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Quality of Life 18 Months After Myocardial Infarction

Miyokard Enfarktüsü 18 Ay Sonrası Yaşam Kalitesi

[1] Recep TÜTÜNCÜ

[2] Yasemin ATEŞ

[3] Yusuf AYDIN

[1] Etimesgut Asker Hastanesi Psikiyatri Kliniği, ANKARA

[2] Numune Eğitim ve Araştırma Hastanesi Endokrinoloji ve Metabolizma Hastalıkları Kliniği, ANKARA

[3] Düzce Üniversitesi Tıp Fakültesi İç hastalıkları Anabilim Dalı, DÜZCE

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Corresponding Address /Yazışma Adresi:

Dr. Recep Tütüncü

Etimesgut Asker Hastanesi

Psikiyatri Kliniği ANKARA

Tel: 0 505 4683106

e-posta:
drtutuncu@yahoo.com

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www.tipdergi.duzce.edu.tr
duzcetipdergisi@duzce.edu.tr

SUMMARY:

Purpose: To identify patients who are at risk for poor health related quality of life after acute myocardial infarction (AMI).

Methods: This is a cross-sectional study of 49 patients with the discharge diagnosis of acute myocardial infarction after 18 months period of time. The quality of life was assessed by using SF-36 questionnaire.

Results: Female patients and patients with comorbidity had lower scores in SF-36 subscales implying poorer quality of life. Significant differences were also observed in working status. The three quality of life domains were significantly negatively correlated with age and the number of children. In terms of education time length; five domain scores and in terms of time span without infarction; only one domain was significantly positively correlated.

Conclusion: Sex, age, socioeconomic factors, comorbidity, time span without infarction are the most important predictors of health related quality of life after AMI.

Keywords: Myocardial infarction, quality of life, socioeconomic factors, comorbidity

ÖZET:

Amaç: Akut miyokard infarktüs (AMI) sonrası hangi hastaların düşük yaşam kalitesi açısından risk altında olduğunun tanımlanması amaçlanmıştır.

Yöntem: Bu çalışma AMI tanısı ile taburcu edilmiş 49 hastanın 18 ay sonra değerlendirildiği kesitsel bir çalışmadır. Yaşam kalitesi, SF-36 kullanılarak değerlendirilmiştir.

Bulgular: Bayan hastalar ve komorbiditesi olanlar SF-36 alt ölçeklerinde düşük skorlar elde etmişlerdir ki bu da düşük yaşam kalitesini göstermektedir. Çalışma durumlarına göre de anlamlı farklar saptanmıştır. Üç yaşam kalitesi alanı ile yaş ve çocuk sayısı arasında anlamlı derecede negatif korelasyon saptanmıştır. Eğitim süresi açısından beş alanda, enfarktüs olmadan geçen süre için sadece tek anlamda anlamlı düzeyde pozitif korelasyon bulunmuştur.

Sonuç: Cinsiyet, yaş, sosyoekonomik faktörler, komorbidite ve enfarktüs olmaksızın geçen süre; AMI sonrası yaşam kalitesinin önemli belirleyicileridir.

Anahtar Kelimeler: Miyokard enfarktüs, yaşam kalitesi, sosyoekonomik faktörler, komorbidite

INTRODUCTION

Modern treatments for coronary heart diseases (CHD) focus not only on improving life expectancy but also symptoms, function, and quality of life (1). The World Health Organization has defined quality of life as: "An individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectation, standards and concerns (2).

The focus of attention in the immediate period following an acute myocardial infarction (AMI) is generally on physical functioning, but follow¬ing discharge from hospital and in the longer term general health, vitality, and social and emotional functions become at least as important (3). Together with the effect of the disease on the social, professional, and family life of those suffering it, have led researchers to consider that the traditional ways of measuring morbidity and mortality are not adequate for assessing the potential benefits of health care interventions (4,5).

Although the risk factors for mortality and morbidity after CHD are well described, little is known about the factors associated with health related quality of life (HRQOL) outcomes. Furthermore, as predictors of HRQOL are known, clinicians can identify patients at increased risk for poor quality of life

after CHD and develop interventions aimed at improving their health status. The objective of this study was to help clinicians identify which patients are at risk for poor quality of life out-comes after AMI by using the generic SF-36 questionnaire.

