

Which Factors Affect Restart Smoking After Bypass Operations?

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Citation

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Abstract

Aim: The aim of the study is to determine the predictive factors of restart smoking after bypass operations. **Material and methods:** The study comprised 84 male patients who underwent an operation for coronary and peripheral occlusive disease. The patients answered to the questionnaire that included questions related patient's smoking habitus before and after operation, demographic factors, and cardiovascular risk factors. The patients were divided into two groups: Group I included patients who restarted, and Group II who ceased smoking after operation. χ^2 test and optimum-scaled regression analysis(OSRA) were applied to all the categorical variables of either group. The parametric variables in the two groups were compared using Student's t test. **Results:** The interval between operation and questionnaire was 10.4 months. The rate of smoking again after operation was 21.4 %. Only patient age was found statistically significant between the two groups (Group I: 53.0 \pm 9.5 , Group II: 59.2 \pm 8.9, $p=0.011$). In the evaluation of nonparametric variables with optimal scaling regression analyse, significant regression model($p=0.01$) was found between smoking again and patient age, type of the operation, preoperative cigarette consumption rate and relevance of patients family on smoking cessation. **Conclusion:** In the present study, we found that patients who restart smoking after bypass operations were younger, had more preoperative cigarette consumption rate, less family support for smoking cessation, and operation for coronary bypass surgery than those ceased smoking. The factors that determined in patients who restart smoking after operations; have to keep in mind for in the smoking cessation programs performed after bypass operations.

INTRODUCTION

The etiologic factors in atherosclerosis can be classified in two major groups μ : Unchangeable risk factors such as gender and genetic features, and changeable risk factors such as smoking, hyperlipidemia and diabetes mellitus. Smoking constitutes a major risk factor for cardiovascular diseases. Smokers who quit reduce their atherosclerosis related mortality and morbidity rates, even after the onset of clinical disease. Prevailing on patients to cease smoking after a cardiovascular surgical procedure can be performed more effectively if related factors are determined.

The aim of this study is to determine the predictive factors of restart smoking after bypass operations.

MATERIAL AND METHOD

The study comprised 172 cases who had undergone a coronary or a peripheral bypass operation. Since nonsmokers or ex-smokers who gave up smoking at least one month before the operation were excluded from the study, the study was conducted on the remaining 84 patients. By phone calls

or during routine clinical controls, the patients were subjected to fulfill a questionnaire after the operation which consisted of 13 questions about smoking habits and demographic features (Table 1). The answers were verified by the close relatives of the patients. The cases were divided into two groups according to the answers given to the poll: Patients who started smoking again (Group I) or who quit smoking (Group II) after the operation.

TABLE 1. QUESTIONNAIRE ABOUT SMOKING HABITS OF PATIENTS

1. Age
2. Education level
3. Working status
4. Type of operation(coronary bypass, peripheral bypass)
5. Smoking behavior after operation
6. Time between operation and restart smoking

Which Factors Affect Restart Smoking After Bypass Operations?

7. Smoking history(pack- years, Fagerstrom scale)
8. Number of vessels with >50% occlusion for coronary bypass operation
9. Risk factors for atherosclerosis (hypertension, diabetes mellitus, hyperlipidemia)
10. Concomitant lung disease(COPD, etc)
11. Factors affected restart smoking habits
12. Family support for smoking cessation
13. Education after operation for smoking cessation

The data obtained were loaded to SPSS program (version 9.0; SPSS Inc., Chicago, IL, USA) and χ^2 test and optimum-scaled regression analysis (OSRA) were applied to all the categorical variables of either group. The average of the parametric data of all the cases was taken as a reference for grouping the categorical data in optimum scaled regression analysis. The parametric variables in the two groups were compared using Student's t test, with $p < 0.05$ considered to be significant.

RESULTS

The mean age and age range of the cases were 57.9 ± 9.3 (range, 37–76). All of the cases were men. Time between the operation and the questionnaire was 10.4 ± 7.1 (range, 2–48) months. The rate of restarting smoking again was 21.8 % (18 cases) after the operation.

Fifty (59.5 %) patients underwent coronary bypass operation, and 34 (40.5 %) patients underwent peripheral bypass operation in the study group. The time to restart smoking after the operation was 7.6 ± 5.6 (2–24) months. All patients in both groups were found to be nicotine-dependant according to the Fagerstorm scale (> 6) and no significant difference was observed between the two groups in terms of the degree of addiction χ^2 .

Table 2 depicts the data obtained from the two groups. Only age was found to be statistically significant ($p = 0.011$) between the groups. Optimum-scaled regression analysis demonstrated significant regression model in age ($p < 0.05$), operation type ($p < 0.05$), smoking habits ($p < 0.05$), lack of environmental support ($p < 0.05$) and restarting to smoke ($p = 0.01$).

Figure 1

Table 2. Parametric variables of the patients

	All patients	Group I*	Group II*	p value
Age(year)	57.9 ± 9.3	53.0 ± 9.5	59.2 ± 8.9	0.011
Duration between operation and questionnaire (month)	10.4 ± 7.1	9.3 ± 3.9	10.7 ± 7.7	0.465
Smoking history				
Pack- year	52.5 ± 30.3	58.0 ± 21.2	51.1 ± 32.3	0.392
Fagerstrom scale	6.8 ± 1.2	6.9 ± 1.2	6.7 ± 1.1	0.583

*Group I included patients who restart, and Group II who ceased smoking after operation.

