant increases (11-15). But Tofighiyan et al. (16), Seyam et al. (17) and Bucholz et al. (18) were reported reduced QOL in patients with ACS. Poor QOL is associated with exacerbations, increasing the number of days of hospitalization, reduced activity, and survival and also decreased social activity, loss of job security, disruption of interpersonal relations, and the role of the family (17).

In different studies, various factors have influenced in patients' QOL. In some studies, older age, female gender, marital status, less education, increase the duration and frequency of hospitalization (17), and diabetes (19) are reduced the QOL. While Hsanpour-Dehkordi et al. (13) show that demographic factors did not associated with QOL. In his study, physical function, health insurance, and retirement factors are considered effective.

As mentioned, significant disagreement exists over the QOL and impact of demographic and clinical factors in patients with ACS. Our field observations also confirmed differences in patients QOL following ACS. Accordingly, this study was conducted to evaluate the QOL and its influencing factors in patients with ACS.

Methods

The study was performed from March to September in 2014 by using a cross-sectional design. The study population was all the patients with ACS who had been hospitalized in the angiography unit of Shahid Beheshti Hospital, Kashan, Iran. A convenience sample of 300 patients with ACS was drawn. The sample size was calculated 300 patients with a Type I and a Type II error of 0.05 and 0.80, respectively and by using the results of a local study (20).

Participants who were selected among patients with a diagnosis of ACS by cardiologists, for the first time, were referred to angiography ward. In angiography ward, phone numbers and clinical and demographic data were collected. Two months after the last day of hospitalization, contacted with them by phone and they were invited to complete the questionnaire. They were completed the questionnaires in a separate room in angiography ward. In case of inability to read and write, researcher's red the questions and participants responded to it.

The inclusion criteria were giving informed consent for participation, having Iranian nationality, not having any known mental problems, being able to answer researchers' questions and speak Persian, having no previous history of hospitalization due to cardiac problems, and being discharged maximally 3 days after hospitalization. Patients who wanted to withdraw from the study were re-hospitalized, or faced death after discharge and before completing the study questionnaire were excluded from the study.

Study data were collected using a demographic questionnaire (on participants' age, gender, education, employment, use of cardiac medications, history of other underlying diseases, ejection faction, coronary stenosis, and choice treatment) and the Short Form Health Survey (SF-36) Questionnaire. The SF-36 is a 36-item standardized questionnaire for evaluating QOL. Components of QOL include physical component (General health, physical limitations, physical functioning, and bodily pain), and the mental component (Social functioning, emotional limitations, mental health and energy).

All questions are scored on a scale from 0 to 100, with 100 representing the highest level of functioning possible. The scores from those questions that address each specific area of functional health status are then averaged together, for a final score within each of the eight dimensions measured (21). The reliability and the validity of the Persian SF-36 were evaluated by Montazeri et al. (22). They reported a Cronbach's alpha of 0.9 for the questionnaire.

Then, study subjects were invited to complete the demographic questionnaire. Two months after, subjects were invited to the study setting for completing the SF-36. For subjects who were unable to read or write, questionnaires were filled by using the interview technique.

This study was conducted based on the Declaration of Helsinki and after being approved by the Institutional Review Board and the Ethics Committee of Kashan University of Medical Sciences, Kashan, Iran (approval number was 9349). After receiving the necessary permissions and approvals, we referred to the study setting and identified eligible subjects. The aim and the methods of the study

were explained to them, and informed consent was obtained. For preventing potential measurement biases, the questionnaires were administered and filled in privacy and quiet place.

We analyzed the data using the SPSS (version 13.0; SPSS Inc., Chicago, IL, USA). Descriptive parameters assessed the frequency of demographic and clinical variables and the mean of age and QOL of patients in different components. Data has normal distribution by the Kolmogorov–Smirnov test. QOL was assessed according to the demographic and clinical variables (gender, employment, education, history of underlying disease, and use of cardiac medications and coronary stenosis) by using independent t-test and also one-way ANOVA test were used for ejection fraction and choice treatment. We also performed logistic regression analysis for assessed the relationship QOL with demographic and clinical variables. P values which were < 0.050 were considered statistically significant.

Results

A total of 300 subjects entered and completed the study. In this study, 127 female (42.3%) and the rest were male. The mean of age in patients was 57.18 ± 11.32 years that ranging in age from 44 to 68 years old. More than three-quarters of patients have ejection fraction > 45% and half of them had coronary Stenosis over 50%. Most patients experience chronic illness (74%) and were taking heart drugs (60%). Other demographic data are presented in table 1.

