

Effectiveness of Out-Patient Based Smoking Cessation

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Abstract

We aimed to find out effectiveness of out-patient based smoking cessation by the personalized clinicians guidance and to analyze smoking related and other habitual factors which may help to predict the success of quitting smoking.

Materials and Methods: 151 patients (61 women and 90 men, 52.9 ± 11.4 years old), who were current smokers, were recruited from the outpatient department for a two months period. We gave just brief information about 5 minutes to 30 patients (group-1), randomly we gave extra information and booklet about 30 minutes to 56 patients (group-2), 21 patients wanted to use nicotine replacement therapy and 14 patients wanted to use bupropion as total 35 patients used pharmacotherapy (group-3) and another 30 patients wanted to get help from our psychologist about intensive cognitive behavior therapy besides pharmacotherapy as a part of our smoking cessation unit' program (group-4). We called these patients at the end of the first month and at end of first year.

Results: The percentage of success rates for complete abstinence at the end of first year for group 1, 2, 3 and 4 were, 3.3, 10.7, 25.7 and 30 % respectively. The intensity of smoking history, smokers' wish to take help and smokers' motivation were found as a predictive for the success of quitting.

Conclusion: One in every six patients could remain abstinence at the end of the first year with their clinician's guidance. Clinicians can influence their patients to quit smoking so every clinician should spend more time on that issue.

Key words: Clinician's role, predictive factors, smoking cessation

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INTRODUCTION

Tobacco use is the single most important, preventable reason for most of the diseases and smoking results in a large and growing both health and economic costs. Worldwide mortality from tobacco is likely to rise from about four million deaths a year in 1998 to about 10 million a year in 2030 [1]. With current smoking patterns about 450 million people will eventually be killed by tobacco in the next 50 years [2]. Half of these deaths will occur in the 35-69 years age group, including many in productive middle age, with

an average loss of 20-25 years of life [1]. Despite increasing awareness to the harmful effects of tobacco, smoking continues to be a significant health risk factor and smoking cessation programs, as a primary method of disease prevention, are cost effective and have better economic value than many life-preserving medical interventions.

Each year more than %70 of all smokers make at least one visit to a physician and approximately 35% of smokers report having made a serious attempt to quit smoking [3]. To fight with this epidemic, doctors and other health professionals should routinely give non judgmental brief advice to stop smoking to all smokers they see. Although guidelines stress that supervision of smoking cessation should form a routine element of follow up for all current smokers and smoking advice should be repeated and documented, feasibility of this in daily practice has been hardly applied [4-5]. Despite the large number of studies about smoking cessation, it is not clear which approaches to smoking cessation are the most effective in the outpatient setting as in most of these studies; motivated patients who applied to the smoking cessation unit by themselves were included. Chest clinicians are well positioned to intervene with their patients who smoke. The aim of this study is to find out the effect of personalized chest clinician's advice and guidance about stop smoking on patients smoking status, investigate the effect of different smoking cessation counseling in promoting abstinence from smoking and to analyze patient's characteristic factors which may help to predict the long-term abstinence.

MATERIALS AND METHODS

Every patient, who came to our chest disease outpatient clinician in our university hospital, was asked detailed about their current smoking status. For two months period 421 patients were admitted to our university chest disease outpatient clinic and 183 of them were current smoker and 151 of current smokers completed the study. Their demographic data, smoking history, habits, Fagerström tolerance questionnaire (FTQ) score, smoking index (pack-years), previous quit attempts and associated conditions like respiratory or cardiac disease, depression or alcoholism were as-

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ked. Any subjects with history of seizure or brain surgery, who were pregnant or breastfeeding were excluded from the study.

