QUALITY OF LIFE PROFILE IN SMOKER PATIENTS WITH CORONARY ARTERY DISEASE

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Abstract

Background Cardiovascular patients who quit smoking significantly reduce their risk of a new event compared with those who continue smoking. Smoking is related to poor quality of life (QoL).
Aim The purpose of the present study was to examine the extent to which smoking cessation leads to changes in QoL in coronary patients.
Material Smoking patients (N = 100) and ex smokers patients (N=100) with coronary heart disease were included.
Methods At baseline, sociodemographic and clinical characteristics were established. Generic QoL as well as smoking status were assessed using SF-36 (SF-36 Health Survey) questionnaire.
Results No main differences were found between quitters and smokers in terms of improvement in QoL. In fact, some subgroups reported a poorer QoL after smoking cessation: Younger patients reported higher vitality and physical functioning scales, and patients who had low nicotine dependency reported lower generic QoL. **Conclusions** A high level of nicotine addiction is an important negative predictor of QoL.

Keywords: *Quality of life, smoking cessation, coronary heart disease*

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Introduction

Quitting smoking after a coronary event reduces the 3-5 years mortality with 35%-50%[1], and this reduction increases further with several years of follow up[2]. Despite this, only 30-40% stops smoking spontaneously[3, 4]. Randomized trials have shown that smoking cessation rates after myocardial infarction and percutaneous coronary intervention (PCI) can be

significantly increased if applying a smoking cessation program with several months of intervention[5]. Such programs have also been shown to be very cost-effective in terms of years of life saved[6]. Several studies have found that smoking is related to poor quality of life (QoL) [7]. In cardiovascular patients, however, less attention has been given to the effect of smoking cessation on patients' QoL[8].

We therefore sought to explore the extent to which smoking cessation leads to changes in QoL in coronary patients. We were particularly interested in changes in QoL as related to smoking status (such as quitters, smokers, and those who failed their quit attempt). Furthermore, we examined whether patients' QoL was influenced clinical characteristics (e.g., nicotine dependency).

Materials and Methods

The study protocol conforms to the principles of the Declaration of Helsinki and was approved by the hospital ethical committee. Two hundred (100 smokers and 100 ex-smokers) patients referred for coronary angiography in Cardiology Department of Hospital University of Ioannina between November 2004 and July 2005 gave written informed consent and were enrolled in the study. Patients were considered to be quitters if they had not been smoking for the last 12 months and were considered smokers otherwise. Sociodemographic features, smoking habits and medical history were prospectively recorded. QoL was assessed using SF-36(SF-36 Health Survey)[8] instrument which contains 36 questions and 8 scales (Physical Functioning, Role-Physical, Bodily Pain, General Health, Vitality, Social Functioning, Role-Emotional, Mental Health). For all questions, a high score corresponds to a better QoL. We applied the Greek language version of the SF-36[10]. Severity of nicotine dependence was measured using the Fagerströ̈m Test for Nicotine Dependence[9], which measures smoking habits using six questions. Sum scores (ranging from 0 to 10) are used to categorize patients as having low (5) or high (>6) nicotine dependency. Out of 200 patients enrolled in the study, 86 smoker (response rate 86%) and 70 non

smoker patients (response rate 70%) completed the SF-36 questionnaire. All of the smoker patients completed the Fagerstrom test to assess the nicotine dependence rate. The researcher carrying out the study protocol as well as the assessment of outcomes was blinded to the intervention

Statistical analysis

Continuous variables are expressed as mean ± standard deviation. For categorical variables, analysis included frequencies and percentages. All tests of significance were two-tailed: x^2 and Fisher's exact test for discrete variables and analysis of variance (ANOVA) for continuous variables. We chose a significance level of 0.05. To be able to adjust for differences in baseline characteristics, the QoL scores in non-randomized groups (smokers' vs non smokers) were compared using multivariate linear regression analysis. We used SPSS for Windows for all analyses.

Results

A total of 200 patients were included in the analysis. As shown in Table 1 no significant differences were found between groups in baseline variables such as age or co-morbidities (Table 1). The only baseline characteristic that differed significantly between smokers and non-smokers was the level of hypercholesterolemia.

Six out of eight scales such as role-physical, bodily pain, general health, social functioning, role-emotional, and mental health were comparable between the two groups. On the other hand physical functioning and vitality scales were improved in smoker patients. (see Table 2).

Table 3 shows the impact of nicotine dependence rate on QoL. Although, General health is statistically improved in moderate dependent patients (P=0.011), the role physical (P=0.001) and role emotional (P=0.001) scale are improved in high and low dependent patients.

Table 4 shows the impact of CAD on QoL in patients enrolled in the study. Significant differences in QoL scores could be demonstrated between coronary and non coronary patients.