Table 1. Determine study participants' the mean and standard deviation QOL according to the demographic and clinical variables

Variables	Statistical indicators		
	Frequency	Mean ± standard deviation QOL	P
Age			
< 55	46	60.96 ± 19.13	0.001*
> 55	54	52.30 ± 19.50	
Gender			
Male	57.7	58.46 ± 18.62	0.007*
Female	42.3	53.36 ± 21.66	
Education			
Illiterate	69.7	52.60 ± 19.73	0.001*
Literate	30.3	64.73 ± 18.40	
Employment			
Unemployed	54.3	53.18 ± 19.49	0.005*
Employed	45.7	59.98 ± 20.25	
History of underlying disease			
Yes	74	54.90 ± 19.34	0.004*
No	26	60.33 ± 21.76	
Use of cardiac medications			
Yes	60.3	54.85 ± 19.66	0.120*
No	39.7	58.51 ± 20.62	
Ejection fraction			
> 55%	28%	63.30 ± 19.69	0.001**
45-55%	45%	56.35 ± 19.38	
35-45%	12%	50.57 ± 18.24	
< 35%	15%	48.76 ± 21.45	
Coronary stenosis			
< 50%	50%	62.39 ± 20.32	0.001*
50% <	50%	50.43 ± 18.17	
Choice treatment			
Medical	52.3%	60.06 ± 20.05	0.001**
PTCA***	31.7%	54.56 ± 19.23	
CABG	16%	56.30 ± 20.10	

*Independent t-test, **One-way ANOVA test, ***Percutaneous coronary artery angioplasty. QOL: Quality of life, PTCA: Percutaneous transluminal coronary angioplasty, CABG: Coronary artery bypass graft

Table 2. Logistic regression coefficients to assess the relationship QOL with demographic and clinical variables in the univariate analysis in the study participants

Variables	Statistical indicators		
	OR	CI	P
Age	0.9	0.86-0.95	0.001
Gender: Female (Male)	1.35	0.85-2.14	0.200
Literate (Illiterate)	2.74	1.64-4.59	0.001
Employed (Unemployed)	0.6	0.38-0.95	0.028
History of underlying disease (No)	1.52	0.90-2.56	0.115
Use of cardiac medications (No)	1.7	1.07-2.72	0.025
Ejection fraction < 35%			
> 55%	4.68	2.14-10.27	0.001
45-55%	2.32	1.13-4.73	0.022
35-45%	0.92	0.35-2.44	0.871
Coronary stenosis > 50% (< 50%)	3.16	1.97-5.06	0.001
Choice treatment (CABG)			
Medical	2.91	1.47-5.73	0.002
PTCA	1.52	0.74-3.13	0.200

PTCA: Percutaneous transluminal coronary angioplasty, CABG: Coronary artery bypass graft, QOL: Quality of life, OR: Odds ratio, CI: Confidence interval

The means of QOL in patients with ACS 56.30 ± 17.15. Score of QOL in mental component was more than physical component. The QOL score in physical component was 51.57 ± 24.56 (physical limits 40.16 ± 43.66, physical performance 48.60 ± 35.02, pain 59.86 ± 22.24, public health 58.01 ± 20.19) and psychological component 61.15 ± 19.46 (energy 73.20 ± 18.13, social performance 63.08 ± 19.92, emotional limitation 35.22 ± 46.02, mental health 73.09 ± 17.15). Nearly 58.3% of patients had less than mean QOL score. Independent t-test revealed that the QOL statistically significantly associated with age, gender, education, employment, history of chronic disease, and coronary stenosis. The results of ANOVA indicated that QOL is significantly associated with ejection fraction and type of treatment (Table 1).

We conducted the logistic regression analysis to investigate the relationship QOL with demographic and clinical variables (n = 300). It was used at a significance level of < 0.001. Therefore, QOL scores were divided in two desirable (> 50) and undesirable (< 50) groups. At the first, univariate models were used (Table 2) and then variables with P < 0.200 was entered into a multivariate model. The results of logistic regression analysis revealed that demographic and clinical variables explain 17.3-23.1% of the variance of changes in QOL. In this model man, normal ejection fraction and coronary stenosis < 50%, statistically were associated with QOL. Male gender increases 1.88 times as likely to the desirable QOL. Coronary stenosis < 50%, increase 3.25 times as likely to the desirable QOL. Furthermore, normal ejection fraction (> 55%) increase 3.41 times as likely to desirable QOL (Table 3).

Discussion

Study findings showed that 2 months after experiencing ACS, QOL was 56.30 ± 17.15. These findings are compared with findings of previous studies that have similarities and discrepancies. In line with the present study, Vazirinejad et al. (19) found that individuals with and without exposure to coronary ischemia, respectively, 50% and 40% have low QOL. Bucholz et al. (18) in Kansas, Tofighiyan et al. (16) in Sabzevar and Seyam et al. (17) in Birjand also reported that QOL in patients with coronary artery disease was low. However, the findings of another study conducted by Taghadosi and Gilasi (20) in Kashan and Hsanpour-Dehkordi et al. in Shahre-Kord, in contrast to the present study showed that QOL is desirable in 2 months after diagnosis of ischemic heart disease (13, 20). Also, Tendera (15) and Covinsky et al. (23), were reported the time required to increase the QOL, respectively, 6 and 12 months.

