

CESSATION THERAPY FOR HOSPITAL PATIENTS WITH SMOKING-RELATED DISEASES: A CINDERELLA SPECIALTY

I.A. Campbell, Consultant Chest Physician, Llandough Hospital, Cardiff

INTRODUCTION

For patients with ischaemic heart disease and/or chronic bronchitis and emphysema, giving up smoking is one of the most important, if not the most important, of the therapeutic steps in treatment and prognosis.¹⁻⁴ Mortality after myocardial infarction is reduced more by smoking cessation than by thrombolysis, aspirin or beta-blockade.⁵ The development of smoking cessation methods and treatments for these groups of patients has attracted very little attention, particularly in contrast to the resources allocated to researching and implementing other less effective therapies for these diseases. This paper reviews the work in this area to date, highlighting what has been shown to be effective and hopefully pointing the way forward.

EARLY STUDIES

In 1969 Williams reported that simple advice from the physician resulted in 18–23% of chest clinic patients stating six months later that they had stopped smoking.⁶ In 1976 Raw found that chest clinic patients with airways obstruction who were advised by the physician to stop or reduce smoking were more likely to do so than those not so advised. In the same study patients were interviewed by a Clinical Psychologist after they had seen a Chest Physician. If the psychologist wore a white coat more patients gave up smoking than if he or she did not.⁷ For patients recovering from myocardial infarction, firm repeated advice from medical and nursing staff, reinforced with written advice, special follow-up clinics and home visits by Community Nurses led to 79 (63%) of 125 patients claiming abstinence at one year. The control group received conventional advice without any follow-up: a year later 27.5% said that they had stopped smoking.⁸ In none of the studies described so far was abstinence verified objectively. Wilcox *et al.* did verify abstinence with assaying urinary nicotine and cotinine in their study of 85 patients attending a post-myocardial infarction clinic, but did not say for how long the 42% verified as abstinent had been off cigarettes.⁹

LATER STUDIES

By the early 1980s it had become clear that not only should the population studied be clearly defined in terms of age, sex and disease(s) but also that claims of abstinence should be verified in some objective way, e.g. expired air carbon monoxide concentration, salivary or urinary nicotine or cotinine levels, blood levels of carboxyhaemoglobin or thiocyanate. Continuous abstinence was soon recognised as a better measure of outcome than point-prevalence. In the 12 months following smoking cessation advice, those who had not smoked for the last six to nine months can be regarded as having been successful. Nevertheless, studies continue to report point prevalence or ambiguous, sustained abstinence rates.^{10,11} Many still fail to verify abstinence but also do not extend follow-up for a year.¹²⁻¹⁵ The

remainder of this review includes only randomised, controlled studies which have defined success as above.

EFFECT OF PHYSICIAN'S ADVICE (SEE TABLE 1)

In the first of three, large multi-centre trials conducted by the British Thoracic Society (BTS), 371 newly attending or re-referred in-patients and out-patients with smoking-related diseases (SRDs) were advised to stop smoking by their hospital physician: 8.9% successfully stopped (success defined as claimed abstinence at six and 12 months, claim of no smoking in between and with verification at both six and 12 months by measurement of carboxyhaemoglobin (COHb) and thiocyanate in venous blood).¹⁶ Two further studies of newly referred or re-referred out-patients with SRDs showed 7% and 5.2% validated, sustained success rates at one year among 732 and 343 patients respectively.¹⁷

EFFECT OF VARIOUS ADJUNCTS TO PHYSICIAN'S ADVICE IN THE BTS TRIALS (SEE TABLE 1)

A *Booklet on dangers of smoking and advice on how to stop*

The addition of such a booklet did not improve on the success rate (8.9%) achieved by the physician's advice: only 8.5% of 377 patients in a group given advice and a booklet successfully stopped smoking.¹⁶

B *Signed agreement to stop within the next week*

This part of the strategy used in the third BTS study produced a 4.9% success rate among 347 patients, compared with 5.2% obtained with physicians' advice alone.¹⁷

C *Letters of advice and encouragement*

Reinforcing the physicians' advice by letters of advice and encouragement at three days, two weeks and two, three, five and nine months significantly improved the success rate by more than half as much again ($p = 0.011$).¹⁷

D *Combination of B and C*

Adding the signed agreement to the letters of advice and encouragement did not increase success rate above that of the letters.¹⁷

E *Combination of B, C and contacts by health visitors*

In the second BTS study 730 patients received physicians' advice plus a package consisting of a signed agreement to stop by a target date within the next week, letters of advice and encouragement at weeks one, eight, 12, 20 and 36 and contacts by health visitors at two and six weeks. The success rate (nine per cent) at one year was not significantly different from that achieved by the 732 patients who received just physicians' advice (seven per cent).¹⁷

