Smoking Prevention among People aged 60 and over: A Randomized Controlled Trial

NORMAN J. VETTER, DIANE FORD

Summary

This study aimed to test the hypothesis that people aged 60 and older respond to assistance in stopping smoking. Using a single general practitioner visit backed up by a practice nurse, 14% of the smokers had discontinued the habit 6 months after the intervention period. The intervention group also showed some improvements in a standardized measure of breathlessness.

Introduction

The prevention of smoking in retired people is a subject which is not yet fully researched, but there is information which suggests that it may be a worthwhile pursuit. Some work has shown that longevity can be improved even in older people by stopping smoking. Coronary heart disease death rates for 65–74-year-old people who have recently given up are similar to non-smokers. For other causes of death, especially lung cancer and bronchitis, the benefit of stopping smoking takes up to 5 years to appear. In terms of morbidity there are suggestions that ex-smokers move reasonably quickly towards the state of non-smokers for bone density, pulmonary function and muscle strength [1].

This study was set up to test the hypothesis that elderly people can be persuaded to reduce their smoking and that this is to their benefit. This paper presents the preliminary results of the study.

Methods

All patients aged 60 years and over in a large group practice were included in the study group. The practice chosen included eight principal general practitioners based in a health centre; the only practice premises within a small town and the surrounding countryside. A high proportion of the population is registered with that practice.

The 2705 people aged 60 and over registered with the group practice in the records of the Family Practitioner Committee were sent a postal questionnaire in mid-June 1986. The questionnaire included a series of questions on measures of angina, breathlessness, bronchitic symptoms and intermittent claudication, using the standardized London School of Hygiene and Tropical Medicine questionnaire [2, 3], part of which incorporates the MRC questionnaire on respiratory symptoms [4, 5].

A measure of physical disability was based upon that of Townsend [6] and consisted of nine items which are normally considered essential for daily living. Questions on smoking habits were based on those used in the General Household Survey [7].

Respondents who identified themselves as current cigarette smokers were randomized to control or intervention groups. Intervention was undertaken by a part-time practice nurse over a 6-month period. The practice nurse had some experience of health promotion in the past in another practice, but in her previous employment emphasis had been put on blood pressure reduction and dietary advice.

Each member of the intervention group was invited by letter to come to see his or her own general practitioner on a non-urgent matter. The general

practitioner informed him or her of the importance of stopping smoking and of the availability of the practice nurse. The subject was then given the opportunity to discuss problems associated with stopping smoking with the practice nurse. The nurse undertook a general health promotion approach offering advice on lifestyle factors in general, but concentrating on assistance in giving up smoking.

Those identified as smokers from the first questionnaire, both in the intervention and control groups were sent a second postal questionnaire 6 months after the intervention was completed, i.e. 1 year after the initial questionnaire. People who claimed in the second questionnaire to have stopped smoking in both intervention and control groups were visited by a research officer who used a carbon monoxide breath monitor to check smoking status.

In comparing the responses to the first and the second questionnaires, changes in breathlessness, angina and intermittent claudication were coded as 'better' if a subject moved to an improved grade, 'same:none' if the symptom was not present on either occasion, 'same:severe' if the symptom was the highest grade each time, 'same' if an intermediate grade but no change occurred and 'worse' if the case scored in a worse grade the second time compared with the first. This was to differentiate those at either end of the scale who could not score better or worse than the top or bottom point, respectively.

Results

Sixty-five per cent of the questionnaires were returned after the first mailing and the initial non-responders were sent a reminder after 6 weeks. Of the 2705 people aged 60 and over registered with the practice by the Family Practitioner Committee, 220 had died and 71 had moved out of the area. Of the remaining 2414, 173 could still not be traced, 39 refused to participate and 1 could not communicate. A total of 2201 responded of whom 1626 (74%) claimed to be non-smokers, 104 were pipe smokers and 471 (21%) cigarette smokers. Two hundred and thirty-four cigarette smokers were allocated to the control group and 237 to the intervention group. Table I compares the two groups in terms of sex and age; there was no significant difference between them. Approximately 10% of subjects failed to respond to the second questionnaire.

Table II shows the proportion of people who were smoking 6 months after the completion of the intervention phase. There was a reduction in the proportion smoking in both groups, but the intervention group's reduction at 14% was greater than that of the control group (9%). Four per cent of the intervention group and 2% of the controls claimed to have stopped but had a positive reading on the carbon monoxide monitor. They were counted in the 'smoking' group. The difference between the groups in the numbers of validated non-smokers was statistically significant ($\chi^2 = 4.5$, $df = 1$, $p < 0.05$).

