Effecting Factors on Health-Related Quality of Life Among Patients With A History of Acute Coronary Syndrome

Akut Koroner Sendrom Geçirmiş Hastalarda Sağlıkla İlişkili Yaşam Kalitesini Etkileyen Faktörler

AUTHORS / YAZARLAR

Didem Kafadar
Department of Family Medicine, Bağcılar Training and Research Hospital, İstanbul, Turkey

Fatma Gonul Doğan
Department of Family Medicine, Bağcılar Training and Research Hospital, İstanbul, Turkey

Nuket Bayram Kayar
Department of Family Medicine, Bağcılar Training and Research Hospital, İstanbul, Turkey

Burak Ayça
Department of Cardiology, Bağcılar Training and Research Hospital, İstanbul, Turkey

Muhammet Çömçe
Department of Family Medicine, Bağcılar Training and Research Hospital, İstanbul, Turkey

H. Ayberk Çakırlar
Department of Family Medicine, Bağcılar Training and Research Hospital, İstanbul, Turkey

Abdurrahman Polat
Department of Family Medicine, Bağcılar Training and Research Hospital, İstanbul, Turkey

Ertuğrul Okuyan
Department of Cardiology, Bağcılar Training and Research Hospital, İstanbul, Turkey

ABSTRACT

Introduction: Acute coronary syndrome is a major experience which affects health related quality of life of patients. In literature, health related quality of life has been found to be associated with clinical parameters. We aimed to evaluate whether health related quality of life of patients with a history of acute coronary syndrome is associated with gender, geriatric ages, the affected vessels and period from the first acute coronary event of the patients.

Methods: This descriptive study included the records of the patients with a history of hospitalization for acute coronary syndrome. Socio-demographic features, clinical data involving the first acute coronary event, angiography results and scores of Short Form-36 Health Survey, which were present in the records of the patients were evaluated for any associations.

Results: Records of 100 patients who had completed the survey were included in the study. In patients with one vessel disease the domain scores were higher than patients with multivessel disease. In the first year after acute coronary syndrome, the scores were lower. Women had significantly lower scores than men in 6 out of 8 domains. The lowest domain scores were in the geriatric patients (35%).

Conclusions: We concluded that affected vessels and the first year after the acute coronary syndrome may have lowering effects on health related quality of life. Short Form-36 may be utilized for baseline assessments of health related quality of life of patients after disease onset. We recommend a comprehensive assessment of health related quality of life in patients with multivessel disease and patients with a new acute coronary syndrome history as well as women and elderly.

Keywords: quality of life, acute coronary syndrome, angiography, cross-sectional studies

ÖZET

Amaç: Akut koroner sendrom hastaların sağlıkla ilişkili yaşam kalitesini etkileyen önemli bir yaşam deneyimidir. Literatürde sağlıkla ilgili yaşam kalitesinin klinik parametrelerle ilişkisi bulunmuştur. Bu çalışmada, sağlıkla ilişkili yaşam kalitesinin akut koroner sendrom geçirmiş hastalarda; cinsiyet, geriyatrik yaş, anjiyografi ile belirlenmiş tutulan damarlar ve ilk akut koroner sendrom sonrası süre arasında ilişki olup olmadığının araştırılması planlanmıştır.

Metot: Bu tanımlayıcı çalışmaya; akut koroner sendrom nedeniyle daha önce kardiyoloji kliniğine yatırılmış hastalar dahil edildi. Sosyo-demografik özellikler, geçirilen ilk akut koroner sendrom, anjiyografi sonuçları, daha önce hastalara uygulanan Kısa Form-36 ölçeğinin puanları dosyalardan taranarak kaydedildi. Hastaların klinik bilgileri ve Kısa Form-36 alt ölçek puanları olası ilişkiler açısından değerlendirildi.

Bulgular: Kısa Form-36 nın uygulandığı 100 hastanın dosya kayıtları incelendi. Tek damar hastalığı olanların ölçek skorları 2 ve 3 damar hastalığı olanlardan daha yüksekti. Akut koroner sendrom sonrası ilk yıl içinde olan hastalarda ölçek puanları daha düşük bulundu. Alt ölçek puanları kadınlarda, erkeklerden 8 alt ölçeğin 6'sında anlamlı olmak üzere düşük bulundu. Geriatrik hastalarda (%35) alt ölçek skorları en düşük bulundu.