F *Nicotine replacement therapy (NRT)*

Placebo chewing gum and nicotine chewing gum were compared in the first BTS trial. Success rates (11.4% and

TABLE 1
Results of the BTS multi-centre trials in patients attending hospital.

| First BTS trial¹⁶ | | | | |
|--|---------------|--|--|---|
| Strategy | Verbal advice | Verbal advice and booklet | Verbal advice, booklet and placebo gum | Verbal advice, booklet and nicotine gum |
| | n = 371 | n = 377 | n = 402 | n = 400 |
| Success rates | 8.9% | 8.5% | 11.4% | 9.8% |
| Second BTS trial¹⁷ | | | | |
| Strategy | Advice | Advice, visits by health visitor, postal encouragements and a signed agreement | | |
| | n = 732 | n = 730 | | |
| Success rates | 7% | 9% | | |
| Third BTS trial¹⁷ | | | | |
| Strategy | Advice | Advice and agreement | Advice and letters | Advice, agreement and letters |
| | n = 343 | n = 347 | n = 351 | n = 351 |
| Success rates | 5.2% | 4.9% | 8.5% | 6.9% |
| Success rates (no letters vs. letters) | | 5.1% | | 8.7% |

9.8% respectively) were not significantly different, nor were they different from the effect of physician's advice without gum.¹⁶

The first BTS trial was criticised for lack of early support after the advice had been given by the physician. A study from Sweden suggested that such support might increase success rates: Hjalmarsen compared group therapy plus nicotine chewing gum with group therapy plus placebo chewing gum and demonstrated 29% success at one year in the active group compared with 16% in the placebo group. However, only two-thirds of the subjects were patients referred by physicians in the hospital, others being self-referrals.¹⁸ In the UK, nicotine chewing gum has since been compared with placebo chewing gum, both on a background of advice and support from a counsellor. The programme involved three one-to-one sessions in the first month and further sessions at two and three months. In-patients and out-patients were studied. The success rate at one year was 20%, with no difference between nicotine and placebo gum.¹⁹ However, the success rate of 20% was between twice and four times the rates achieved in the BTS studies,^{16,17} suggesting that such a programme of advice and support carried considerable advantage over physician's advice alone. This suggestion was reinforced by the results from a subsequent trial of nicotine patches using the same study design and support programme: the group receiving patches (114 patients) achieved 21% success compared with 14% among 119 patients on placebo (Table 2).²⁰ Whilst this difference was not significant at the 5% level it nevertheless hinted at a beneficial effect for nicotine

patches. However, in the US a multi-centre trial involving ten Veterans Affairs medical centres demonstrated no difference at six months in out-patients with cardiac diseases randomised between nicotine and placebo patches on a background of advice and support (14% vs. 11%, n = 584). Reassuringly, no increase was recorded in deaths or cardiovascular events in the nicotine patch group compared with the placebo group.²¹ Studies clarifying the effects in hospital patients of other forms of NRT, e.g. nasal spray or inhaler, are awaited.

OTHER SITUATIONS AND STRATEGIES

A In family planning clinics and antenatal clinics, a number of studies have shown the value of doctors' or midwives' advice: cessation rates varied between 4–15% depending on the country in which the study was conducted and the socio-economic groups studied.^{22–24}

B In a chest clinic in Copenhagen, patients attending only for a chest X-ray and/or lung function tests were given brief advice from a nurse followed by a letter of encouragement or were allocated to a control (no advice) group,²⁵ and in two South Wales chest clinics, similar groups of patients were randomised to receiving an advisory booklet or to no action.²⁶ These strategies tended to double success rates to levels in the 3–7% region. Even though these rates were low the strategies were simple, cheap and easily applied to large numbers. As such, they are worthy of further study to determine whether the trends represent a real effect.

TABLE 2

Results of advice, support and NRT in patients attending hospital.

| First Llandough study¹⁹ | | |
|--|-------------------------------------|--------------------------------------|
| Strategy | Advice, support and placebo gum | Advice, support and nicotine gum |
| | n = 105 | n = 107 |
| Success rates | 20% | 20% |
| Second Llandough study²⁰ | | |
| Strategy | Advice, support and placebo patches | Advice, support and nicotine patches |
| | n = 119 | n = 115 |
| Success rates | 14% | 21% |

ADDITIONAL INFORMATION FROM THE STUDIES OF HOSPITAL PATIENTS^{17, 19, 20, 27}

From these studies it became evident that older patients were more likely to stop smoking than were younger ones. Men were more likely to stop than women. Patients with ischaemic heart disease had higher success rates than those with lung disease, both of these groups doing considerably better than any of the other diagnostic groups. Having a non-smoker as one's nearest and dearest person was a predictor of successful outcome, as was being in a stable marital or quasi-marital relationship. On the whole, neither the numbers of cigarettes smoked daily nor the number of years of smoking were predictors of outcome. Only in one study did the nicotine dependence score affect the results.

