

MEMORANDUM

File No.  
Date of Report  
Research Department



March 17, 1982

Mr. Samuel B. Witt, III

RE: "Myocardial Mural Arterial Fibrosis and  
Cigarette Smoking: A Comparative Study  
1955-1960 Versus 1970-1977"

Oscar Auerbach, M.D. (New Jersey Medical School,  
Newark, N.J.)

Lawrence Garfinkel, M.A. (American Cancer Society,  
Dept. Epidemiology & Statistics,  
Vice President, New York, N.Y.)

'Bull.N.Y.Acad.Med.' 57(9):759-775 (1981)

SUMMARY

The thrust of this paper is the allegation that smokers who died between 1970-1977 and who, therefore, smoked filtertip and other newer cigarettes, have lesser heart wall vessel lesions than smokers who died between 1955-1960, who presumably smoked the "old style" regular cigarettes. It can be assumed that this paper will be used to "prove" a causal relation between smoking and heart disease.

MEMORANDUM

The following authors' summary gives a reasonably accurate account of the contents of their paper:

"Fibrous thickening in the walls of blood vessels in the heart wall of 1,140 men who died between 1955 and 1960 (Group A) were compared to that in 1,268 men who died during the interval from 1970 to 1977 (Group B). A smaller percentage of men with advanced fibrous thickening in the walls of the subepicardial and myocardial arteries and myocardial arterioles were found among nonsmokers than among cigarette smokers. The percentages with advanced findings in cigarette smokers of Group A was much higher than in Group B. A separate analysis which excluded patients who died with coronary heart disease, diabetes mellitus, or hypertension also demonstrated no difference between the percentages of change in the blood vessels of the heart wall in Group A and Group B nonsmokers and a larger percentage of advanced changes among Group A than among Group B cigarette smokers. The percentage with advanced findings among pipe and cigar smokers in Group A showed small but not significant elevation when compared to Group B cases."

As evidenced by my memorandum of July 9, 1980, addressed to Mr. Crohn and regarding Dr. Oskar Auerbach, I had advance information on this paper, which was published in the November issue of the 1981 'Bulletin of the N.Y. Academy of Medicine', but which was, however, only received here early this year. I also refer to my memorandum addressed to Mr. Crohn on May 28, 1980 entitled "Significance of Dr. Lawrence L. Kupper's analysis of Oskar Auerbach's article in 'The New England Journal of Medicine' entitled "Changes in Bronchial Epithelium in Relation to Cigarette Smoking, 1955-1960 vs. 1970-1977", which discusses a critique of the frequently cited companion-piece to the just published paper by Dr. Auerbach, which dealt with lung lesions, as compared to heart lesions for the above mentioned paper.

In my judgment, the same type of critique prepared by Dr. Kupper, probably also applies to the current paper by Dr. Auerbach. It might therefore be worthwhile to have a team of a biostatistician and a "specialist's" specialist in heart vessel pathology, assess the new paper.

I also attach a copy of the new paper. However, in addition to the above quoted summary, the most important parts of this paper are in the introductory paragraphs which I am reproducing below as printed, except for, in addition, citing the references given, in the form of footnotes.

**I**n previous autopsy studies we found a high association between smoking habits and the degree of fibrous thickening of the walls of the arteries and arterioles of the myocardium and between smoking habits and the degree of thickening of the walls of coronary arteries.<sup>1,3</sup> Thickening was least among nonsmokers and increased with the number of cigarettes smoked daily during life. In studies of autopsy material we observed the same association between smoking habits and fibrous thickening of arteries and arterioles in the lung parenchyma, tracheobronchial tree, esophagus, periadrenal fat, pancreas, and stomach wall.<sup>4</sup>

In 1979 we reported that histologic changes in bronchial epithelium were found far more frequently in men who died during the period from 1955 to 1960 than in men matched as to age and smoking habits who died from 1970 to 1977. These histologic changes ranged from basal cell hyperplasia to advanced lesions in which all cells showed atypical nuclei (carcinoma-in-situ).<sup>5</sup> We believe that these observed differences may be attributable to lower tar/nicotine content in the cigarettes smoked for the final five to 10 years of life by the men who died during the more recent period. Although we do not know the brands smoked by men who died during the two periods of time, no American brand on the market in the later period had as high a tar/nicotine content as the brand with the least tar/nicotine content in the earlier period. The observed differences are consistent with evidence from epidemiologic surveys that show a decrease in lung cancer among men who switched to low tar/nicotine cigarettes.<sup>6,7</sup> One epidemiologic study also showed a modest decrease in mortality from coronary heart disease among smokers using low tar/nicotine cigarettes compared to those smoking relatively high tar/nicotine cigarettes. This decrease was observed among both men and women during two six-year periods between 1960 and 1972.<sup>6</sup>

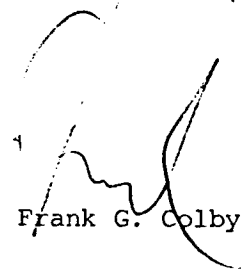
Although many risk factors other than cigarette smoking are associated with coronary heart disease, we thought that it would be valuable to compare sections taken routinely at autopsy from the myocardium in the same cases from which we had studied histologic changes in the bronchial epithelium. This would enable us to determine whether a reduction in effects associated with low tar/nicotine cigarette use occurs in the vessels of the heart wall as well as in bronchial epithelium.

REFERENCES

1. Auerbach, O., Carter, H.W., Garfinkel, L., et al.: Cigarette smoking and coronary artery disease. A macroscopic and microscopic study. *Chest* 70:697-705, 1976.
2. Auerbach, O., Hammond, E.C., Garfinkel, L., et al.: Thickness of walls of myocardial arterioles in relation to smoking and age. Findings in men and dogs. *Arch. Environ. Health* 22: 20-27, 1971.
3. Auerbach, O., Hammond, E.C., and Garfinkel, L.: Smoking in relation to atherosclerosis of the coronary arteries. *N. Engl. J. Med.* 273: 775-79, 1965.
4. Auerbach, O., Hammond, E.C., and Garfinkel, L.: Thickening of walls of arterioles and small arteries in relation to age and smoking habits. *N. Engl. J. Med.* 278: 980-84, 1968.
5. Auerbach, O., Hammond, E.C., and Garfinkel, L.: Changes in bronchial epithelium in relation to cigarette smoking. 1955-60 vs 1970-77. *N. Engl. J. Med.* 300: 381-86, 1979.
6. Hammond, E.C., Garfinkel, L., Seidman, H., et al.: "Tar" and nicotine content of cigarette smoke in relation to death rates. *Environ. Res.* 12: 263-74, 1976.
7. Wynder, E.L. and Stellman, S.D.: Impact of long-term filter cigarette usage on lung and larynx cancer risk: A case-control study. *J. Nat. Cancer Inst.* 62: 471-77, 1979.
8. Miettinen, O.S.: Estimation of relative risk from individually matched series. *Biometrics* 26: 75-86, 1970.

FGC/ks  
Attachment

cc: H.C.R.  
C.A.T.  
R.J.M.  
R.E.M.  
M.K.M.  
J.A.G. ✓  
A.R.  
C.W.N.  
K.G.O.  
R.S.  
P.M.S.  
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W.D.  
B.F.P.  
O.S.  
D.A.C.  
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M.H.C.  
T.M.F.  
D.K.H.



Frank G. Colby