Sonuç: Koroner arter hastalığında tutulan damar sayısı ve akut koroner sendrom sonrası ilk yıl içinde olmak sağlıkla ilişkili yaşam kalitesini düşürmektedir. Yaygın damar hastalığı olan ve yeni akut koroner sendrom hikayesi olan hastalar ile 65 yaş ve üzeri hastalar ve kadınlarda yaşam kalitesinin kapsamlı değerlendirilmesini önermekteyiz.

Anahtar kelimeler: yaşam kalitesi, akut koroner sendrom, anjiyografi, kesitsel çalışmalar

Corresponding Author / İletişim için
Dr. Didem Kafadar, MD
Bagcılar Egitim ve Arastırma Hastanesi, Merkez Mah., Bağcılar, 34200, İstanbul, Turkey
E-mail: dkafadar@gmail.com
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Introduction

As medical treatments for diseases have evolved, researchers are trying to measure the qualitative parameters affecting a patient's life after a major life event concerning health such as acute coronary syndrome (ACS), which consists of myocardial infarction (MI) and unstable angina pectoris (USAP). Defining health related quality of life (HRQoL) of patients after the patients have experienced ACS is essential to evaluate the patient. Short Form-36 Health Survey (SF-36), which was developed by Ware et al. (1), represents eight health concepts and has been widely used to assess the HRQoL of patients in both general population and different patient groups (2-4) involving those patients with cardiac diseases (5-10). It has also been utilized in validation studies of the other newly developed surveys to evaluate the HRQoL in patients with heart diseases (11-13). Quality of life concept is a self-report about multidimensional aspects and an overall idea about the psychological, social, and physical status of the individual (4). HRQoL of patients is claimed to reflect the health status as perceived by the patients themselves. In patients who have experienced ACS, the degree of occlusion is diagnosed by angiography and is treated by medications or coronary interventional therapies. SF-36 has also been used to measure the impact of these interventions on HRQoL (7,9,14).

A medical history of ACS is reported to have an impact on HRQoL of patients (15-18). When compared to general population, HRQoL of patients after MI decreases especially in dimensions related to pain, usual activities and mental well-being (18).

Morbidity and mortality may be predicted by self reports of patients with heart disease. The importance of assessing factors that predict HRQoL in the newly diagnosed coronary artery disease (CAD) and throughout the disease process is emphasized in literatüre (3,19). A study conducted in Turkey reported that older patients and women had worse HRQoL and CAD negatively affects HRQoL when compared to patients without CAD (15).

In this study, we report on the evaluation of the SF-36 scores considering gender, later and geriatric ages in patients with a history of ACS and whether domain scores were associated with angiography results and period from the first acute coronary event of the patients.

Methods

This retrospective descriptive study included the records of the patients with a history of hospitalization for ACS. Socio-demographic features, laboratory values, clinical data involving the first acute coronary event, angiography results and SF-36 survey scores were present in the records of the patients. SF-36 survey was conducted formerly with consecutive 100 patients who attended their usual visits to the hospital outpatient clinics with a history of hospitalization for ACS and who accepted to participate in the survey. Patients' laboratory values at the time of the survey were also present in the records. Patients with a history of pscyhiatric, neurologic and romatologic diseases were excluded, a written consent was taken from the patients and researchers made face to face interviews.

The study complies with the Declaration of Helsinki and was approved by the Research Ethics Committee of the hospital.

Clinical data were gathered from the records of the patients. In angiographic multivessel CAD in which stenting is required, there are stenoses ≥50% in at least 2 of the 3 major epicardial coronary arteries, it is also called as angiographic 2- or 3- vessel disease (20). According to the angiography results, 2 groups were made. Patients with 3-vessel and 2-vessel artery disease were in the "multivessel disease" group and patients with 1 vessel and all other small vessel diseases were in the "1 vessel" disease group. Data about the history of ACS, which is about the time interval between the first acute coronary event and the interview for the SF-36 survey, was retrieved for patients with available data (n=82). Patients were divided in 2 groups as <1 year group and >1 year group.

SF-36, developed by Ware et al. for Rand Corporation for Medical Outcomes Study, was used to assess the HRQoL of the patients (1). The validation study of Turkish version of the SF-36 survey was carried on by Kocyigit et al. (21).