SEQUELAE OF THE LATER STUDIES

On the basis of the results of these studies one hospital in South Wales appointed a smoking cessation counsellor to provide a service to patients of the hospital. The one-to-one counselling programme starts with the first session lasting approximately 45 minutes. During this time the patient's smoking history is taken. The counsellor explains the importance of stopping smoking in relation to the patient's diagnosis, and health gains and benefits that will result. The risks of developing other smoking-related diseases are also discussed. Chemical and nicotine content of the cigarette is explained to the patient and linked again to the illness. Possible withdrawal symptoms and their likely duration are discussed with the patient and suggestions given for coping strategies/tasks which should last at least ten minutes. Weight gain is discussed and advice given. If patients are still smoking at two weeks, NRT is considered and advice given on its use to those who wish to try it.

After the first session there are four more weekly appointments each lasting 15 minutes when support, advice and encouragement are given. At the fifth appointment (one month), claims of cessation are verified by measuring expired air CO. The next appointment is at three months when expired air CO is measured again for those who say

they are not smoking, and further support is provided. Those who are still smoking are discharged from the programme but are told that they can contact the counsellor if they wish to try to quit again at a later date. The same format is followed at six months and again at 12 months. In between the one, three, six and 12 month appointments the counsellor telephones or writes to the patients to check their progress, to encourage and congratulate. Patients are advised to telephone the counsellor if they relapse between these appointments.

Analysis of the results of that service demonstrated 20% validated, sustained abstinence at one year and highlighted the cost-effectiveness of the service in this rather hardcore population of smokers. The cost per life year saved was calculated to be £340–£426.²⁸ This compares favourably with the cost-effectiveness of other health care interventions such as monotherapy for mild to moderate hypertension (£6,855 per life year for beta-blocker – £45,345 per life year for ACE inhibitor at 1987 prices) and zidovudine therapy for asymptomatic patients with HIV infection (£4,127–£44,355 per life year at 1989 prices).²⁹ Other hospitals have since set up similar services, and hopefully more hospitals will follow suit, especially as a result of recent Government initiatives on smoking cessation. To provide the advice and support needed by the patient, such a counsellor need not be a psychologist or even a senior nurse.

BUPROPION (ZYBAN)

In 1997 in the US, bupropion, an antidepressant, was found to increase smoking cessation among smokers in the general population who volunteered to participate in a study in response to advertisements in the media.³⁰ Smokers with depression were excluded from that study as they were in a later trial which compared bupropion with NRT in the same variety of population. It proved superior to NRT, with a sustained abstinence rate at 12 months of 18% (cf. NRT, 10%).³¹ In both trials the participants were given repeated advice and support in addition to the pharmacological aids. A recent study recruited smokers with chronic bronchitis and emphysema from the general population by advertisements in the media: continuous abstinence rates to six months were better with bupropion than with placebo, but unfortunately the study did not extend to a year.³²

CONCLUSION

Hospital doctors should advise patients, especially those with SRDs, to stop smoking. Consultants who manage such patients should try to secure the appointment of a smoking cessation counsellor in their hospital to provide advice and support. Pending the establishment of such a service doctors should reinforce their advice with letters of encouragement, especially in the early period after the advice to stop. Undoubtedly, more research on NRT is required, and the drug bupropion in particular merits more assessment in hospital patients.

REFERENCES

- Fletcher CM, Peto R, Tinker C *et al*. The national history of chronic bronchitis and emphysema. London: Oxford University Press; 1976.
- Doll R, Peto R. Mortality in relation to smoking: Twenty years' observations on male British doctors. *BMJ* 1976; **2**:152-36.

