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Journal
Bulletin of Tokyo Dental College, 56(1): 57-61

URL
http://hdl.handle.net/10130/5657
Clinical Report

Effect of Collaborative Intervention by Medical and Dental Professionals on Adherence to Smoking Abstinence

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Received 26 November, 2014/Accepted for publication 17 December, 2014

Abstract

The need for smoking cessation care is widely recognized. It is, however, difficult to achieve continued smoking abstinence, even when cessation has initially been achieved. The aim of this study was to determine the effectiveness of a collaborative smoking cessation program involving both medical and dental professionals on smoking abstinence. A total of 10 patients visiting our Smoking Cessation Outpatient Clinic were followed up and monitored for smoking abstinence. All received smoking cessation care consisting mainly of counseling by dental and medical professionals and pharmacotherapy. They also concurrently received an oral examination, instruction on oral hygiene, and professional tooth cleaning. The 4-week smoking abstinence rate was 90.0% on completion of the program. One patient failed to complete the program. At one month after the program, 8 out of 9 patients remained abstinent (4-month abstinence; 88.9%). At 3 months after the program, 7 patients remained abstinent (6-month abstinence; 77.8%). Follow-up was impossible in one patient. Within the limitations of the present study, it is suggested that such collaborative intervention including subsequent dental care has the potential to promote short-term adherence to smoking abstinence.

Key words: Smoking cessation — Collaborative intervention — Medical — Dental

Introduction

The social climate surrounding smoking in Japan has changed drastically over the last few decades, and more people are seeking smoking cessation care. Various related interventions are now available in this country, including counselling, behavior modification,
and pharmacotherapy, and a number of studies have investigated their effectiveness.\(^8,9\) It is often difficult, however, to achieve long-term smoking abstinence. Currently, information on what factors underlie sustained abstinence is limited.

In 2006, interventions aimed at helping patients quit smoking became available under the national health care system, and at the same time Tokyo Dental College Suidobashi Hospital launched its own smoking cessation program. This particular program takes a novel, multi-disciplinary approach to the problem, and includes interventions by both medical and dental professionals.\(^10,11\)

The aim of this study was to investigate the effectiveness of this collaborative smoking cessation program as part of our ongoing efforts to further improve smoking cessation care at this hospital.

### Methods

#### 1. Patients

Current smokers visiting the Smoking Cessation Outpatient Clinic of the Tokyo Dental College Suidobashi Hospital between April, 2013 and May, 2014 and who agreed to receive a subsequent dental examination were included in the study. Patients with uncontrolled systemic diseases, who were undergoing dental treatment during the preceding 6 months, or who were pregnant or lactating were excluded. Informed consent was obtained from all patients for inclusion in the study.

#### 2. Assessment

The study outline is shown in Fig. 1. After obtaining complete medical and smoking histories, the patients were assessed with the smoking index (Brinkman Index: number of cigarettes smoked per day \(\times\) number of years of habit)\(^2\) and Tobacco Dependence Screener (TDS)\(^7\) together with measurement of breath carbon monoxide (CO) concentrations.

#### 3. Interventions

After providing us with informed consent, the patients were placed on the Smoking Cessation Program (5 appointments in 12 weeks) as described previously.\(^10\) Briefly, they received counselling on smoking and smoking cessation by dentists and dental hygienists. After being examined by a physician, the patient was given pharmacotherapy as needed. Nurses and dental hygienists assisted dentists and physicians during the process. On completion of the program, 4-week smoking abstinence (those who are not smoking again at the time of the final appointment and had not been smoking for the preceding 4 weeks) was assessed and recorded.

The patients were given oral examinations by dentists while on the program. They were then given instruction on oral hygiene and provided with professional tooth cleaning by dentists and dental hygienists.

#### 4. Monitoring of smoking abstinence

Face-to-face or telephone interviews and e-mail were used to perform a 3-month follow-up of each patient after completion of the program, during which time a record...
Collaborative Smoking Cessation Program

was kept of whether they were still abstinent from smoking.

