RESEARCH COMMUNICATION

A Pilot Study on Inducement of Smoking Cessation by a Simple 5A (Asking, Advice, Assess, Assist, and Arrange) Approach at Outpatient Clinics

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Abstract

Asking smokers about their smoking status, followed by advice to quit smoking, assessing the intention to quit , assistance with cessation, and arrange of follow-up (5A) is recommended for induction of smoking cessation. To obtain preliminary data on effects of "5A" , we investigated the smoking cessation rate with two modes in the phase I: 1) self-administered questionnaire and 2) doctor's interview at respiratory disease clinics of three general hospitals in Japan, and another mode in phase II: 3) doctor's interview with an additional pamphlet at one of the three hospitals. The interviews for smokers were conducted by doctors in charge of treatment. Subject smoking habits were followed up by postal surveys three months after the enrollment. In phase I, 359 outpatients were recruited and 189 smokers responded, among whom 27 patients (7.5% of 359 outpatients) had quit smoking at the three months after the enrollment. The cessation rate of the self-administered questionnaire group (8.4% of 238 smokers) did not differ significantly from that of doctors' interview group (5.8% of 121 smokers). Age and intention to quit at enrollment were found to be independent predictors of smoking cessation. Patients aged 50 years or older (odds ratio=5.05, 95% confidence interval 1.89-13.54), and participants with an intention to quit (odds ratio=6.78, 95% confidence interval 2.66-17.30) were more likely to be successful in quitting. In phase II, another 212 smokers of one hospital were interviewed by doctors in charge and provided with an additional pamphlet describing how to practice to dislike smoking. No significant difference in the cessation rate was observed between phase I and phase II (5.8% vs. 8.0%). In conclusion, there were no differences among the three modes of "5A", but 7.7% of the 571 outpatients visiting respiratory divisions quit smoking with this simple "5A". The findings may indicate that this simple practice at clinics is useful for smoking cessation strategy, although randomized trials are now required.

Key Words: Smoking cessation – outpatients clinic – intervention – 5A approach

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Introduction

Cigarette smoking is the leading avoidable cause of deaths in many countries and produces substantial health-related economic costs to society. There are an estimated 1.2 billion smokers, and smoking is responsible for the deaths of 1 in 10 adults worldwide (Edwards, 2004; World Health Organization, 2004). According to the report of National Health and Nutritional Survey conducted by Ministry of Health, Labour and Welfare of Japan, the percentage of smoking people among those aged 20 years or over in 2003 was 46.8% in males and 11.3% in females (Health and Welfare Statistics Association, 2005). Smoking increases the risk of many diseases, such as lung cancer, cardiovascular disease, bronchitis, pneumonia, and chronic obstructive pulmonary disease (Marlow et al., 2003). Millions of smokers visit hospitals each year, because of the smoking-related illness or others. Hospital visits provide smokers with a good opportunity to consider smoking cessation. Given the high prevalence of cigarette smoking in outpatients, even a small rate of cessation through the cessation efforts will produce substantial health benefits to societies. Although smoking cessation intervention targeted for outpatients would be effective, smoking cessation programs or quit aid systems are still underdeveloped at many facilities in Japan. Many physicians feel poorly prepared to counsel smokers about quitting, and in addition, do not have enough time to approach smokers. In this circumstance, even just "asking"

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may be effective (Hamajima et al., 2000; Hamajima et al., 2001). In the United States, the "5A", asking smoking habit, followed by advice to quit smoking, assessing the intention to quit it, assistance of the cessation, and arrange of follow-up is recommended (Marlow et al., 2003). The present study aimed to evaluate the effectiveness of a simple "5A"at respiratory disease clinic. We estimated the cessation rate of the 5A with a self-administered questionnaire in comparison with that by the doctor's interview conducting the same in a face-to-face manner.