- ³ Tashkin DP, Clark VA, Coulson AH *et al.* The UCLA population studies of chronic obstructive respiratory disease, VIII. Effects of smoking cessation on lung function: a prospective study of a free-living population. *Am Rev Resp Dis* 1974; **130**:707-15.
- ⁴ Mulcahy R. Influence of cigarette smoking on morbidity and mortality after myocardial infarction. *Br Heart J* 1983; **49**:410-15.
- ⁵ Wilson K, Gibbonson N, Willan A *et al.* Effect of smoking cessation on mortality after myocardial infarction – Meta-analysis of cohort studies. *Arch Intern Med* 2000; **160**:939-44.
- ⁶ Williams HO. Routine advice against smoking. *Practitioner* 1969; **20**:672-6.
- ⁷ Raw M. Persuading people to stop smoking. *Behav Res Ther* 1976; **14**:97-101.
- ⁸ Burt A, Illingworth D, Shaw TRD *et al.* Stopping smoking after myocardial infarction. *Lancet* 1974; **1**:304-6.
- ⁹ Wilcox RG, Hughes J, Rowland J. Verification of smoking history after infarction using urinary nicotine and cotinine measurements. *BMJ* 1979; **2**:1026-8.
- ¹⁰ Pederson LL, Wanklin JM, Lefcoe NM. The effects of counselling on smoking cessation among hospital patients hospitalized with chronic obstructive pulmonary disease: a randomised clinical trial. *Int J Addict* 1991; **26**(1):107-19.
- ¹¹ Simon JA, Solkowitz SN, Carmody TP *et al.* Smoking cessation after surgery. *Arch Intern Med* 1997; **157**:1371-6.
- ¹² Weissfeld JL, Holloway JL. Treatment for cigarette smoking in a department of Veterans Affairs Outpatient Clinic. *Arch Intern Med* 1991; **151**:973-7.
- ¹³ Foulds J, Stapleton J, Hayward M *et al.* Transdermal nicotine patches with low-intensity support to aid smoking cessation in Outpatients in a General Hospital. *Arch Fam Med* 1993; **2**:417-23.
- ¹⁴ Miller NH, Smith PM, DeBusk RF *et al.* Smoking cessation in hospitalized patients – results of a randomised trial. *Arch Intern Med* 1997; **157**:409-15.
- ¹⁵ Lewis SF, Piasecki TM, Fiore MC *et al.* Transdermal nicotine replacement for hospitalised patients: a randomized clinical trial. *Preventive Medicine* 1998; **27**:296-303.
- ¹⁶ British Thoracic Society. Comparison of four methods of smoking withdrawal in patients with smoking-related diseases. *BMJ* 1983; **286**:595-7.
- ¹⁷ British Thoracic Society. Smoking cessation in patients: two further studies. *Thorax* 1990; **45**:835-40.
- ¹⁸ Hjalmarsen AIM. Effect of nicotine chewing gum in smoking cessation. A randomised placebo-controlled, double-blind study. *JAMA* 1984; **252**:283-8.
- ¹⁹ Campbell IA, Tjeder-Burton SM, Prescott RJ. Smoking cessation in hospital patients given repeated advice plus nicotine or placebo chewing gum. *Respir Med* 1991; **85**:155-7.
- ²⁰ Campbell IA, Prescott RJ, Tjeder-Burton SM. Transdermal nicotine plus support in patients attending hospital with smoking-related diseases: a placebo-controlled study. *Respir Med* 1996; **90**:47-51.
- ²¹ Joseph AM, Normal SM, Ferry LH *et al.* The safety of transdermal nicotine as an aid to smoking cessation in patients with cardiac disease. *N Engl J Med* 1996; **335**:1792-8.
- ²² Coates TJ, Li VC, Spielberg EL *et al.* The impact of physician messages and waiting room media on smoking among young black women. *Abstracts of 5th World Conference on Smoking and Health* 1983; **36**:165.
- ²³ Messimer SR, Hickner JM, Henry RC. A comparison of two anti-smoking interventions among pregnant women in eleven primary care practices. *J Fam Pract* 1979; **28**:283-8.
- ²⁴ Price JH, Krol RA, Desmond SM *et al.* A comparison of three anti-smoking interventions among pregnant women in an urban setting: a randomised trial. *Psychol Rep* 1991; **68**:595-604.
- ²⁵ Tonnesen P, Mikkelsen K, Markholst C *et al.* Nurse conducted smoking cessation with minimal intervention in a lung clinic: a randomised, controlled study. *Eur Respir J* 1996; **9**:2351-5.
- ²⁶ Campbell IA, Hansford M, Prescott RJ. Effect of a 'stop smoking' booklet on smokers attending for chest radiography: a controlled study. *Thorax* 1986; **41**:369-71.
- ²⁷ British Thoracic Society. Smoking withdrawal in hospital patients: factors associated with outcome. *Thorax* 1984; **39**:651-6.
- ²⁸ Prathiba BV, Tjeder S, Phillips C *et al.* A smoking cessation counsellor: should every hospital have one? *J Roy Soc Health* 1998; **118**(6):356-9.
- ²⁹ Tsejat J. Impact and cost-effectiveness of smoking interventions. *Am J Med* 1992; **93**(Suppl 1A):43S-7S.
- ³⁰ Hurt RD, Sachs DPL, Glover ED *et al.* A comparison of sustained-release bupropion and placebo for smoking cessation. *N Eng J Med* 1997; **337**:1195-202.
- ³¹ Jorenby DE, Leischow SJ, Nides MA *et al.* A controlled trial of sustained-release bupropion, a nicotine patch, or both for smoking cessation. *N Engl J Med* 1999; **340**:685-91.
- ³² Taskin DP, Kanner R, Bailey W *et al.* Smoking cessation in patients with chronic obstructive pulmonary disease: a double-blind, placebo-controlled, randomised trial. *Lancet* 2001; **357**:1571-5.