METHOD

This was a cross-sectional study of patients with the discharge diagnosis of acute myocardial infarction in 18 months period of time. Subjects were recruited from all consecutive admissions to the internal medicine unit. Patients were excluded if they refused to participate, or if they were physically incapable of responding to a questionnaire or if they did not survive up to 18 months after discharge. The sociodemographic and clinical data were obtained from a structured questionnaire and from the clinical records of the patient. Events and procedures that occurred between discharge and the last interview were also obtained. At approximately 18 months after discharge, the physician assessed the quality of life by using SF-36 questionnaire during interviews, which was established as the most valid, reliable, reproducible and sensitive questionnaire in patients with coronary heart disease (6-7).

SF-36 is a generic questionnaire consisting of 36 questions covering eight aspects of health status: physical functioning, role-physical (role limitations because of physi¬cal health problems), bodily pain, general health, vitality, social functioning, role-emotional (role limitations because of emo¬tional problems), and mental health (8). Thus in addition to health status, SF-36 covers three of the subcomponents of functional capacity: daily routines, social capacity, and emotional capacity. The questions relating to each are summed and rescaled to a 100 point where 100 is the best possible score and zero the worst possible. The eight scales in SF-36 can be further aggregated into two component scales: one for physical components and the other for mental components (9). Turkish version of SF-36 is also shown to be reliable and valid (10).

Statistical analysis: Statistical Package for Social Sciences software (SPSS 10.0, Chicago, IL, USA) was used for analysis. All continuous values are given as mean ± standard deviation. Unpaired Student's t test was used for group comparisons. Categorical data were compared with the chi-square test. All tests for significance were two-sided, the significance level was α=0,05. Mann-Whitney U test and Kruskal Wallis were used for comparison of groups. Spearman's correlation analysis was conducted between patient, disease characteristics and HRQOL scores. A p value of < 0.05 was considered significant.

Table 1: Baseline characteristics of patients studied

Age (Years)*	61,45±11,12
Number of children*	3,63±1,44
Education(Years)*	5,06±3,00
Male	38
Female	11
Working Status	
Employed	7
Retired	29
Unemployed	13
Type of AMI	
inf.	19
ant.	13
non-q	7
anteroseptal	8
highlateral	2
First AMI	
Yes	44
No	5
Smoking (packet.year)*	34,10±30,16
Treatment Compliance	
Yes	40
No	9
Regular Control	
Yes	37
No	12
Appropiate Diet	
Yes	24
No	25
CAG	
Yes	41
No	8
By-pass	
Yes	16
No	33
PTCA	
Yes	11
No	38
Comorbidity	
Present	29
Absent	20
Values are*mean (SD) or n	

RESULTS

A total of 49 patients were enrolled in the study, 78% of which were males. The mean age of participants was 61 (range: 39-87 years). The baseline characteristics of patients studied were shown in table 1.

HRQOL scores based on sex, employment and comorbidity were shown in tables 2,3 and 4. Male patients had higher scores for the general health and role-emotional (role limitations because of emo¬tional problems). In the comparison by employment status, significant differences were observed between employed, unemployed and retired in the physical functioning, general health and social functioning subscales although the scores were higher in all the subscales for the employed group. With regard to co morbidity; significantly lower scores, implying poorer quality of life were seen in bodily pain, general health, vitality, social functioning and role-emotional domains.

No significant differences were found in quality of life domains in terms of type of myocardial infarction, presence of other illnesses, history of myocardial infarction, family history of cardiovascular disease, hypertension, sudden death and diabetes mellitus, treatment compliance, history of regular control visits, presence of coronary artery bypass graft (CABG) surgery and percutaneous coronary intervention.

Spearman's correlation analysis for the SF-36 parameters is presented in Table 5. The older the age, the worse was quality of life in all subscales. The three HRQOL domains (physical functioning, role-physical, role-emotional) were significantly correlated, with physical functioning, role-physical and role-emotional. The four HRQOL domains (physical functioning, role-physical, social functioning, role-emotional) were significantly and inversely correlated with the number of children. In terms of education duration, all score changes were in a positive direction, indicating higher quality of life.

The five domain scores were correlated with positively physical functioning, role-physical, bodily pain, social functioning and role-emotional respectively. Time span without AMI was significantly correlated in only one domain; vitality.

DISCUSSION

Goals of therapy for patients after myocardial infarction are generally to alleviate symptoms, improve functional abilities, and slow or halt disease progression (11). Despite several effective contributions in clinical decision-making, little is known about the patient characteristics that are associated with impairments or improvements in HRQOL. Our study provides some insight into the fact that certain patient characteristics are predictors of both HRQOL and clinical outcomes after AMI.