Table I. Comparison of intervention and control groups

Age groups (years)	Intervention	Control
Men		
60–64	42	55
65–69	36	31
70–74	21	17
75–100	23	20
Total	122	123
Women		
60–64	46	47
65–69	33	30
70–74	18	14
75–100	18	20
Total	115	111

It can be seen that for all age groups a higher proportion of the intervention group stopped smoking when compared with the control group, although the proportion stopping fell with increasing age from 18% of those aged 60–64 to 7% of those aged 75 and over.

Of those who continued to smoke, 50% of those in the intervention group and 38% of controls reduced their intake. Thirty-one per cent of the intervention group and 38% of controls did not change the number of cigarettes they smoked. This difference did not reach statistical significance at a 5% level. There was no evidence that either of the groups of subjects increasing their smoking around the time of the intervention.

Table II. Smoking status at 6 months by intervention group and age group

	Age group (years)								All			
	60–64		65–69		70–74		75+		I		C	
	I	C	I	C	I	C	I	C	No	%	No	%
Still smoking	58	81	38	44	29	23	20	27	145	61	175	75
Stopped:												
not validated	1	1	4	1	3	1	2	1	10	4	4	2
validated	16	12	10	5	5	1	3	2	34	14	20	9
Left area	0	0	6	0	0	2	3	2	9	4	4	2
Died	3	1	5	3	1	0	6	6	15	6	10	4
Missing data	10	7	6	8	1	4	7	2	24	10	21	9

I = intervention; C = control.

Table III shows changes in angina between the first and second questionnaire. There was no significant difference between the intervention and control groups.

Table IV shows changes in breathlessness. There was a statistically significant difference [8] for an improvement in breathlessness in the intervention group compared with controls. ($c = 2.1$, $p < 0.05$). Table V shows changes in intermittent claudication status. There was no significant difference between the groups.

In order to ascertain whether the intervention had possibly caused or improved any minor symptoms, a comparison was made for such symptoms (trembling, nausea, irritability, etc.) between the intervention and control groups. Table VI shows that more control subjects showed a worsening of symptoms than did subjects in the intervention group, but this difference was not statistically significant. There was no difference between the two groups for the proportion whose symptoms improved. There was therefore no evidence that the intervention had done harm.

Table III. Changes in angina after 6 months by allocation group

	Intervention		Control	
	No.	%	No.	%
Angina				
Better	10	4	19	8
Same none	165	71	159	68
Same	5	2	11	5
Worse	6	3	9	4
Died	15	6	10	4
Left area	9	4	4	2
Missing data	27	11	22	9
Total	237	100	234	100

Table IV. Changes in breathlessness after 6 months by allocation group

	Intervention		Control	
	No.	%	No.	%
Breathlessness				
Better	35	15	24	10
Same none	107	45	105	45
Same	14	6	25	11
Same grade 4	10	4	12	5
Worse	22	9	34	15
Died	15	6	10	4
Left area	9	4	4	2
Missing data	25	11	20	8
Total	237	100	234	100

Table V. Changes in intermittent claudication by allocation group

	Intervention		Control	
	No.	%	No.	%
Intermittent claudication				
Better	24	10	28	12
Same none	123	54	127	54
Same	11	5	12	5
Same max. grade	8	3	12	5
Worse	17	7	18	8
Died	15	6	10	4
Left area	9	4	4	2
Missing data	30	13	23	10
Total	237	100	234	100

Table VI. Symptoms worsened after 6 months by allocation group

	Intervention		Control	
	No.	%	No.	%
Symptoms				
No worsening	118	50	104	44
Worsened	73	31	97	41
Died	15	6	10	4
Moved	9	4	4	2
Missing data	22	9	19	8
Total	237	100	234	100

Discussion

This study has shown that a part-time nurse backing up a single intervention by a general practitioner was associated with a reduction in smoking 6 months after the intervention period had ceased. The intervention group showed an improvement in breathlessness compared with before the intervention. It is unlikely that the intervention would have had a merely psychotherapeutic effect on breathlessness without a concomitant effect upon the other symptoms measured, especially angina which is particularly susceptible to suggestion.

Breathlessness as measured by this standardized questionnaire is a robust and important predictor of mortality independent of other measures of respiratory function [9]. A symptomatic measure has more relationship to well-being in the short term than, for instance, the forced expiratory volume. No differences in angina or intermittent claudication were recorded between the two groups. There was no evidence of a disproportionate change in minor symptoms related to the intervention. Indeed the intervention group showed less worsening of minor symptoms than did the controls.

The smoking habits of the study group recorded by the initial postal questionnaire showed that 24% of men and 19% of women smoked cigarettes. This is a little lower than in national figures where 30% of men and 23% of women over 60 were found to be smokers [7].