**Results**

A total of 10 patients embarking on the smoking cessation program and subsequent dental intervention were included in the analysis. They were all men, and the mean age was $43.5 \pm 13.8$ years (Table 1). No patient had any systemic disease, except for one who had been receiving medical care for depression. The mean score on the Brinkman Index and TDS was $586 \pm 251$ and $7.9 \pm 1.1$, respectively. Six patients had a history of attempted smoking cessation. The mean breath CO concentration at entry into the program was $26.8 \pm 18.4$ ppm.

All patients received oral administration of varenicline tartrate, a selective nicotinic acetylcholine receptor partial agonist, except for one who underwent nicotine replacement therapy.

Eight of the 10 patients completed the program and succeeded in smoking cessation. One patient received smoking cessation care up to the 4th appointment, and smoking cessation was later confirmed. The remaining one case with depression failed to show up after the third appointment, and consequently it was not possible to find out if smoking cessation was achieved. The 4-week abstinence rate was 90% on completion of the program. Nine of the 10 patients had dental caries or periodontal disease. All patients received dental interventions consisting mainly of oral hygiene instruction, professional tooth cleaning and/or scaling. The interval between appointments and duration of interventions varied depending on the oral health status of each patient.

At one month after completion of the program, 8 out of 9 patients remained abstinent (4-month abstinence, 88.9%) (Table 2). At 3 months after completion of the program, 7 patients remained abstinent (6-month abstinence, 77.8%). Follow-up was not possible in one patient.

**Discussion**

Oral health professionals play a role in encouraging and helping their patients to quit smoking via referral pathways. Some studies have also suggested that dental staff should also be trained and given the resources to deliver such advice. Since 2006, we have been implementing a novel, multi-disciplinary
smoking cessation program which includes interventions by both medical and dental professionals. In this study, we followed up patients who had completed the smoking cessation program with the aim of obtaining information on the effectiveness of this collaborative approach including subsequent dental intervention.

In our previous study, which did not include subsequent dental intervention, the 4-week abstinence rate on completion of the program was 60%, and the 9-month rate was 44%\(^8\). According to the national survey conducted by the Ministry of Health, Labour and Welfare of Japan in 2008 and 2010, the 4-week abstinence rate of patients who received smoking cessation care was 72.3 to 78.5%, the 6-month rate 56.8%, and the 9-month rate 29.7 to 32.6%\(^8,9\). Although it is difficult to directly compare these results, the 4-week and 6-month rates from the current study were greater. Taken together, these results suggest that our collaborative approach is effective in helping patients achieve short-term abstinence from smoking. So far, 9-month abstinence has only been monitored in 6 patients, with 3 of these showing continued abstinence (data not shown). The exact rate for 9-month abstinence has yet to be determined. The guidelines for smoking cessation\(^6\) list the degree of counselling, the diversity of counsellors, type of intervention (including behavioral therapy), access to care, and long-term follow-up as important factors in achieving long-term abstinence. It has been reported that smoking cessation support delivered via mobile phone text messaging was also effective in this respect\(^8\), suggesting that this might also need to be incorporated into our current program.

The health professional’s perception of smoking cessation is an important factor in improving collaborative care. In one recent report\(^5\), the smoking rates in Japan were as follows: 30.3% for adult males and 9.8% for adult females, giving a total of 19.7%. One study has noted that the smoking rates for male and female doctors were lower, at 12.5 and 2.9%, respectively\(^4\). However, in our previous study\(^11\), we found that the smoking rates for dentists and dental hygienists at our dental hospital were 27.7 and 9.1%, respectively, suggesting the need for further promotion of smoking cessation among hospital-based health professionals.

This study had some limitations. The sample was small, and the design uncontrolled. The patients received various dental interventions at different appointment intervals and duration because they had different oral health

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*4-week abstinence on completion of smoking cessation program. ○; smoking abstinence, ×; smoking recurrence, ND; not determined.
problems. Therefore the precise effect of each type of dental intervention on adherence to smoking abstinence needs to be clarified in future study employing larger sample sizes and taking other confounding factors into account.

Despite these limitations, however, the present results suggest that this collaborative smoking cessation program has potential in promoting adherence to smoking abstinence, at least in the short-term. More effort needs to be put into the promotion of long-term adherence to smoking abstinence.

Conflict of Interest

We report no conflict of interest regarding this study.

References


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