Premature grey hair and hair loss among smokers: a new opportunity for health education?

J G Mosley, A C C Gibbs

People who smoke have characteristic facial changes similar to those seen in premature aging.[1] Grey hair, facial wrinkles, and smoking are also established risk factors for myocardial infarction.[2] Although greying and hair loss are natural phenomena that affect us all, one of us (JGM) had often met patients in his clinic aged under 50 who not only seemed to have more severe arterial disease than one would expect but also looked older than their chronological age, and he had noticed that most of these patients seemed to smoke. This study was designed to test the hypothesis that premature hair change may be causally associated with cigarette smoking.

Methods and results

All new patients attending a general surgical outpatient clinic were studied over three months. There were 606 patients aged over 30 years. In each case the hair was recorded as natural, grey, or balding before a subsequent detailed history was taken of the use of hair colorants and smoking. Patients using hair colorants were excluded from the study. Baldness was assessed by reference to the Hamilton baldness scale[3] and regarded as present on category III or greater. A non-smoker was defined as someone who smoked fewer than 10 cigarettes or less than 14 g of tobacco a month. Those who had smoked in the past were counted as smokers.

Of the 268 men and 338 women, 152 of each sex smoked. Initially an overall odds ratio for the association of smoking and baldness in men, allowing for the relation between baldness and age, was calculated using the logit method. The odds ratio was 1.93 (95% confidence interval 1.13 to 3.28). Since the number of bald women was very small (4) no corresponding calculation was carried out for women. The overall odds ratio for the relation of grey hair and smoking was then calculated, for both men and women, excluding bald subjects, allowing for the relation between grey hair colour and age, giving a value of 4.40 (3.24 to 5.96). This indicates a significant relation between grey hair and smoking ($P<0.0001$). Since some values in table 1 were 0, the odds ratio was calculated after adding 0.5 to each value.[4] The relation between grey hair and smoking, after excluding bald subjects, was consistent for all age groups in both sexes.

Comment

Aging is a complex process that affects us all. All organs undergo a series of age related changes in which the vascular system is prominent. In a detailed study among employees of the Department of the Environment Bulpitt *et al* observed that, in men but not women, smoking was associated with an increase in apparent biological age over chronological age.[5]

Our observational study suggests a link between smoking and grey hair in both men and women and between smoking and baldness in men, but it cannot demonstrate a causal link. Patients attending the clinic may not be representative of the general population, or there may be other factors that give rise to an association between smoking and hair changes. Possibly smoking causes severe disease, which in turn causes biological aging. In a sample of patients attending an outpatient clinic we may get a high proportion with severe disease, which might lead to an apparent association between smoking and biological aging. Unfortunately, we omitted to ascertain the number of cigarettes each smoker smoked per week and therefore a dose response relation could not be calculated.

If young people can be persuaded that smoking will lead to premature grey hair, and in men to baldness, this may offer a promising line of approach in health education against smoking.

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Table 1—*Numbers of smokers and non-smokers with natural, grey, or balding hair according to age and sex*

Hair colour or loss	Men				Women				Total (No (%))
	≤40	41-50	51-60	>60	≤40	41-50	51-60	>60	
Smokers									
Natural	8	4	0	0	10	13	1	0	36 (12)
Grey	3	11	11	12	13	54	22	37	163 (54)
Bald	2	30	22	49	0	1	0	1	105 (35)
Subtotal	13	45	33	61	23	68	23	38	304 (100)
Non-smokers									
Natural	2	13	3	0	30	21	23	4	96 (32)
Grey	0	7	14	12	0	27	47	36	143 (47)
Bald	6	12	9	34	2	0	0	0	63 (21)
Subtotal	8	32	26	46	32	48	70	40	302 (100)
Total	21	77	59	107	55	116	93	78	606

Leigh Infirmary, Leigh, Lancashire WN7 1HS
J G Mosley, *consultant surgeon*

Centre for Cancer Epidemiology, Christie Hospital, Manchester M20 4QL
A C C Gibbs, *statistician*

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