Subjects and Methods

Subjects

The subjects were smokers who visited one of the respiratory divisions of the National Hospital Organization Nagoya Medical Center (NNM), Toyota Memorial Hospital (TMH), and Shizuoka Saiseikai General Hospital (SSH) between December 2001 and November 2002. In phase I, outpatients were arbitrarily allocated into two groups; 1) self-administered group and doctor's interview group. In the former, patients were requested to complete a brief questionnaire about the smoking behavior (ask) with a message to quit smoking (advice), intention to quit (assess), the date of cessation if having the intention (assist), the acceptance of scheduled mail questionnaire (arrange). In the latter, patients were questioned and advised about the same by doctors in charge of their treatment in a face-to-face manner. A few doctors of each hospital were involved in this study, but were not recorded in link with the smokers.

A follow-up questionnaire inquiring their smoking status (completely quitted, once quitted but relapsed, or continued smoking) was mailed to all participants three months after their enrollment. In this phase, associations between cessation and factors including sex, age, number of cigarettes per day, intention to quit at enrollment and mode of intervention (self–administered questionnaire or doctor's interview) were examined.

In phase II, subsequent patients at SSH were recruited to compare the effects of an additional 8-page pamphlet under the intervention of a doctor's interview. The pamphlet described how to practice producing unfavorable images for smoking: lesson 1, wipe the face with smoke-dirty hands and to imagine development of skin cancer on the wiped face; lesson 2, expire cigarette smoke into a dress, put on the dress immediately, and say how much is the dress and costs for cleaning; and lesson 3, throw away cigarette butts in one's own garden and his/her own bag, and at public spaces in an ash-tray, and consider who clears the butts. The pamphlet was handled out to smokers without any instruction or counseling. Then three months later, their smoking statuses were obtained by mailing questionnaires in the same manner as for phase I.

Statistical analysis

We classified the patients who did not respond to the follow-up questionnaire as smokers. Percentage differences were tested by a chi-square test, and logistic regression analysis was used to determine the predictors of smoking cessation at three months. The calculations were performed with the computer program STATA Version 7 (STATA Corporation, College Station, TX).

Results

In phase I, 359 patients were recruited from three hospitals. Most of them (79.4%) were male, and 18.9% of the participants had an intention to quit at enrollment (Table 1). At three months after enrollment, 189 patients were responded to the mailed questionnaire. Among them, 27 patients (7.5% of 359 participants) quit, 17 (4.7%) once quit but relapsed as shown in Table 2. The smoking cessation rate differed according to quit intention at enrollment (Table

Table 1. Characteristics of Smokers in Phase I

Parameter	Number (%)		
Sex			
Male / female / no record	285 (79.4)	73 (20.3)	1 (0.3)
Mean age (years)	44.8 [range 19-88]		
Previous smoking (cigarettes/day)			
1-10	122 (34.0)		
11-20	164 (45.7)		
21-30	29 (8.1)		
31-	32 (8.9)		
No record	12 (3.3)		
Cessation intention			
Desire to quit / no intention / no record	68 (18.9)	287 (80.0)	4 (1.1)
Self-report questionnaire / doctor's interview	238 (66.3)	121 (33.7)	
Institution			
NNM / TMH / SSH*	88 (24.5)	38 (10.6)	233 (64.9)

*NNM: National Hospital Organization Nagoya Medical Center, TMH: Toyota Memorial Hospital, SSH: Shizuoka Saiseikai General Hospital

Table 2. Smoking Status Three Months after Enrollment in Phase I

Smoking status	Number	%
Quit	27	7.5
Not quit	332	92.5
Stopped but relapsed	17	4.7
Continued smoking	106	29.5
No answer	39	10.9
No response	170	47.4

Subjects who relapsed and who did not answer or respond were all considered as smokers

Table 3. Smoking Cessation Rate according to the Intention to Quit in Phase I

	Quitters / Total	Cessation rate (%)
Intention to quit	15 / 68	22.1
No intention	12 / 287	4.2
No answer	0 / 4	0.0
Total	27 / 359	7.5

