Changing to cigar smoking

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Do cigarette smokers who change to smoking cigars reduce the risk to their health? To date there is no clear answer to this problem. Most studies have shown that there is only a small risk to health for pipe or cigar smokers who are *light* smokers, but these studies have mainly been on *lifelong* pipe or cigar smokers. Heavy pipe or cigar smokers who inhale, run an increased risk, but probably not as large a risk as cigarette smokers. (Report from A.S.H. 1973.)

G. F. Todd (1969) in Statistics of Smoking in the U.K. 1972 estimated that half of the ex-cigarette smokers who used to inhale still did so on changing to cigars. No study has yet been made of the smoking habits and health, specifically of those who have changed from cigarettes to cigars or pipes. Pipe and cigar smoke is thought to be at least as inherently dangerous as cigarette smoke and the crucial question is whether cigarette smokers who change to cigars continue to inhale.

We have been studying the effect of smoking on blood levels of carbon monoxide and specifically of

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levels in cigarette smokers who change to cigars. Using a carbon monoxide oximeter (IL 182) we have had a rapid, easy method of measuring blood carboxyhaemoglobin levels. Fig. 1 shows the changes in carboxyhaemoglobin levels in a resting ex-smoker during the course of, and after inhaling one cigarette.

The level rises rapidly and reaches a maximum at the end of smoking and then falls gradually to pre-smoking levels after 2 hr. We have found a similar time scale in habitual cigarette smokers but they have higher resting levels of carboxyhaemoglobin. We have monitored carboxyhaemoglobin levels throughout the day in various types of smokers and have found a close correlation between these levels and the amount of inhalation. Moderately heavy smokers tend to have early morning carboxyhaemoglobin levels of around 5%, climbing throughout the day to reach up to 15%. We have also found that blood levels of carbon monoxide tend to be remarkably consistent for each individual.

Fig. 2 shows carboxyhaemoglobin levels in a 49-year-old male subject who was attending an Anti-Smoking Clinic. Blood samples were obtained at weekly intervals at the same time of day. The num-

FIG. 1. Carboxyhaemoglobin levels before and after one cigarette in an ex-smoker.

FIG. 2. COHb levels at weekly intervals in a patient while stopping smoking. Figures indicate number of cigarettes smoked prior to blood sampling.

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We have been interested in what happens to carboxyhaemoglobin levels in ex-cigarette smokers who change to smoking cigars. To date we have preliminary results from eight patients in whom we have monitored carboxyhaemoglobin whilst smoking cigarettes and again when they have changed to cigars. All subjects have continued to inhale after changing to cigars and all have had COHb levels very similar to when they were smoking cigarettes.

Fig. 3 shows a typical example. The subject was a 30-year-old male smoking on average fifteen cigarettes/day. He had a resting carboxyhaemoglobin level of 6% after 10 hr of abstinence from

FIG. 3. COHb levels in a subject while smoking cigarettes, and later while smoking cigars (small $\uparrow$ indicates when cigarettes were smoked; large $\uparrow$, when cigars were smoked).

FIG. 4. COHb levels in a patient while smoking 5 cigars ($\uparrow$ indicates when cigars were smoked).

smoking. The level rose progressively to reach 10.5% after 10 hr and thirteen cigarettes. Fig. 3 also shows the COHb levels in the same subject 2 weeks after he had changed to smoking miniature cigars. Although the shape of the curves differ, because we obtained more samples when smoking cigars, the actual levels of COHb are almost identical.

Fig. 4 shows a similar pattern in a 52-year-old man who had been smoking forty cigarettes/day but had changed to cigars 3 months previously. The eight subjects so far studied have been smoking cigars for periods ranging from 2 weeks to 3 months. We hope to continue observing these subjects over a longer period of time in order to answer the critical question; do ex-cigarette smokers in the long term continue to inhale when they change to cigars?

In conclusion we feel that measurement of blood levels of carbon monoxide is a satisfactory way of monitoring smoking habits and in particular the amount of inhalation. Moderately heavy cigarette smokers who change to cigars continue to inhale in the short term and have raised blood levels of carbon monoxide.

In view of the recent work of Professor Astrup (1972) relating raised blood carbon monoxide levels with atherogenesis, we no longer feel confident in advising our cigarette smoking patients that it is safer to smoke cigars.

References

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