

Which Factors Affect Restart Smoking After Bypass Operations?

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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 ± 9.5 , Group II: 59.2 ± 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 groups₁: 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

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 $_2$.

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 Fagerstrom scale	52.5 ± 30.3 6.8 ± 1.2	58.0 ± 21.2 6.9 ± 1.2	51.1 ± 32.3 6.7 ± 1.1	0.392 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 57 and under	9 (% 10.7) 9 (% 10.7)	56 (% 66.7) 10 (% 11.9)	0.000	<0.05
Smoking history (pack-year) 53 pack- year and over 52 pack- year and under	12 (% 14.3) 6 (% 7.1)	25 (% 29.8) 41 (% 48.8)	0.173	< 0.05
Working status Active workers Retired	11 (% 13.1) 7 (% 8.3)	38 (% 45.2) 28 (% 33.3)	0.381	
Education level Graduate Undergraduate	5 (% 6.0) 13 (% 15.5)	50 (% 59.5) 16 (% 19.0)	0.886	
Hypertension Yes No	2 (% 2.4) 16 (% 19.0)	24 (% 28.6) 42 (% 50.0)	0.047	
Diabetes Mellitus Yes No	3 (% 3.6) 15 (% 17.9)	12 (% 14.3) 54 (% 64.3)	0.625	
Hyperlipidemia Yes No	6 (% 7.1) 12 (% 14.3)	20 (% 23.8) 46 (% 54.8)	0.894	
COPD Yes No	6 (% 7.1) 12 (% 14.3)	26 (% 31.0) 40 (% 47.6)	0.527	
Operation type Coronary bypass Peripheral bypass	6 (% 7.1) 12 (% 14.3)	44 (% 52.4) 22 (% 26.2)	0.013	< 0.05
Family support for smoking cessation Yes No	5 (% 6.0) 13 (% 15.5)	40 (% 47.6) 26 (% 31.0)	0.049	< 0.05
Education after operation for smoking cessation Yes No	15 (% 17.9) 3 (% 3.6)	42 (% 50.0) 24 (% 28.6)	0.15	

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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References

1. Sharis PJ, Cannon CP. Risk factors for coronary artery disease and primary and secondary prevention trials. In: Evidence Based Cardiology. Lippincott- Williams & Wilkins ; Philadelphia, 2000: 1-17.
2. Moore BL, Schneider JA, Ryan JJ. Fagerstrom's Tolerance Questionnaire: clarification of item and scoring ambiguities. *Addict Behav* 1987; 12: 67-8.
3. Rigotti NA, McKool KM, Shiffman S. Predictors of smoking cessation after coronary artery bypass graft surgery. Results of a randomized trial with 5-year follow-up. *Ann Intern Med* 1994; 120: 287-93.
4. Aberg A, Bergstrand R, Johansson S, et al. Cessation of smoking after myocardial infarction: effects on mortality after 10 years. *Br Heart J* 1983; 49: 416-22.
5. Daly LE, Mulcahy R, Graham IM, et al. Long term effect on mortality of stopping smoking after unstable angina and myocardial infarction. *BMJ* 1983; 287: 324-6.
6. Rigotti NA, Pasternak RC. Cigarette smoking and coronary heart disease: risks and management. *Cardiol Clin* 1996; 14: 51-68.
7. Stevens VJ, Glasgow RE, Hollis JF, et al. A smoking cessation intervention for hospital patients. *Med Care* 1993; 31: 5-72.
8. Ockene JK, Kristeller JL, Goldberg R, et al. Smoking cessation and severity of disease. The Coronary Artery Smoking intervention Study. *Health Psychol* 1992; 11: 119-26.
9. Taylor B, Huston-Miller N, Killen J, et al. Smoking cessation after acute myocardial infarction: effects of a nurse managed intervention. *Ann Intern Med* 1990; 13: 118-23.
10. Cavender JB, Rogers WJ, Fisher LD, Gersh BJ, Coggin CJ, Myers WO. Effects of smoking on survival and morbidity in patients randomized to medical or surgical therapy in the Coronary Artery Surgery Study (CASS): 10-year follow-up. CASS Investigators. *J Am Coll Cardiol* 1992; 20: 287-94.
11. Vliestra RE, Kronmal RA, Oberman A, Frye RL, Kilip T. Effect of cigarette smoking on survival of patients with angiographically documented coronary artery disease. Report from the CASS registry. *JAMA* 1986; 255: 1023-7.
12. Solymoss BC, Nadeau P, Millette D, Campeau L. Late thrombosis of saphenous vein coronary bypass grafts related

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to risk factors. *Circulation* 1988; 78: I140-3.

13. FitzGibbon GM, Leach AJ, Kafka HP. Atherosclerosis of coronary artery bypass grafts and smoking. *CMAJ* 1987; 136: 45-7.

14. Powell JT, Higman D, Greenhalgh RM. Smoking and its influence on graft patency. In: Yao JST, Pearce WH(Eds.).

Long Term Results in Vascular Surgery. Appleton & Lange; Connecticut, 1993; 9-17.

15. Freund K, D'Agostine RB, Belanger AJ, Kannel WB, Stokes J. Predictors of smoking cessation: The Framingham study. *Am J Epidemiol* 1992; 135: 957-64.

16. Crouse JR, Hagaman AP. Smoking cessation in relation to cardiac procedures. *Am J Epidemiol* 1991; 134: 699-703.

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