Table 4. Smoking Cessation Rate according to Age in Phase I

Age	Quitters / Total	Cessation rate (%)
-19	0 / 5	0.0
20-29	1 / 84	1.2
30-39	2 / 69	2.9
40-49	3 / 60	5.0
50-59	11 / 64	17.2
60-69	6 / 37	16.2
70-79	2 / 30	6.7
80-	2 / 7	28.6
Total	27 / 359*	7.5

*Ages of three patients were not recorded

Table 5. Multivariate Analysis for Smoking Cessation in Phase I

		Odds ratio	95% CI	P value
Sex	Male	1	Reference	
	Female	0.52	0.14-1.90	P = 0.32
Age	< 50 years	1	Reference	
	> 50 years	5.05	1.89-13.54	P = 0.001
Intention to quit	No	1	Reference	
	Yes	6.78	2.66-17.30	P < 0.001
Doctor's interview	No	1	Reference	
	Yes	0.77	0.28-2.09	P = 0.61
Facility	NMC	1	Reference	
	TMH	2.99	0.75-11.84	P = 0.12
	SSH	1.88	0.66-5.36	P = 0.24

Table 6. Smoking Cessation Rate for Doctor's Interview in Phase I (December 2001 to September 2002) and Phase II (October to November in 2002)

	Quitters / total	Cessation rate (%)
In phase I without pamphlets	7/121	5.8
NNM	3/25	12.0
SSH	4/96	4.2
In phase II with a pamphlet at SSH	17/212	8.0
Total	24 / 333	7.2

Differences in the cessation rate between pairs of groups were not statistically significant

3). Participants who desired to quit at baseline were more likely to quit than those who had no intention of quitting (P < 0.001). As shown in Table 4, the cessation rate tended to increase with age; the rate for patients aged 50 years or older (15.2% of 138 participants) was significantly higher (P < 0.001) than that for patients aged less than 50 years (2.8% of 218 patients).

Table 5 shows the result from multivariate analysis on the predictors of three months abstinence. Sex, age, intention to quit at enrollment, way of inquiry, and facilities were selected as predictors. Patients aged over 50 years or older were found to have a 5.05 times significantly higher chance of success than younger patients, and patients with intention to quit at enrollment had a 6.78 times higher chance than participants without quit intention. The mode of inquiry (self-administered questionnaire or doctor's interview) was not associated with smoking cessation (P = 0.61). The number of cigarettes smoked per day did not correlate significantly with the cessation rate (data not shown).

As shown in Table 6, the cessation rate for the patients provided the additional pamphlet by doctor's interview in phase II (8.0%) was slightly higher than that with doctor's interview in phase I (5.8%), but not significant. When the phase II was combined to phase I, the overall cessation rate was 7.7% of the 571 outpatients.

Discussion

Our study had three major findings. First, 7.7% of the outpatients who visited a respiratory division quit smoking by the "5A". Second, age and intention to quit were found to be independent predictors for smoking cessation at three months. Finally, no significant difference was found in the cessation rate three months after enrollment between the "5A" by self-administered questionnaire and by doctor's interview with and without a brief pamphlet. The limitation of our study is that the cessation was ascertained by mail, not confirmed biochemically, which may result in overestimation of the quit rate. Another limitation is that there were a large number of patients who did not return the mailed questionnaire on their smoking status, and these patients were counted as smokers.

Smoking cessation rate varies widely depending on medical care settings. Advice from a physician at a cancer center has been reported to result in long-term quit rates of up to 10.2% (Westmaas et al., 2000). In another study, a cessation program for hospitalized smokers increased quit rate to 13.5% compared with 9.2% in usual care (Stevens et al., 1993). Abstinence rates of hospitalized patients were 9.7% for counseling plus nicotine patch treatment and 4.9% for a brief physician advice (Lewis et al., 1998). Meanwhile, a simple follow-up of health checkup examinees found 2.7% to quit smoking after two months (Hamajima et al., 2001).