In our study, women perceived more dissatisfaction than men in all dimensions, but "general health" and "role limitations because of emotional problems" scores were significantly lower. In many studies women have been noted to have poorer quality of life

Table 2: Comparison of HRQOL scores in terms of sex

	Male(n=38) MEAN ±SD	FEMALE (n=11) MEAN ±SD	Z	p
PF	72,63 ±22,11	59,55 ±20,67	-1.702	0.089
RP	73,29 ±42,75	43,19 ±46,22	-1.769	0.077
BP	69,08 ±24,49	60,09 ±18,33	-1.015	0.31
GH	61,50 ±21,90	46,64 ±17,74	-2.031	0.042
V	48,29 ±16,04	37,73 ±16,94	-1.55	0.121
SF	76,79 ±21,90	73,45 ±14,40	-1.112	0.266
RE	78,89 ±39,09	48,36 ±45,61	-2.176	0.03
MH	52,11 ±12,90	42,73 ±17,35	-1.867	0.062
PCS	276,50±94,10	209,45±85,02	-2.062	0.039
MCS	256,08±69,57	202,27±77,04	-2.026	0.043

PF=Physical Functioning, RP=Role limitation-physical, BP=Bodily Pain, GH=General Health, VT=Vitality, SF=Social Functioning, RE=Role limitation-emotional, MH=Mental Health, PCS=Physical Component Summary, MCS=Mental Component Summary

than men (12-14). Factors that may be related to lower assessment of quality of life for women include poorer physical health, greater disability, older age, greater care-giving responsibilities, and lack of social support that might be available in a marriage or in cardiac rehabilitation programs (15-16).

According to employment status, HRQOLscores were higher in all subscales for the employed group and significant differences were observed in the physical functioning, social functioning and general health subscales. Working is a social support theorized to have a direct effect to reduce the impact of the stressor, and improve future health out¬comes, such as recovery from AMI as well as enhanc¬ing quality of life (16). In a study higher income was significantly associated with improvement in physical HRQOL during follow-up (7). The association of higher income and an increased HRQOL has been reported by other studies including non-cardiac populations as well (17-18).

In our study comorbidity was associated with significantly lower scores of bodily pain, general health, vitality, social functioning and role-emotional domains. Also in the literature it is reported that having more comorbidities tends to lower HRQOL in all dimensions measured in patients with cardiac disease (19). A survey in a general population in a health district in Sweden found a negative association between number of chronic diseases and HRQOL (20).

Table 3: Comparison of HRQOL scores in terms of working status

	Employed (n=7) MEAN ±SD	Retired (n=29) MEAN ±SD	Unemployed (n=13) MEAN ±SD	Chi-Square	p
PF	90 ±7,64	67,59 ±22,66	63,46 ±21,54	8.67	0.01
RP	100 ±0	65,00 ±45,98	51,92 ±47,28	5.23	0.07
BP	86,86 ±21,10	62,66 ±22,34	66,23 ±22,47	5.72	0.06
GH	80,14 ±22,88	56,28 ±19,79	50,54 ±19,23	7.79	0.02
V	51,43 ±13,14	47,07 ±17,14	40,38 ±16,89	1.59	0.45
SF	94,57 ±9,89	72,21 ±22,54	74,62 ±13,67	9.24	0.01
RE	100 ±0	72,34 ±42,79	56,31 ±45,93	5.37	0.07
MH	53,71 ±9,48	51,17 ±13,91	45,38 ±17,19	1.56	0.46
PCS	357,00±45,026	251,52±92,40	232,15±95,36	10.56	0
MCS	299,71±25,47	242,79±74,03	216,69±78,70	5.83	0.05

Table 4: Comparison of HRQOL scores in terms of comorbidity

	Comorbidity Present (n=29) MEAN ±SD	Comorbidity Absent (n=20) MEAN ±SD	Z	p
PF	65,69 ±22,63	75,50 ±20,96	-1.48	0.14
RP	57,76 ±48,23	79,25 ±37,07	-1.36	0.17
BP	59,62 ±20,29	77,85 ±23,83	-2.61	0.01
GH	51,17 ±19,57	68,30 ±21,26	-2.7	0.01
V	42,59 ±16,18	50,75 ±16,56	-2.46	0.01
SF	83,60 ±22,22	70,83 ±17,52	-3.05	0
RE	60,82 ±45,49	88,30 ±31,13	-2.34	0.02
MH	48,07 ±14,19	52,80 ±14,54	-1.52	0.13
PCS	234,24±94,39	300,90±84,66	-2.64	0.01
MCS	222,31±73,60	275,45±64,09	-2.442	0.02

