COPD Prevention at Health Checkup: Mainly Describing the Promotion of Smoking Cessation by Brief Intervention

Tadahiko MITSUMUNE1; Etsuo SENOH1; Michifumi ADACHI1; Masakazu NAKAMURA2; and Shizuko MASUI2

1Junpukai Health Maintenance Center, and 2Osaka Medical Center for Health Science and Promotion

ABSTRACT

Recently, deaths due to Chronic Obstructive Pulmonary Disease (COPD) have been increasing slightly in Japan. Pulmonary function test is indispensable for establishing a diagnosis of COPD. At present, however, pulmonary function test has been added to only several percent of health checkups. Since most of those demonstrating COPD are smokers, countermeasures against smoking are important. We investigated the effectiveness of interventions to promote smoking cessation within the short time available.

Subjects were 382 smokers (199 intervention group and 183 control group) who worked for three different manufacturing companies in Okayama prefecture. On the day of health checkup, physicians provided simple guidance on smoking cessation for approximately 1-2 minutes based on the degree of readiness for smoking cessation for each individual in the intervention group. The adjusted odds ratios of point prevalence abstinence rate by multiple logistic regression analysis were 1.56, 1.51 at the six months and one year follow-up, and 3.41, 3.17 among smokers who were planning to quit smoking within the next six months. There were no significant differences due to small sample size, but these results would suggest the effects of brief intervention by physician at health checkup.

To increase the effect of brief intervention for smoking cessation at health checkup, it is necessary to increase accessibility smoking cessation treatment by increasing the number of registered medical facilities that provide reimbursed treatment by public health insurance. We also consider that it is necessary to enlighten smokers on the necessity of smoking cessation treatment including the usefulness of medication.

It is also necessary to perform pulmonary function tests routinely as one of health checkup items for the diagnosis of COPD. In addition, it is important to provide smoking cessation intervention even for a short time at health checkup for prevention of COPD.

Key Words Smoking Cessation, Health Checkup, Chronic Obstructive Pulmonary Disease (COPD), Spirometry, Intervention

1. INTRODUCTION

Recently, deaths due to Chronic Obstructive Pulmonary Disease (COPD) have been increasing slightly in Japan.1 Therefore, measurement of COPD at health checkup facilities is important.

In a total of 3,611 men who consulted our institute for health screening, the prevalence of COPD among current smokers (5.6%) was higher than that among non-smokers (1.1%),2 and the prevalence among ex-smokers (4.0%) was lower than that among current smokers (5.6%). These results suggest that smoking increase the risk of COPD and smoking cessation would slightly improve the risk of COPD. In this investigation, it was demonstrated that a higher prevalence of COPD tended to be associated with a higher age. The same finding was also reported in the Nippon COPD Epidemiology Study (NICE Study).3 The Lung Health Study4 was an interventional study of smoking cessation in which participants were smokers with mild COPD. In that study, smoking habits and lung functions were observed over 11 years, and forced expiratory volume in one second (FEV1) was improved in sustained quitters one or two years after smoking cessation (Fig. 1). Afterwards, FEV1 decreased with age. However, the decrease in FEV1 among sustained quitters was significantly lower than that among continuous smokers.

Pulmonary function test is indispensable for establishing a diagnosis of COPD. That is, if forced expiratory volume in one second percent (FEV1%: FEV1/FVC) is less than 70% on spirometry, COPD is considered present. However, pulmonary function test has been added to only several percent of health checkup at present.

Since most of those demonstrating COPD are smokers, countermeasures against smoking are important. However, it is difficult to provide adequate guidance to promote smoking cessation, because there is not sufficient time during health checkup.

Fig. 1 Change of lung function over the years in a study among sustained quitters (open symbols), continuous smokers (closed symbols), and intermittent smokers (gray symbols).4

N=4,517
We investigated the effectiveness of brief smoking cessation intervention at health checkup.

2. BRIEF SMOKING CESSATION INTERVENTION AT HEALTH CHECKUP

1) Objectives: To evaluate the effect of brief intervention by the physician to promote smoking cessation at health checkup using a quasi-randomized controlled trial.