Diagnosis and severity of disease may influence the cessation rate. In the study of patients hospitalized with acute myocardial infarction, 75% cessation rate by an intervention was reported, compared with a 45% cessation rate in usual care (Taylor et al., 1990). Patients who had myocardial infarction are known to have the highest cessation rates (Miller et al., 1997; Burling et al., 1984). While some studies reported that patients with respiratory disease were more likely to quit smoking than patients with other diagnosis (Lewis et al., 1998; Miller et al., 1997), others reported that present of a respiratory diagnosis did not improve the rate (Rigotti et al., 2003; Fung et al., 2005). Those diagnosed as cancer had reportedly a higher two-month cessation rate compared with those diagnosed as non-cancerous diseases; 74.6% vs. 21.6% of respondents, respectively (Hamajima et al., 1999). Our study was conducted for outpatients at the respiratory divisions in the three general hospitals, and covered a wide variety of diseases including acute and chronic diseases, such as asthma, chronic obstructive

pulmonary disease, lung cancer, or just common cold. The patients with a mild disease may have a low quit rate, but we did not examine it in the present study. Smoking cessation rates for outpatients were similar to or lower than those reported for inpatients (Russell et al., 1979; Jamrozik et al., 1984).

We identified two independent predictive factors for smoking cessation after three months. Intention to quit at enrollment and age of 50 years or older were associated with an increased likelihood of the cessation in the multivariate model. The intention and age have been consistently found to be important predictors of long-term smoking cessation in previous studies. Participants with the intention were more likely to quit (Simon et al., 2003; Taylor et al., 1996). Age was positively associated with smoking cessation in a trial (Hymowitz et al., 1991), and in a large population survey, older smokers (> 65 years) were more likely to make an attempt to quit smoking and remain abstinent than younger smokers (< 25 years) (Pierce et al., 1989).

There are several modes of the intervention aimed at smoking cessation from the very subtle message to heavy counseling. One review indicated that the cessation rate with self-help materials such as booklets, leaflets or videotapes had a slightly higher cessation rate than with no intervention (Fiore et al., 2000). Brief physician advice increased the rate of abstinence by 2.5% over usual care (Silagy et al., 2001). Telephone counseling, compared to minimal or no intervention, conferred an approximately 2% rise in the cessation rate (Stead et al., 2003). Meta-analysis showed that individual counseling improved the abstinence rate by 4% (Lancaster et al., 2002). Increasing the intensity of interventions, such as duration of each session and total time spent in all sessions enhances smoking cessation rates. With minimal (< 3 min) counseling, the cessation rate was 13.4%; with high-intensity counseling (> 10min), the rate was 22.1% (Fiore, et al., 2000).

It is recommended that physicians should use "5A" to promote smoking cessation. In this study, brief "5A" was provided to smokers. We found no difference in the cessation rate between a self-administered questionnaire and doctor's interview. In this intervention, the doctors were not formally trained for the 5A. If they were trained, the difference might be found. The cessation rate for the doctor's interview in phase II at SSH (8.0%) was higher than that in phase I at the same hospital (4.2%), although not statistically significant. It could be due to the improvement of the doctors' skill, as well as the effect of the brief pamphlet. In this study, the effect of the former was not separated from that of the latter.

In conclusion, there was no difference among the three modes, but 7.7% of the 571 outpatients visiting respiratory divisions quit smoking by the simple 5A. Age and intention to quit at enrollment were found to be significant predictors for the smoking cessation. The findings indicated the 5A may be an available method, even with a self-administered questionnaire, to promote cessation strategy at clinic. In order to further confirm the effect of the 5A, randomized controlled trials are required.

References

Burling TA, Singleton EG, Bigelow GE, Baile WF, Gottlieb SH (1984). Smoking following myocardial infarction: a critical review of the literature. *Health Psychol*, **3**, 83-96.

Edwards R (2004). The problem of tobacco smoking. *Br Med J*, **328**, 217-9.