The older the age, the worse was the quality of life in all subscales. The three HRQOL domains (physical functioning, role-physical, role-emotional) were significantly correlated. There are contradictory findings in the literature. In a study, older age was found to be an independent predictor of impaired SF-36 (21). In the other hand, Brown et. al. (22) showed that four years after myocardial infarction patients aged less than 65 years exhibited impairment in all eight domains of the SF-36 whereas patients over 65 years had results similar to community norms. As the normative data show, there is a decline in most domains with increasing age. Both in-hospital and longer term mortality after myocardial infarction is high in the older age groups. It is therefore conceivable that four-year survivors may be different indicating "healthy survivor effect"(3). In a study by Lavie et. al.(22) including 459 patients, elderly patients (≥65 years) had greater improvement after cardiac rehabilitation in both exercise capacity and mental health than younger patients. A possible explanation is that younger patients may be more likely to feel disabled by their disease in comparison to healthy people of their own age whereas diseases are more common in older age (7). Further studies may be war¬ranted to more fully investigate the associa¬tions between older age and HRQOL.

Although socioeconomic factors are known to be important factors in AMI, relatively little research attention has been given to their influence on quality of life following AMI (7). In case of socioeconomic status; education and the number of children are important predictors. According to our knowledge there is no paper that reports the relation between number of children, education level and quality of life. In our study, the four HRQOL domains (physical functioning, role-physical, social functioning, role-emotional) were significantly negatively correlated with the number of children and the five-domain scores (physical functioning, role-physical, bodily pain, social functioning and role-emotional) change significantly in a positive direction, indicating higher quality of life in terms of education time length.

We evaluated the patients 18 months after AMI. Time span without AMI was significantly correlated in only one domain, vitality, with Pearson correlation of 0.314. Impor-tantly, descriptive analysis showed that the subjects' perceptions of HRQOL did not change from the time immediately before their AMI and 1 year later.

In addition, our study has some limitations that generalizations of the results should be done with caution. The study population was relatively small and the patients were predominantly men. We didn't have baseline quality of life data; therefore it wasn't possible to draw conclu¬sions about causality from the results. There are also limi¬tations in certain subscales, such as "Role Emotional", already expressed by other authors with respect to other populations, particu¬larly when the objective is to establish differences between diagnostic groups (4).
On the basis of all the foregoing, and as the conclusion of this article, it can be stated that age, sex, psychosocial characteristics, co morbidity, time span without AMI are the most important predictors of HRQOL after AMI. Further work is necessary to determine non-cardiovascular predictors, and investigate and implement treatment strategies that do have a signifi¬cant impact on HRQOL.

Table 5: Correlation coefficients for the SF-36 subscales and baseline predictors of HRQOL

	Age		Number of children		Number of person living with the patient		Education duration		Smoking duration		Ex-smokers		Duration free of MI	
	R	p	r	p	r	p	r	p	R	p	r	p	r	p
FF	-0,356*	0.012	-0,519**	0	0.279	0.052	0,305*	0.033	0.109	0.457	-0.048	0.744	0.121	0.409
RGf	-0,409**	0.003	-0,411**	0.003	0.067	0.554	0,340*	0.017	0.06	0.683	-0.153	0.295	0.074	0.615
A	-0.143	0.328	-0.201	0.166	-0.106	0.467	0,309*	0.031	0.164	0.261	0.011	0.943	-0.257	0.074
GS	-0.125	0.391	-0.223	0.123	0.023	0.877	0.281	0.051	0.104	0.476	0.04	0.784	-0.126	0.39
FKS	-0.338	0.017	-0,387**	0.006	0.092	0.531	0.404	0.004	0.147	0.313	-0.058	0.693	-0.073	0.62
SF	-0.239	0.098	-0,335*	0.019	0.054	0.713	0,431**	0.002	0.003	0.983	-0.07	0.631	0.109	0.456
RGe	-0,285*	0.047	-0.326	0.022	0.062	0.673	0,387**	0.006	0.172	0.236	-0.042	0.773	0.092	0.528
MS	-0.056	0.702	0.06	0.681	-0.273	0.057	0.246	0.088	0.136	0.353	0.014	0.924	-0.207	0.153
V	-0.008	0.959	-0.031	0.832	-0.041	0.78	0.18	0.216	0.22	0.129	0.064	0.663	-0,314*	0.028
MKS	0,282*	0.05	-0.217	0.134	-0.034	0.818	0.408	0.004	0.223	0.124	0.022	0.878	-0.063	0.668

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