

THE RELATIONSHIP OF SMOKING TO ISCHAEMIC HEART DISEASE*

I. POSSIBLE MECHANISMS

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Two independent surveys on lung cancer revealed, as an incidental finding, that heavy cigarette smokers had a higher mortality from ischaemic heart disease than non-smokers. Many of the epidemiological features of ischaemic heart disease can be explained by differences in cigarette smoking habits. The possible mechanisms for these effects might arise through a direct effect of smoking on the coronary circulation or myocardial function or the mechanism may operate indirectly in that cigarette smoking and mortality from ischaemic heart disease may be related to a third and common factor. Apart from causing a rise in blood pressure and pulse rate, there is no evidence to suggest that the smoking of a cigarette affects coronary blood flow. In seeking an indirect association, 300 adult men of the Cape Coloured and European communities of Cape Town were analysed. Heavy cigarette smoking amongst them was not related to occupation, body-build, degree of obesity or the height of the blood pressure. Consistent differences were however, seen in the serum lipids. In each race, at each age group and in each economic class the heavy smokers had the cholesterol distribution between the alpha and beta lipoproteins resembling that found in patients with ischaemic heart disease. These findings led to the analysis of the dietary fat intakes of these groups, and in parallel with the cholesterol differences ran differences in dietary fat consumption in that the heavy smokers consumed more fat

than the non-smokers. These dietary data however, were really semi-quantitative but owing to their consistency, the hypothesis arose that smoking might have an effect on food preferences via the taste mechanism. This hypothesis was tested in the following reports.

2. TASTE THRESHOLDS

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Cigarette smokers and non-smokers were sampled in two separate groups; young medical students and older insurance personnel. The individual who performed the tasting tests was unaware whether the subject was a smoker or non-smoker. Similar results were obtained in both samples. There were no significant differences in the taste thresholds of smokers and non-smokers with respect to salt, sour and sweet. Highly significant differences however, existed with regard to bitter in that the group of cigarette smokers had a higher taste threshold for quinine solutions than the non-smokers. Tests were also conducted immediately before and immediately after the smoking of a cigarette in the smokers and in the non-smokers, a similar period of time was allowed to elapse before retesting. No significant differences were found. These tests therefore, showed a general overall reproducibility. These individuals were then subjected to tests with phenylthio-carbamide (PTC) as their failure to taste bitter was possibly genetically transmitted. No correlation however existed and the distribution of PTC tasters were similar in both the non-smoker and smoker samples. It was concluded that taste with respect to bitter, was affected in cigarette smokers.

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3. FOOD PREFERENCES

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It remained to be seen whether the taste differences shown had any effect in determining food preferences. The 150 individuals who were subjected to the tasting tests above were questioned about their diet and the fat content of these diets was analysed. As in the initial survey, it was shown that heavy cigarette smokers consumed more fat than non-smokers but the differences were small. From these 150, two small samples were chosen by random selection for detailed dietary investigation. Information was obtained by recall paying particular attention not only to the

daily intake but that over weekends as well. Again the differences were shown in that heavy cigarette smokers consumed more fat than the non-smokers. The differences however, were not statistically significant. On more detailed examination however, marked differences existed in the types of foods that constituted the overall fat intake in these two groups. Heavy smokers consumed significantly more meat and eggs than did non-smokers but non-smokers consumed more fat in the form of cakes, sweets and chocolates. There was a high degree of consistency in that both samples showed similar findings. It was concluded that in these samples cigarette smoking affected food preferences.

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