Figure 2

Table 3. Categorical variables of two groups

	Group – I* n (%)	Group – II* n (%)	p value	
			χ^2 test	OSRA
Age(year)				
58 and over	9 (% 10.7)	56 (% 66.7)	0.000	<0.05
57 and under	9 (% 10.7)	10 (% 11.9)		
Smoking history (pack-year)			0.173	< 0.05
53 pack- year and over	12 (% 14.3)	25 (% 29.8)		
52 pack- year and under	6 (% 7.1)	41 (% 48.8)		
Working status			0.381	
Active workers	11 (% 13.1)	38 (% 45.2)		
Retired	7 (% 8.3)	28 (% 33.3)		
Education level			0.886	
Graduate	5 (% 6.0)	50 (% 59.5)		
Undergraduate	13 (% 15.5)	16 (% 19.0)		
Hypertension			0.047	
Yes	2 (% 2.4)	24 (% 28.6)		
No	16 (% 19.0)	42 (% 50.0)		
Diabetes Mellitus			0.625	
Yes	3 (% 3.6)	12 (% 14.3)		
No	15 (% 17.9)	54 (% 64.3)		
Hyperlipidemia			0.894	
Yes	6 (% 7.1)	20 (% 23.8)		
No	12 (% 14.3)	46 (% 54.8)		
COPD			0.527	
Yes	6 (% 7.1)	26 (% 31.0)		
No	12 (% 14.3)	40 (% 47.6)		
Operation type			0.013	< 0.05
Coronary bypass	6 (% 7.1)	44 (% 52.4)		
Peripheral bypass	12 (% 14.3)	22 (% 26.2)		
Family support for smoking cessation			0.049	< 0.05
Yes	5 (% 6.0)	40 (% 47.6)		
No	13 (% 15.5)	26 (% 31.0)		
Education after operation for smoking cessation			0.15	
Yes	15 (% 17.9)	42 (% 50.0)		
No	3 (% 3.6)	24 (% 28.6)		

OSRA: optimal scaling regression analysis

* Group I included patients who restart, and Group II who ceased smoking after operation.

DISCUSSION

Previous reports showed decreased re-infarction rates and prolonged survival in patients who gave up smoking after myocardial infarction compared with those who continued smoking^{3,4,5}. Fourteen percent of hospitalized patients stopped smoking, and this rate was 28 % in patients who underwent coronary angiography and 33 % who had myocardial infarction^{6,7,8,9}.

In CASS study, it was demonstrated that patients who gave up smoking after coronary bypass operations had better

survival, less angina attacks and less hospitalization period than the patients continued smoking^{10,11}. Likewise, angiographic studies showed that the patency of saphenous vein grafts was less satisfactory in patients keep on smoking^{12,13}.

Keeping on smoking after peripheral bypass operations also has negative effect on graft patency, amputation rates and survival¹⁴. Wiseman et al. compared one-year patency rates of the grafts in patients whom stopped or continued smoking after peripheral bypass operations and found that in saphenous grafts, the patency rates were 63 % and 84 %, respectively ($p < 0.02$)¹⁴. In patients in whom synthetic grafts were used the difference between the patency rates were also statistically significant (68 % and 87 %, respectively, $p < 0.05$).

As a result of these studies, clinicians recommend to stop smoking in order to improve graft patency and survival. Some studies reported a rate of 51–55 % for giving up smoking after coronary bypass operations^{3,10}.

In the present study, we found that 88.6 % of our patients stopped smoking, which was extremely high when compared with others. The probable cause of the higher rate obtained in the study may be due to the method of detecting smoking habits. Only patients' and their relatives' declarations about smoking habits were taken into consideration, and the answers were not confirmed by blood tiocyanate-carboxyhemoglobin or salivary cotinin levels. Another cause may originate from the short period between the operation and the questionnaire. Since the exact definition for giving up smoking is not to smoke for at least 12 months¹⁵, some cases may restart smoking after the questionnaire and made the statistics to be found somewhat higher than aforementioned studies. But in the another study, Crouse et al. showed that many patients restarted smoking with one month after coronary bypass operations¹⁶. In the present study, time between operation and question was 10.4 ± 7.1 (range, 2–48) months.

Most people smoke in order to overcome emotional discomfort such as anger, loneliness and disappointment⁶. Since giving up smoking can cause serious psychological problems, psychiatrists, pulmonologists, and cardiologists should encourage and provide medical support to these patients. In the present study, most of the cases (66.6 %) emphasized the depressed mode of themselves for restarting to smoking.

In the present study, we found that patients who restart smoking after bypass operations were younger, had more preoperative cigarette consumption rate, less family support for smoking cessation, and operation for coronary bypass surgery than those ceased smoking. Although patients who underwent coronary or peripheral bypass grafting stopped smoking in the early postoperative period, most of them return to smoking habits later. The factors that determined in patients who restart smoking after operations; have to keep in mind for in the smoking cessation programs performed after bypass operations.

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Which Factors Affect Restart Smoking After Bypass Operations?

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