Table 1: Baseline characteristics of patients

	Smoker (n=86)	Non smoker (n=70)	P Value
Mean Age (yr)	56.79 ± 9.36	64.57 ± 9.66	NS
Male sex	86(100%)	59(84%)	NS
Prior CAD* (n, %)	27(31%)	34(49%)	NS
NYHA**			
Class 1	62 (72%)	38(54%)	
Class 2	15 (18%)	16(23%)	NS
Class 3	8 (9%)	14(20%)	
Class 4	1 (1%)	2(3%)	
Angina(n,%)	38 (44%)	27(40%)	NS
Hypertension (n, %)	49(57%)	46(65%)	NS
Diabetes(n,%)	70(82%)	60(86%)	NS
Stroke(n,%)	3(3%)	2(3%)	NS
BMI*	27.02±3.46	26.46±2.9	NS
Hypercholesterolemia (n, %)	33(39%)	50(71%)	P=<0,001

*CAD: Coronary artery disease, ** NYHA: New York Heart Association ***BMI: Body Mass Index*

Table 2: Quality of life by group

Analysis of Variance		Sum of Squares	Mean square	F	Sig
physical functioning	Between Groups	10595,571	10595,571	8,790	,004
role-physical	Between Groups	1321,065	1321,065	,543	,462
bodily pain	Between Groups	7,570	7,570	,009	,923
general health	Between Groups	4,208	4,208	,011	,915
Vitality	Between Groups	3740,873	3740,873	10,615	,001
social functioning	Between Groups	73,828	73,828	,192	,662
role-emotional	Between Groups	1920,431	1920,431	,820	,367
mental health	Between Groups	281,510	281,510	1,362	,245

Table 3: The impact of nicotine dependence rate on QoL

Nicotine dependence rate		physical functioning	role-physical	bodily pain	general health	vitality	social functioning	role-emotional	mental health
Low dependence N=13	Mean	66,53	63,46	64,76	40,61	60,76	67,30	64,10	50,15
	SD	28,23	48,53	36,23	21,11	20,39	22,55	48,03	14,29
Moderate dependence N=30	Mean	65,51	24,16	65,20	58,67	63,00	74,10	26,66	55,73
	SD	35,61	42,79	31,63	15,42	17,15	24,98	42,34	17,25
High dependence N=37	Mean	63,24	65,54	69,24	57,86	71,21	81,41	67,56	60,43
	SD	30,50	46,15	33,24	20,07	21,09	17,82	44,78	16,80

Table 4: Impact of CAD on QoL

CAD		physical functioning	role-physical	bodily pain	general health	vitality	social functioning	role-emotional	mental health
NO	Mean N=79	72,59	71,77	69,06	76,67	79,93	78,36	50,92	55,89
	SD.	37,43	48,81	25,57	20,80	19,00	18,09	47,12	11,43
YES	Mean N=52	56,17	54,32	77,50	50,50	63,55	72,59	57,69	55,61
	SD.	32,87	48,94	30,90	16,09	20,25	21,15	49,00	16,54

Discussion

According to the AHA/ACC guidelines for the treatment of coronary artery disease "patient and physician together should explore the potential benefits of improved quality of life with the attendant risks of the procedure versus alternative therapy, taking into account baseline functional capacities and patient's preferences". Moreover, Health related quality of life is increasingly preferred as an endpoint in the assessment of efficacy and effectiveness of surgical interventions.

In this prospective study, we aimed to show the Quality of life (QoL) profile in smoker and ex-smoker patients referred for coronary angiography. The QoL subscales such as vitality and physical functioning were improved in smoker patients. Quist-Paulsen P and his colleagues[8] have shown that the difference in QoL between quitters and smokers increased as the amount of smoking increased, but no trend in the difference in QoL was observed with time since quitting.

With regard to nicotine dependency this study found that general health improved in moderate smokers than heavy. On the other hand the physical and emotional vitality scales were improved in low dependant smokers. Wilson and colleagues[11] reported significantly lower general and mental health QoL scores among heavy and moderate smokers than among light and never smokers, indicating that the number of cigarettes smoked each day was related to QoL. In addition, Schmitz[12] found that nicotine-dependent smokers reported significantly poorer overall QoL and greater disability than nondependent smokers. However, they found only small differences when they compared QoL and disabilities between current nondependent smokers and never-smokers.

In cardiovascular patients, however, less attention has been given to the effect of smoking cessation on patients' wellbeing. According to the results of the study patients after a coronary event have impaired QoL compared to those without such an event. According to Haddock et al [13] never-smokers and quitters experienced significantly higher physical and mental QoL than smokers at 12 months after the procedure.

For our data to be interpreted properly, the limitations of our study must be addressed. One limitation of the study is the small number of patients enrolled compared to other studies and a larger sample size may have shown significant differences in QoL outcomes. Furthermore, the patients enrolled in the study were not randomized to either group. Nevertheless factors that may affect QoL outcomes such as functional classification according to the New York Heart Association, age and cardiovascular risk factors did not differ significantly between the two groups.

Several investigators have shown that patients with coronary heart disease who smoke have inferior QoL compared to non-smokers[7, 8], but only a few studies have analysed whether nicotine dependence rate has impact on QoL. Further studies are needed to conclude whether nicotine dependence rate is a negative predictor of QoL and if QoL has impact on smoking cessation in patients with coronary heart disease. Moreover, research into psychosocial adjustment and quality of life reflect nursing's long-standing interest in these important outcomes[14].

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