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Spirometry and smoking cessation advice in general practice: A randomised clinical trial ☆

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Summary
Rationale: To assess the success rate of smoking cessation with the ''minimal intervention strategy'' in general practice, and to determine the influence of spirometry on this success rate.
Methods: Training in smoking cessation advice was given to 16 general practitioners (GPs). During 12 weeks, these GPs screened their practice population for smoking habits, the degree of dependence on nicotine, and the motivation to quit smoking. Patients willing to stop were randomised to a group that underwent a single office spirometry, or to a control group. The GPs were asked to support the attempts with the minimal intervention strategy. Success rates were compared after 6, 12 and 24 months.
Results: On a population of 5590 patients, 1206 smokers were identified (22%). To the vulnerable group, identified following the *Prochaska and Di Clemente* scheme, the proposal was made to change smoking behaviour. Two hundred and twenty-one patients undertook an attempt of smoking cessation. Nicotine replacement therapy (NRT) or bupropion was prescribed in 51% of the attempts. Sixty-four sustained quitters were counted after 6 months (29%), 43 after 1 year (19%) and 33 after 2 years (15%). We found a small but statistically non-significant difference in success rate in favour of the group that underwent office spirometry.
Conclusion: GPs can motivate almost 20% of their smoking population to quit smoking. The success rate with the minimal intervention strategy was 19% after 1 year and 15% after 2 years. We found no arguments in favour of confronting smokers with their lung function as a tool for enhancing smoking cessation.

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What this paper adds

Some authors state that spirometry could be a tool to enhance smoking cessation. Most of the papers about this topic compare ''regular'' smoking advice to ''intensive'' smoking advice, which often includes lung function testing. The present study isolates the influence of spirometry on stop smoking advice as a single variable. It showed a small, statistically non-significant difference.

Introduction

Smoking cessation is an important goal of most programs for public health.[1,2] Indeed, the burden of cigarette smoking is enormous.[2] One of the diseases strongly associated with the use of tobacco is COPD.[3] In general, the risk of COPD shows in general a good correlation with the intensity and duration of cigarette smoking.[4] By 2000 COPD has become the fourth leading cause of mortality worldwide.[5] Until now, smoking cessation is the only intervention that can delay the progression of COPD.[6]

The effectiveness of brief advice for smoking cessation is well established, but the estimated success rate differs greatly from one source to another.[7–9] All guidelines for smoking cessation include case finding and opportunistic advice in a primary care setting.[10–12] The performance of the involved health care professionals varies probably with a series of external influences. Assessment of the implementation of the guidelines can give hints for further improvement.

Office spirometry is to an ever-increasing extent available in general practice. The usefulness of this technique for lung health assessment and for screening airflow obstruction is documented.[13,14] Some authors state that spirometry may be a tool to enhance smoking cessation.[13,15] Confronting smokers with their abnormal lung function parameters should motivate them to quit. However, the literature about this topic is controversial.[16–18] A recent systematic literature review[19] addressed the question if spirometry can lead to increased smoking cessation rates. The authors found that six of the seven selected randomised controlled trials did not allow for an independent assessment of the effects of spirometry on smoking cessation rates. The only study that assessed the independent influence of spirometry[27] did not obtain spirometry directly in the primary care setting. The authors of the Agency for Healthcare Research and Quality report[19] concluded that more research is needed to determine if spirometry in primary care office-based settings results in improved rates of smoking cessation and long-term abstinence.

The aim of the present study was (1) to assess the implementation of the guidelines for smoking cessation in the Belgian primary care, and (2) to determine the influence of one single office spirometry on the success rate of smoking cessation in motivated persons.

Methods

Sixteen general practitioners (GPs), working at 14 different practices, followed a short training in giving advice to quit smoking. The Flemish guidelines[20] were used as a basis for this 4 h course. Training was given in the motivational interview and in the minimal intervention strategy (the 5A model: ask, advise, assess, assist, arrange). The motivational model of Prochaska and Di Clemente[21] was explained, as well as the Fagerstrom Nicotine Dependence Test[22] (FNDT).

Eight of the GPs had received training in performance and interpretation of spirometry before,[14] using a microspirometer. The eight others were using a spirometer, but had not received specific training.

The GPs were asked to screen all their attending patients above 15 years of age actively for smoking habits, their degree of dependence to tobacco (FNDT), and their motivation to quit smoking. During a 12-week period the GPs used the ''minimal intervention strategy'' to enhance smoking cessation among their smoking patients. The patients with a motivation in stage 3 (preparation) or 4 (action) in the scheme of Prochaska and Di Clemente were asked to fix a day to quit smoking, and a follow-up contact was offered. The GPs were instructed to prescribe nicotine replacement therapy (NRT) and/or bupropion for those patients willing to quit. In addition to this ''minimal intervention'', these patients were randomised into a group to perform office spirometry or to a control group. The randomisation method was tossing a coin. Doing so, a random sample of the potential quitters was confronted with their lung function measurement values and their flow/volume curve. The GPs were asked to note if these smokers had a normal lung function or airflow obstruction (defined as a $FEV_1/FVC < 0.7$). Six months after the stop date, the GPs informed by telephone if the attempt to quit smoking was still successful. This telephone round was repeated at 12 and 24 months after the stop date. Sustained