All participants received verbal advice for not to smoke and informed briefly about effects of smoking for about 5 minutes. And then we asked them if they want to use medication (nicotine replacement therapy - (NRT) or bupropion) to quit smoking or want to follow up by our psychologist for intensive cognitive behavior therapy. To see the effect of written materials and prolonged information; randomly to 56 patients we gave extra information for about 30 minutes and a nine page booklet about stop smoking to some participants whom say no to both of the questions. The booklet emphasized the health benefits of quitting smoking, contained information on how to stop smoking and how to prevent relapse and also consisted some figures about damaged lung due to smoking. The other 30 patients just receive 5 minutes brief information about stop smoking without written materials. Eighteen individuals were assigned, one week before their intended quit date, for bupropion SR, 150mg once daily for days 1-3, followed by 150mg twice for days 4- 60. Forty-seven individuals were assigned for nicotine patch 35mg/day for two weeks and 17.5mg /day (Nicotinell flasters-Novartis) for the following 4 weeks. We try to choose the most suitable medicine for quitting smoking by considering our patients wishes and drug side effects. Besides pharmacotherapy, 30 individuals were assigned for intensive cognitive behavior therapy and were seen by our psychologist for 4 times (biweekly for the first month, and once for the following months). Then we call each patient by telephone at the end of the first month and at the end of first year.

Effects of different interventions for self reported complete abstinence rates were searched.

We also analyzed the relationship between complete self reported abstinence rates and baseline characteristics. We divided our patients in to two according to their wish about getting help about smoking cessation as this shows their motivation and reanalyzed all the parameters according to that.

All results were expressed as means ± (SD) values. Data were analyzed using chi-square to assess the effect of interventions; student's t test and Fischer Exact Test were used to test the relation between baseline characteristics and outcome measures. P values<0.05 are considered significant. A software program (SPSS -11) was used for the statistics.

RESULTS

For a two months period 183 current smoker patients were applied to our chest disease department outpatient clinic and 151 patients completed the study. We could not reached 24 patients at the end of the first year and 8 patients

did not use their medication (bupropion or NRT) regularly so we made our statistics according to remaining 151 patients. The compliance rate for pharmacotherapy was 81.4 % (8/43). The average age of the patients, (61 women and 90 men) was 52.9 ± 11.4 years old. 79 patients had smoking related diseases. 47 of them had atherosclerotic heart disease, 13 of them had asthma, 18 of them had COPD and one of them had a lung tumor. We have 39 patients who smoked less than 10 cigarettes per day. All the others were smoking more than 10 cigarettes in a day (Table 1).

Table 1. Characteristics of patients

Characteristics of patients	(n)
Age (years)	52.9 ± 11.4
Sex M/F (n)	90/61
Patients education level	
Primary	45
High School	56
University	50
FTQ score	8.6 ± 2.0
Packs per year	33.2 ± 16.9
Smoking associated illnesses	79
Age for starting smoking	20.8 ± 9.7

*FTQ- Fagerström tolerance questionnaire

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Table 2. The success rates for complete abstinence for different interventions

Cessation method (n)	complete abstinence for the 1st month (n %)	complete abstinence for the 1st year (n %)
Verbal advice (30)	3 (10%)	1 (3.4%)
Extended information and booklet (56)	10 (17.9%)	6 (10.7%)
Just pharmacotherapy (35)	14 (40%)	9 (25.7%)
Pharmacotherapy and intensive cognitive behaviour therapy (30)	13 (43.3 %)	9 (30%)

Our psychiatrist evaluated our patients for their wish for stop smoking and consider group 1 and 2, as less motivated for quitting smoking than group 3 and 4, because neither they wanted to get help about quitting nor they wanted to use pharmacotherapy. We combined group 1 and 2 (group A), and we combined group 3 and 4 (group- B). The continuous abstinence rate for the end of first month and at the end of first year respectively were 15.1 % and 8.1 % for group A, 41.5 % and 27.7 % for group B. We found that smokers' wish to take help and smokers' motivation for using pharmacotherapy were associated with higher complete abstinence rate ($p<0.05$).