Fiore MC (2000). Treating tobacco use and dependence: an introduction to the US Public Health Service Clinical Practice Guideline. *Respir Care*, **45**, 1196-9.

Fung PR, Snape-Jenkinson SL, Godfrey MT, et al (2005). Effectiveness of hospital-based smoking cessation. *Chest*, **128**, 216-23.

Hamajima N, Kurobe Y, Tajima K (1999). Smoking cessation rate among outpatients at a cancer hospital. *Tobacco Control*, **8**, 349-50.

Hamajima N, Matsuo K (2000). Subtle instruction to quit smoking may be efficacious for certain smokers. *Asian Pac J Cancer Prev*, **1**, 257-8.

Hamajima N, Fukumitsu T, Odauchi S, et al (2001). A large-scale follow-up study of smokers who visited medical facilities in Japan. *Asian Pac J Cancer Prev*, **2**, 185-91.

Health and Welfare Statistics Association (2005). *J Health Welfare Statistics*, **52**, 78-80 (in Japanese).

Hymowitz N, Sexton M, Ockene J, Grandits G (1991). Baseline factors associated with smoking cessation and relapse. MRFIT Research Group. *Prev Med*, **20**, 590-601.

Jamrozik K, Vessey M, Fowler G, et al (1984). Controlled trial of three different antismoking interventions in general practice. *Br Med J (Clin Res Ed)*, **288**, 1499-503.

Lancaster T, Stead LF (2002). Individual behavioral counseling for smoking cessation. Cochrane Database Syst Rev, CD001292.

Lewis SF, Piasecki TM, Fiore MC, Anderson JE, Baker TB (1998). Transdermal nicotine replacement for hospitalized patients: a randomized clinical trial. *Prev Med*, **27**, 296-303.

Marlow SP, Stoller JK (2003). Smoking cessation. *Respir Care*, **48**, 1238-54; discussion 1254-6.

Miller NH, Smith PM, DeBusk RF, Sobel DS, Taylor CB (1997). Smoking cessation in hospitalized patients. Results of a randomized trial. *Arch Intern Med*, **157**, 409-15.

Pierce J, Giovino G, Hatziandreu E, Shopland D (1989). National age and sex differences in quitting smoking. *J Psychoactive Drugs*, **21**, 293-8.

Rigotti NA, Munafo MR, Murphy MF, Stead LF (2003). Interventions for smoking cessation in hospitalized patients. Cochrane Database Syst Rev, CD001837.

Russell MA, Wilson C, Taylor C, Baker CD (1979). Effect of general practitioners' advice against smoking. *Br Med J*, **2**, 231-5.

Silagy C, Stead LF (2001). Physician advice for smoking cessation. Cochrane Database Syst Rev, CD000165.

Simon JA, Carmody TP, Hudes ES, Snyder E, Murray J (2003). Intensive smoking cessation counseling versus minimal counseling among hospitalized smokers treated with transdermal nicotine replacement: a randomized trial. *Am J Med*, **114**, 555-62.

Stead LF, Lancaster T, Perera R (2003). Telephone counselling for smoking cessation. Cochrane Database Syst Rev, CD002850.

Stevens VJ, Glasgow RE, Hollis JF, Lichtenstein E, Vogt TM (1993). A smoking-cessation intervention for hospital patients. *Med Care*, **31**, 65-72.

Taylor CB, Houston-Miller N, Killen JD, DeBusk RF (1990).

Smoking cessation after acute myocardial infarction: effects of a nurse-managed intervention. *Ann Intern Med*, **113**, 118-23.

Taylor CB, Miller NH, Herman S, et al (1996). A nurse-managed smoking cessation program for hospitalized smokers. *Am J Public Health*, **86**, 1557-60.

Westmaas JL, Nath V, Brandon TH (2000). Contemporary smoking cessation. *Cancer Control*, **7**, 56-62.

World Health Organization (2004). Why is tobacco a public health priority? Geneva, Switzerland.