Table 3. Logistic regression coefficients to assess the relationship QOL with demographic and clinical variables in the multivariate analysis in the study participants

Variables	Statistical indicators		
	OR	CI	P
Age	0.95	0.90-1.00	0.062
Gender: Female (Male)	1.88	1.04-3.43	0.038
Literate (Illiterate)	0.69	0.34-1.16	0.136
Employed (Unemployed)	0.74	0.43-1.27	0.279
History of underlying disease (No)	1.26	0.67-2.38	0.482
Use of cardiac medications (No)	1.17	0.66-2.09	0.590
Ejection fraction < 35%			
55% <	3.41	1.31-8.89	0.012
45-55%	2.06	0.89-4.74	0.090
35-45%	1.88	0.34-2.73	0.933
Coronary stenosis 50% < (< 50%)	3.25	1.48-7.13	0.003
Choice treatment (CABG)			
Medical	0.50	0.17-1.47	0.206
PTCA	0.66	0.28-1.54	0.335

PTCA: Percutaneous transluminal coronary angioplasty, CABG: Coronary artery bypass graft, QOL: Quality of life, OR: Odds ratio, CI: Confidence interval

Bahramnezhad et al. (14) investigated of 126 patients after CABG in four stages (before, 3, 6 and 12 months after surgery). She reported that QOL is different at different times. He showed that based on level and severity of myocardial involvement, patients have symptoms such as angina, dysrhythmias, weakness and lethargy. Symptoms, medications, recurrent angina, frequent hospital admissions could affect their personal and social life activities. On the other hand, when myocardial blood flow be established by vascular reperfusion and medication, myocardial oxygen supply and demand balanced, commuted physical symptoms, the patient's tolerance increases by going time, Following the improve heart function, patients returns normal live activity. Also, Graham et al. (9) investigated 21,573 patients with ischemic heart disease in Canada. He showed that QOL is affected by ischemic heart disease and then gradually increased with anti-angina drugs, So that 3 years after starting treatment, it improves. It looks like the time of study is factors affecting the QOL. In this study, because of following 2 months after treatment, it is in the low range.

The study of Hsanpour-Dehkordi et al. (13), Taghadosi and Gilasi (20), Covinsky et al. (23) and Tendra (15) is difference with me, maybe because of being the difference in target population, sampling, the age, and the tools used. Taghadosi and Gilasi (20) investigated patients undergoing angioplasty, Bahramnezhad et al. (14) and Covinsky et al. (23) investigated patients undergoing CABG and Graham et al. (9) were examined all treatment groups separately but in this study, all patients with ACS were assessed and treatment groups were not separated. Furthermore in this study, SF-36 - questionnaire was used for assessing the general QOL while it looks using heart disease-specific questionnaires such as Seattle and Mac New is more appropriate.

In this study, the QOL score in mental component was more than physical component. Also, Thomson et al. (6) in Scotland, Jahani et al. (24) and Seyam et al. (17) reported the QOL in mental component was more than the other component. However, unlike the present study, Vazirinejad et al. (19) and Siavoshi et al. (25) and showed that QOL in mental component is lower. Considering that in this present study, half of the patients had coronary stenosis over 50% and half them were under invasive treatments, therefore, it can affect a patient's physical health for a long time. Perhaps differences in the mean age of the patients studied or prior psychological and physical problems was affecting the QOL in these patients.

The results show that the QOL in patients with coronary stenosis over 50%, is fewer. This result is aligned with the study of Ebrahimi et al. (5) and Tofighiyan et al. (16).

It seems higher coronary stenosis in the wake of

a mismatch between demand and supply oxygen is impaired person activity. In other word, the extent and severity of stenosis, a narrowing of the vessel, its complications, consumer costs, length of hospitality, the anxiety from that, can be effective in reducing the QOL in these individuals (14). Also, support families and individuals coping with the effects of disease can affect people's QOL (5, 15).

In this study, QOL in patients with low ejection fraction was lower than other. Pettersen et al. (26) along with the study, showed that ejection fraction was statistically significantly associated with QOL. But Nesbitt et al. (27) reported ejection fraction was not significantly associated with QOL. It seems to reduce the ejection fraction, and cardiac output can lead to compensatory change in contraction characteristics of Miocene deposits and myocyte hypertrophy and lead to the fatigue and shortness of breath. These symptoms have the negative impact in physical and social functioning and reduce QOL (28).

In this study, male gender increases 1.88 times as likely to the QOL. Pettersen et al.'s (26) study is in line with the present study but studies of the Hsanpour-Dehkordi et al. (13) and Seyam et al. (17) is against that. It seems hormones, coronary artery structure, and the physical and mental capacity in men different from women and in addition to the above-mentioned diseases and treatments, can affect the patient's QOL (13, 29).

The results of this study showed that the QOL in patients with ACS is low. Female gender, low ejection fraction and coronary stenosis over 50% causes of reduction in their QOL. Hence, it is recommended that in nursing care during hospitalization and after discharge attends these problems. Because failure to address each of the above issues can be impairs the QOL.

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Conflict of interest

The authors declare no conflict of interest.

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