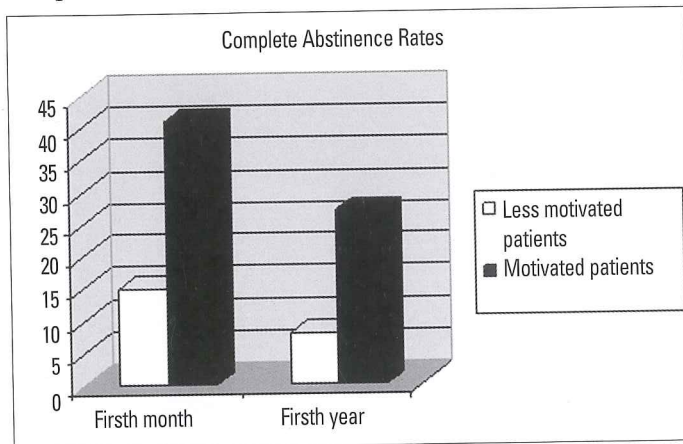


Figure 1. Role of motivation for quitting

We compared complete abstinence rates and baseline characteristics and found that low smoking history in pack/years was helpful to predict the outcome. But there was no statistically significant correlation between all the other investigated parameters and continuous abstinence rate. (Table 3).

DISCUSSION

The most effective intervention for smoking cessation was the combination of behavior support with drug treatment. Extended information with a booklet nearly triples the rate of self reported abstinence from smoking over 12 months in smokers compared with just verbal advice.

The prevention of tobacco related diseases through smoking cessation interventions is among the most vital mission of the chest clinicians. Brief advice is one of the most cost effective iakarm.

Interventions in medicine. It is documented that clinical interventions as brief as 3 minutes can substantially increase cessation success, nearly 1 in 40 smokers [6]. The Cochrane review found that brief advice increased the quit rate (odds ratio 1.69, 95% confidence interval 1.45 to 1.98) [7]. We found that, with just doctors personalized verbal advice, 3.4% patients had self reported complete abstinence and it was higher as 10.7% in the group who got extra extended information and booklet. We thought that, it was important for a patient to see and read something as this provides additional support. Secondly, timing was very important as all the participants in the study had some complaints about their respiratory system and acutely ill as they were chosen from our outpatient clinic. Similarly Gorecka [8] found that the diagnosis of airflow limitation motivated smokers to attempt to quit smoking.

As smokers are a heterogeneous population different tactics are required to enhance compliance, motivation and successful cessation. As awareness of the importance of individualized treatment modalities, based on subjects own preference, is also increasing, different medicines (NRT and/or bupropion) are being used. The aim of NRT is to replace nicotine from cigarettes. This reduces withdrawal symptoms associated with smoking cessation thus helping

Table 3. Continuous abstinence rates according to patients demographic data

Characteristics	FIRST MONTH		FIRST YEAR	
	Abstinence (45)	Smoking (106)	Abstinence (30)	Smoking (121)
Age (years)	48.3 ± 12.4	54.8 ± 10.3	47.6 ± 12.2	54.2 ± 10.8
Sex M/F (n)	27 / 18	63/ 43	18/12	72/49
Education				
primary (45)	12	33	9	36
high school(56)	14	42	8	48
University (50)	19	31	13	37
FTQ score	8.1 ± 1.8	8.8 ± 1.1	8.1 ± 1.6	8.7 ± 2.1
Packs/year	26.6 ± 14.4*	36.1 ± 17.2	27.3 ± 14.8*	34.6 ± ±17.2
History of chronic alcoholism (13)	4	9	3	10
Previous history of major depression (30)	11	19	7	23
Previous quit attempt (76)	25	51	17	59
Associated smoking related illness (79)	20	59	15	64
Associated smoking related illness in the family (56)	18	38	13	43

*p<0.05

resist the urge to smoke cigarettes. The dose range for NRT can vary between 7-21-35-42- 52.5 mg/day [9-11]. In some limited studies for very heavy smokers, 63mg/day were used but nausea was observed statistically significant to be more frequent in the 63 mg/day dose group compared with placebo [12]. Evans showed that NRT increased heart rate and women were more sensitive to side effects (e.g., nausea, lightheadedness) at higher doses in a dose-related manner [13]. So in our study we preferred to use an average dose of 17.5-35 mg/day for NRT.