SF-36 is used to measure the self-reported health.

There are 36 items measuring 8 HRQoL domains as physical functioning (PF), social functioning (SF), role limitations due to physical problems (RP), role limitations due to emotional problems (RE), vitality and energy (VT), bodily pain (BP), general perception of health (GH) and mental health (MH) which shows psychological distress and emotional well being. Physical functioning is defined as the ability to perform activities with different intensities which may be done in a typical day and "role limitations" indicate limitations with work and other regular daily activities due to physical health (22). For each domain, the answers were coded by using the standart SF-36 scoring algorithms and were transformed into a scale from 0 to 100. 0 represented the worst and 100 represented the best (2,5). The survey questions the last month except one question, which asks about past one year; and this question is not one of the questions making up the domains so the answers to this one question was compared with the domain scores.

The descriptive and analytical analyses were performed by using the SPSS version 21.0. Descriptive statistics were given in terms of means, medians where necessary and standard deviations, counts and percentages. The variables were investigated by Kolmogorov Smirnov/Shapiro-Wilk's test to determine whether or not they were normally distributed. The Student's t-test, One-way ANOVA and the Mann Whitney U test and Kruskal Wallis test were used when necessary. The Chi-square test was used to compare proportions in different groups. A p-value of less than 0.05 was considered to show a statistically significant result. Correlation coefficient (r) was accepted as follows: 0-0.24 weak, 0.25-0.49 medium, 0.50-0.74 strong and 0.75-1.00 very strong. Correlation coefficients and their significance between variables were calculated by Spearman's Rho Test ve Pearson test. Turkish normative values were compared with our results for SF-36 by using Wilcoxon sign rank test. The domains representing different aspects of health were compared considering different sociodemographic factors and clinical data of the patients. The survey domains were evaluated for associations between genders, age groups, angiography results and ACS history. We also looked for correlations between age, lipid and glycose values and domain scores.

Results

Sociodemographic Factors and Domain Scores:

A total of 100 patients had completed the survey and records of those patients were included in the study. There were 77 (77%) males and 23 (23%) females. The mean age of the patients was 60.38±11.59; ranging from 35 to 90 years. The patients were divided in 3 age groups considering later (≥50) and geriatric ages (≥65years). Mean domain scores of SF-36 for different age groups were presented in Table 1.

Table 1. Mean values for SF-36 domain scores for all patients and in terms of gender and age

	Gender			Age of Patients				Total Score of Patients (n=100)
	Women (n=23)	Men (n=77)	P**	35-50 (n=18)	51-64 (n=47)	65 and over (n=35)	P**	
Physical Function	45.65±21.75	66.10±25.29	0.001	73.89±25.17	67.55±21.76	46.71±25.29	<0.0001	61.40±25.90
Role Limitation-Physical	21.74±33.11	46.75±44.67	0.036	38.89±44.74	47.34±44.61	33.57±41.09	0.404	41.00±43.45
Bodily Pain	43.48±33.79	69.9±29.29	0.001	72.22±21.84	65.48±32.98	57.29±35	0.419	63.83±32.21
Vitality and Energy	36.15±21.78	47.77±23.01	0.027	47.78±12.62	47.66±25.29	39.29±23.86	0.225	45.09±23.16
Social Function	60.87±37.36	71.27±27.95	0.290	78.47±25.65	72.61±28.39	58.93±33.42	0.076	68.87±30.48
Role Limitation-Emotional	31.87±30.94	45.88±33.36	0.067	50.00±32.85	43.26±33.28	38.09±33.48	0.441	42.67±33.20
Mental Health	50.91±24.74	61.82±22.40	0.048	64.22±18.27	62.36±22.28	52.69±25.89	0.108	59.31±23.29
General Perceived Health	35.65±21.75	49.31±24.73	0.019	50.83±23.84	47.66±24.64	41.77±25.10	0.385	46.17±24.65

**Values are expressed as means ± standard deviations. Only data of the patients which could be recruited is presented.*
***p<0.05 is considered as significant.*

For all domains the scores were the lowest in the geriatric group. A very significant difference was found between age groups thus Physical Function scores increased as patients' ages increased. ($p<0.0001$)

In both genders, it was found that Social Function score was the highest and was not different between genders. The scores of men were higher than women in all of the eight domains. There were significant differences between the Physical Function, Physical Role Limitation, Vitality-Energy, Bodily Pain, Mental Health and General Health domain scores of men and women. Mean values for SF-36 domain scores for patient group in terms of gender were presented in Table 1.