2) Setting and Participants: Subjects were 382 smokers (199 intervention group and 183 control group) who worked for three different manufacturing companies in Okayama prefecture. There were no significant differences between the intervention group and control group in the number of cigarettes, readiness for smoking cessation, Tobacco Dependence Screener (TDS), and past experience with smoking cessation.

3) Method: Procedure for intervention study especially focused on brief smoking cessation intervention
(1) Step 1: Confirmation of smoking status by investigation table at base line.
(2) Step 2: Confirmation of signature on the agreement form and collection of the agreement.
(3) Step 3: Confirmation of participants in the intervention group or control group, which were assigned by quasi-randomized method.

(4) Step 4: Smoking cessation intervention by physician.

On the day of health checkup, physicians provided brief advice on smoking cessation for approximately 1-2 minutes based on the degree of readiness for smoking cessation for each individual in the intervention group. Firstly, past history and past abnormal findings in medical examination were confirmed. The motivation for smoking cessation was strengthened by tailored message on importance of smoking cessation using these findings. And then the information on methods of smoking cessation was provided by handing a leaflet to smokers in the intervention group. Information on methods for smoking cessation included smoking cessation treatment covered by public health insurance, medication for smoking cessation, and a list of local medical institutions providing reimbursed smoking cessation treatment. In the company where intervention study were conducted in June 2008, it was described in the leaflet that varenicline had become newly available as an oral medication for smoking cessation and that nicotine patches available at pharmacies.

(5) Step 5: Request for cooperation with the follow-up survey.

Prior to the study, one hour training for brief intervention and a manual for intervention procedure were provided to the physicians who participated in the study.

4) Result: A questionnaire was distributed all participants six months and one year after intervention, and smoking status was examined.

The point prevalence abstinence rates at the six months and one year follow-up after intervention were 5.0%, 6.5% in the intervention groups, and 3.3%, 4.4% in the control group. The abstinence rates among smokers who were planning to quit smoking within the next six months were 17.6%, 14.7% in the intervention groups, and 6.5% in the control group. On multiple logistic regression analysis, the adjusted odds ratios were 1.56, 1.51 at the six months and one year follow-up, and 3.41, 3.17 among smokers who were planning to quit smoking within the next six months. There were no significant differences due to small sample size, but these results would suggest the effects of brief intervention by physician at health checkup.

All of the subjects using OTC medication for smoking cessation or smoking cessation treatment belonged to the intervention group, but this comprised only 10.8% of those who tried smoking cessation. The majority of subjects attempted smoking cessation by themselves.

5) Discussions: As for the reason why only a few smokers used smoking cessation treatment service or medication for smoking cessation, we consider the following. First, smokers are likely to stop smoking by themselves with their willpower. Second, the study sites where this study was conducted were located in the suburbs and access to medical institutions that provided smoking cessation treatment might be limited.

As for the reason why the odds ratios among smokers who had a higher motivation for smoking cessation, we consider the following reason. First, there might be an effect of promoting use of OTC medication for smoking cessation or smoking cessation treatment. Second, brief intervention by the physician at health check-up where the concern for health and the motive for behavior change are increased might have promoted a stronger decision to attempt smoking cessation.

To improve the effect of brief intervention for smoking cessation at health checkup, it is necessary to increase the accessibility of smoking cessation treatment by increasing the number of registered medical facilities that provide reimbursed treatment by public health insurance. We also consider that it is necessary to enlighten smokers on the necessity of smoking cessation treatment including the usefulness of medication.

3. CONCLUSION

It is necessary that pulmonary function test should be more widely performed as a health checkup item for the screening of COPD. In addition, since most of those demonstrating COPD are smokers, it is important to provide smoking cessation intervention even with the short time available at health checkup in order to prevent COPD.

ACKNOWLEDGMENT

This work was supported in part by the Grant-in-Aid for Cancer Research (17-1, 21-13-①) from the Ministry of Health, Labour and Welfare.
REFERENCES