The success rates for bupropion with combination of minimal to moderate counseling was associated with 1 year quit rates 23.6% to 55.1% [14-15]. The success rates for one year quit for NRT change between 35%- 58 % [16-17]. In our country the success rates for one year quit for combination therapy was found 41.2 %, 45.5% and 40% for different clinics [18-20]. This high success rates were explained by intensive physician's effort, face to face appointments and proactive phone calls. We found that with pharmacological treatment 25.7% of our patients had complete abstinence and if they got additional cognitive behavior support, then complete abstinence rates increase to 30 % for one year. Pharmacotherapy like NRT and bupropion, is an essential element of tobacco dependence treatment as multicomponent approach is necessary.

In one review, stages of smoking behavior change and readiness to quit were identified as major components in the process of smoking cessation [21]. Age at which person starts smoking is found as predictive as men who started smoking before 16 years of age had an odds ratio 2.1 for not quitting smoking compared to those who started at a later age [22]. Both Rohde [23] and Joseph [24] found that a history of major depressive disorder before treatment is predictive of failure to quit smoking, in contrast Acton [25] found that it is not. Similarly we could not find any relation between abstinence rates and previous history of major depression. Our study supported the previous findings of Breslau [26] that number of cigarettes per day was the best predictor of cessation. Highly nicotine dependent smokers experience severe withdrawal symptoms which make smoking cessation more difficult to achieve. We found that lower tobacco exposure increase the chance of quitting as we thought that they were less dependent. The other predictive factor for complete abstinence was the patient's motivation about using pharmacotherapy and willingness about getting professional help. We do not find any relationship between all the other sociodemographic factors and quitting.

Our study has several potential limitations. First of all, we gave brief counseling to all study population as we thought that it was not right not to warn any current smoker so we did not have a control group whom consisted of smokers without getting any information about harmful effects of smoking from their doctors. Secondly, we couldn't measure expired air carbon monoxide level or baseline blood nicotine and cotinine levels for the confirmation of complete abstinence, so our findings were self reported complete abstinence rates. But also Simon [27] found that from total of 223 patients, only 3 patient's had higher saliva cotinine levels that their self reporting abstinence rates. Similarly Fung [28] found that confirmation of self reported abstinence rate with exhaled carbon monoxide level was failed in 5 (2%) patients. So we can believe that most of the time patients do not lie to their doctors. On the other hand we prove that, if the clinicians assist their patient in quitting smoking, gave motivational support and offer appreciate pharmacotherapy just as for other chronic diseases, approximately one in every six patients, could remain abstinence at the end of the first year. These findings support the idea that clinicians can influence patients to quit smoking and they should.