Among patients, 47% were graduates of primary education, 37 % were not graduated but were literate while 16% were graduates of secondary and higher education. SF-36 domains were not associated with educational status, marital status, smoking status, duration of disease and presence of comorbidities-diabetes, hypertension and dyslipidemia ($p\geq0.05$). We noticed that as education level increased social function domain score increased but was not significant ($p=0.088$).

Correlations

There are significant negative correlations between age and Physical Function domain ($r=-0.405$, $p<0.0001$); age and Mental Health domain ($r=-0.216$; $p=0.031$); age and Social Function domain ($r=-0.233$; $p=0.020$).

There is a weak significant correlation between Physical Role domain scores and cholesterol ($r=0.223$, $p=0.044$) and LDL ($r=0.239$, $p=0.029$). There were not any significant correlations for any other lipid and glycose values.

Affected Vessels and History of ACS

All the patients had a history of angiography proved ACS and PCI (percutaneous coronary intervention). Ninty patients had percutaneous coronary interventions (PCI). Twenty-one patients underwent coronary artery bypass greft (CABG). Data of the latest angiography results could be recruited for 88 patients from our hospital records (Table 2). Twenty-six males and ten females (n=36) had multivessel disease. Forty-one males and eleven females (n=52) had one vessel disease. Mean age of the patients with one vessel group was 58.83±11.28 and in multi-vessel group it was 61.64±12.04; means were not different ($p=0.267$).

Table 2. Angiography results and the mean values of SF-36 domain scores*

SF-36 Domains	One vessel (n=52)	Multi vessel (n=36)	P**
Physical Function	64.71±22.99	55.56±28.80	0.158
Role Limitation Physical	43.75±44.24	34.03±41.47	0.311
Bodily Pain	64.08±31.24	55.36±32.33	0.156
Vitality and Energy	47.69±25.42	39.72±19.23	0.115
Social Function	71.06±30.20	62.36±32.76	0.228
Role Limitation Emotional	45.52±33.68	42.58±33.44	0.615
Mental Health	61.92±25.24	56.00±22.09	0.258
General Perceived Health	50.87±25.09	40.89±24.60	0.068

**Values are expressed as means ± standard deviations. **$p<0.05$ is considered as significant.*

Among the patients, 73 patients had MI and 27 patients had USAP. The average time between the first acute coronary event and the interview for the SF-36 survey was 3 years 8 months for the patients with available data in the records (n=82). In <1 year group, there were 22 patients and in >1 year group there were 60 patients. In the >1 year group, all domain scores were higher than the <1 year group however only in the Bodily Pain domain it was significant ($p=0.025$).

Comparison of Health Status With Last Year

One question in survey was about the comparison of health status at the time of the survey and one year ago with last year, which is not included in the calculation of the domains as it is already mentioned. Patients who reported that their health status did not change or was better than last year (51%); had higher scores in all domains than those who reported that their health status was worse (49%). There were no gender differences (Figure 1). The group who felt better or the same as the last year had higher scores in all domains. This was significant in Physical Function ($p=0.006$), Physical Role Limitation ($p=0.002$), Bodily Pain ($p=0.003$), General Health ($p=0.002$) and Social Function

(p=0.044) while was not significant in Vitality-Energy (p=0.355), Mental Health (p=0.345) and Emotional Role Limitation (p=0.351).

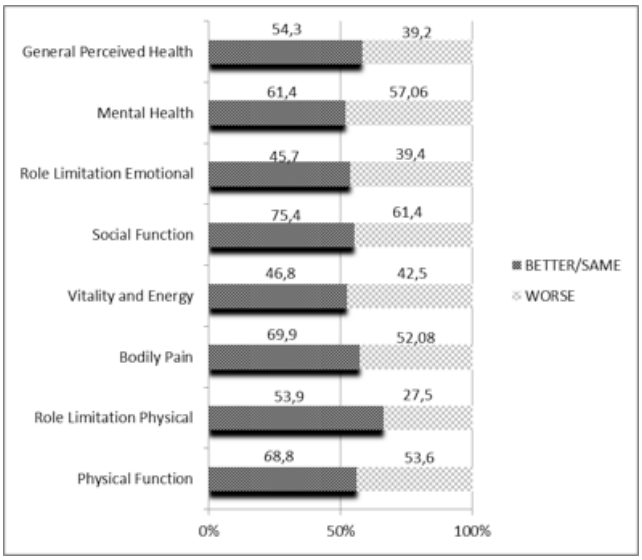


Figure 1. Mean domain scores of patients according to how they perceive their health compared to one year ago (the only question which is not used in calculating the domain scores)