Publications on helping elderly people to stop smoking tend to be bland in the extreme, with comments on smoking being one of the 'few remaining pleasures' for elderly people [10]. A number of textbooks on health promotion [11] and a WHO Advisory Group [12] have omitted the subject entirely. However, Americans are more convinced of the importance of such an approach [13], though comments on benefits are confined to potential improvements in longevity. The Surgeon General's Report on Health Promotion and Disease Prevention contains a Healthy Older People Program which includes advice on exercise, nutrition, use of medications, injury prevention, smoking cessation and the appropriate use of preventive services [14].

The reduction in smoking in this study compares favourably with studies of younger subjects. One study of 1550 subjects aged 18–65 years, with symptoms, showed a validated figure of 12% who had stopped smoking at 6 months [15]. The present study was aimed at a complete community cross-section with or without symptoms. A brief intervention with support akin to the present study, in subjects aged 16 and over, gave an 8% validated success rate at 1 year [16]. The use of nicotine chewing gum, not used in this study, led to a similar proportion of non-smokers at 6 months to that in the present trial [17].

No previous study has reported changes in symptoms in an elderly age group in relation to an antismoking intervention. It is concluded that enabling older people to take part in a health promotion exercise, using facilities easily available to any practitioner, is likely to be effective in the short term with a consequent probable reduction in breathlessness of the elderly people involved. In the long term it is also likely to reduce general practitioners' workload.

Acknowledgements

Thanks are due to Mrs Sheila Penk, the Grand Charity, for support in this study, and to Dr P. Jones and Partners, Caldicot Health Centre and Mrs Janice Strom.

References

1. Mellström D, Rundgren Å, Jagenburg R, Steen B, Svanborg A. Tobacco smoking, ageing and health among the elderly: a longitudinal population study of 70-year-old men and an age cohort comparison. *Age Ageing* 1982;**11**:45–58.
2. Rose G, McCartney P, Reid DD. Self administration of a questionnaire on chest pain and intermittent claudication. *Br J Prev Soc Med* 1977;**31**:42–8.
3. Rose GA, Blackburn H. *Cardiovascular survey methods*. Monograph Series No. 56. Geneva: WHO, 1968; 1–188.
4. Medical Research Council Definition and classification of chronic bronchitis for clinical and epidemiological purposes. *Lancet* 1965;**i**:775–8.
5. Medical Research Council questionnaire on respiratory symptoms and instructions for its use. London: MRC, 1966.
6. Townsend P. *Poverty in the United Kingdom*. Harmondsworth: Penguin Books, 1979.
7. Office of Population Censuses and Surveys. *The general household survey 1985*. London: HMSO, 1988.
8. Cox DR. *The analysis of binary data*. London: Methuen Monograph Series, 1970.
9. Ebi-Kryston KL, Hawthorne VM, Rose G, *et al*. Breathlessness, chronic bronchitis and reduced pulmonary function as predictors of cardiovascular disease mortality among men in England, Scotland and the United States. *Int J Epidemiol* 1989;**18**:84–8.
10. Smoking in the elderly [Editorial]. *Br Med J* 1975;**2**:607.
11. Gray JAM, ed. *Prevention of disease in the elderly*. Edinburgh: Churchill Livingstone, 1985.
12. *The effectiveness of health promotion for the elderly*. Report of a WHO Advisory Group, Hamilton Canada April 1986. Geneva: WHO, 1987.
13. Kane RL. Empiric approaches to prevention in the elderly: are we promoting too much. In: Chernoff, Lipschitz, eds. *Health promotion and disease prevention in the elderly*. New York: Raven Press, 1988;164.
14. United States Department of Health and Human Services, Public Health Services. *Promoting health: preventing disease: objectives for the nation*. Washington DC: Government Printing Office, 1980.
15. Sub-Committee of the Research Committee of the British Thoracic Society. Comparison of four methods of smoking withdrawal in patients with smoking-related diseases. *Br Med J* 1983;**286**:595–7.
16. Russell MAH, Stapleton JA, Jackson PH, Hajeck P, Belcher M. District programme to reduce smoking: effect of clinic supported brief intervention by general practitioners. *Br Med J* 1987;**295**:1240–4.
17. Lam W, Sze PC, Sacks HS, Chalmers TC. Meta-analysis of randomised controlled trials of nicotine chewing gum. *Lancet* 1987;**ii**:27–30.

Authors' address
Department of Epidemiology and
Community Medicine,
University of Wales College of Medicine,
Heath Park, Cardiff CF4 4XN

Received in revised form 30 June 1989