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REFERENCES

1. http://www.who.int/tobacco/publications/mdg_final_for_web.pdf. The millennium development goals and tobacco control.
2. Peto R, Lopez AD. The future worldwide health effects of current smoking patterns. In Koop CE, Pearson CE, Schwarz MR eds. Critical issues in global health. New York: Jossey-Bass.
3. Anderson JE, Jorenby DE, Scott WJ, Fiore MC. Treating tobacco use and dependence: an evidence-based clinical practice guideline for tobacco cessation. *Chest* 2002; 121: 932-41.
4. Coakley AL, Ruston A. Pulmonary disease and smoking: a case for health promotion. *Br J Nurs* 2001; 10: 20-4.
5. Williams GC, Levesque C, Zeldman A et al. Health care practitioners' motivation for tobacco-dependence counseling. *Health Educ Res* 2003; 18: 538-53.
6. Coleman T. ABC of smoking cessation. Use of simple advice and behavioural support. *BMJ* 2004; 328: 397-9.
7. Silagy C. Physician advice for smoking cessation. In: Cochrane Collaboration. Cochrane Library. Issue 3. Oxford: Update software 2000.
8. Gorecka D, Bednarek M, Nowinski A et al. Diagnosis of airflow limitation combined with smoking cessation advice increases stop-smoking rate. *Chest* 2003; 123: 1916-23.
9. Kenford SL, Fiore MC, Jorenby DE et al. Predicting smoking cessation. Who will quit with and without the nicotine patch. *JAMA* 1994; 271: 589-94.
10. Örsel O, Örsel S, Alpar S et al. The comparison of nicotine replacement therapy and behavioral education in smoking cessation: A study of naturalistic follow-up Tuberk Toraks; 53: 354-61.
11. Solak ZA, Göksel T, Erdiç E, Üstün H. Success of a Smoking Cessation Program Among Relatives of Patients With Smoking Related Serious Lung Disease. *Toraks Dergisi* 2002; 3: 248-52.
12. Ebbert JO, Dale LC, Patten CA et al. Effect of high-dose nicotine patch therapy on tobacco withdrawal symptoms among smokeless tobacco users. *Nicotine Tob Res.* 2007; 9: 43-52
13. Evans SE, Blank M, Sams C et al. Transdermal nicotine-induced tobacco abstinence symptom suppression: nicotine dose and smokers' gender. *Exp Clin Psychopharmacol.* 2006; 14: 121-35.
14. Swan GE, McAfee T, Curry SJ et al. Effectiveness of bupropion sustained release for smoking cessation in a health care setting: a randomized trial. *Arch Intern Med.* 2003; 163: 2337-44.
15. Hays JT, Hurt RD, Rigotti NA et al. Sustained-release bupropion for pharmacologic relapse prevention after smoking cessation. a randomized, controlled trial. *Ann Intern Med.* 2001; 135: 423-33.
16. Smith PM, Reilly KR, Houston Miller N et al. Application of a nurse-managed inpatient smoking cessation program. *Nicotine Tob Res* 2002; 4: 211-22.
17. Tonnesen P, Mikkelsen KL. Smoking cessation with four nicotine replacement regimes in a lung clinic. *Eur Respir J* 2000; 16: 717-22.

18. Salepçi B, Fidan A, Oruç Ö ve ark. Sigara Bırakma Polikliniğimizde Başarı Oranları ve Başarıda Etkili Faktörler. *Toraks Dergisi* 2005; 6: 151-8.
19. Uzaslan EK, Özyardımcı N, Karadağ M. The physician's intervention in smoking cessation: Results of the five years of smoking cessation clinic. *Ann Med Sci* 2000; 9: 63-9.
20. Solak ZA, Telli CG, Erdiñç E. Sigarayı Bırakma Tedavisinin Sonuçları *Toraks Dergisi* 2003; 4: 73-77.
21. Narsavage G, Idemoto BK, Sarah Cole. Smoking cessation interventions for hospitalized patients with cardio-pulmonary disorders. *Online J Issues Nurs* 2003; 8: 8.
22. Khuder SA, Dayal HH, Mutgi AB Age at smoking onset and its effect on smoking cessation. *Addict Behav* 1999; 24: 673-7.
23. Rohde P, Kahler CW, Lewinsohn PM, Brown RA. Psychiatric disorders, familial factors, and cigarette smoking: III. Associations with cessation by young adulthood among daily smokers. *Nicotine Tob Res* 2004; 6: 509-22.
24. Joseph A, Lexau B, Willenbring M et al. Factors associated with readiness to stop smoking among patients in treatment for alcohol use disorder. *Am J Addict*. 2004; 13: 405-17.
25. Acton GS, Kunz JD, Wilson M, Hall SM. The construct of internalization: conceptualization, measurement, and prediction of smoking treatment outcome. *Psychol Med*. 2005; 35: 395-408.
26. Breslau N, Johnson EO. Predicting smoking cessation and major depression in nicotine-dependent smokers. *Am J Public Health* 2000; 90: 1122-7.
27. Simon JA, Carmody TP, Hudes ES et al. Intensive smoking cessation counseling versus minimal counseling among hospitalized smokers treated with transdermal nicotine replacement: a randomized trial. *Am J Med* 2003; 114: 555-62.
28. Fung PR, Snape-Jenkinson SL, Godfrey MT et al. Effectiveness of hospital-based smoking cessation. *Chest* 2005; 128: 216-23.