Discussion

In this study, we found that the HRQoL scores of the patients in the first year of the ACS is low. After the first year of the acute coronary event, the scores of the patients got higher. Although our patients who have had a longer interval between the ACS and the time of the survey had higher scores, only in the Bodily Pain domain, this was significant. All the patients have underwent PCI (percutaneous coronary intervention). In one study, it was reported that cardiovascular diseases affected general health, role limitations, and social functioning the most among the other chronic conditions (23). We may interprete that different aspects of early detection of HRQoL may be essential in rehabilitation of patients after ACS. Instruments for assessment of quality of life after a medical intervention may be used to identify the patients under certain risks (4). SF-36 domains as physical function, role-physical, bodily pain and general health correlated with physical capacity of patients after CABG and PTCA and it is suggested that clinicians may use the SF-36 along with other tests such as walking tests and exercise stress test to evaluate functional capacity (24,25). In previous studies, it has been suggested that to improve functional capacity and quality of life of patients, rehabilitation should begin as soon as possible (16). Depending on what the patient needs individually; pscyhological, social or physical measures may be taken.

We have found that patients with multi-vessel disease had lower scores in all domains. The patients felt limited in their activities. In a recent study, it has been suggested that after MI, patients' emotional needs may differ according to the severity of the MI experience and these should be realized by physicians (26). We may say as the affected vessels increase, the disease burden increases; this must be verified in a prospecive study.

In the patient group, social function domain was the highest, this may be due to cultural factors and social support of the family. In a recent review, the factors predicting HRQoL in patients with newly onset CAD; social support was reported to be a psychosocial positive predictor while anxiety and depression were among negative predictors (19).

In our patient group, females had lower scores in most of the domains revealing that HRQoL of women have been affected more after ACS; this is compatible with literatüre (17). Female gender has been found to be a negative predictor of HRQoL in newly diagnosed CAD patients (19). As disease progresses, we may expect an impairment in HRQoL of especially females. We think gender differences in traditional and psychosocial risk factors may play role in coping with disease as well as perceiving the effects it makes.

The patients in the study, had a mean age similar to other studies (16). Domain scores of the geriatric patients were the lowest. Elderly patients expressed less vitality and more pain, their mental well being and social function scores were less and general health scores were worse. Elderly patients may face many health problems related to their age. In a study conducted with older women, physical function and general health domains were found to be significantly associated with the outcomes (22). Especially in women and elderly patients; identification of psychosocial symptoms and appropriate treatments as well as improvements in social aspects have been emphasized in cardiac rehabilitation for a better

quality of life (27). Elderly patients may face many health problems related to their age. In follow-up of patients, conditions of the elderly such as frailty, cognitive impairment needs consideration because these will effect the quality of life (28).

To the question which asked about how the patients felt about their health status when compared to last year, patients who answered that their health status have got worse had lower domain values. Self-reported decline in the health status may alert the physician for further assessments of health quality.

Discovering patients perception of their own health status may improve inpatient and outpatient practice by utilizing the HRQoL surveys to our patients (29). When evaluating the patient, extent of disease and the period from the first acute coronary event should be considered as well.

Limitations of the study

The study was limited to a single center and to the period it was conducted. Information about the income and social status is not present and these also affect the quality of life. Another limitation was about the data we could retrieved. We could only retrieved the records we already had in our hospital.

Conclusion

This study investigated the association clinical data of patients after ACS with different aspects of HRQoL. We concluded that affected vessels and duration of disease may have lowering effects on HRQoL. We emphasize that female gender, older age and self-reported impaired health status compared to last year are associated with most of the domains. A prospective study which utilizes the HRQoL measures in the routine follow-up of patients after ACS may be designed for further research.

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The authors declare no conflicts of interest.

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