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Letter to the Editor

Cigarette Smoking and Stomach Cancer

Abraham Nomura, John S. Grove, Grant N. Stemmermann, and Richard K. Severson

Japan-Hawaii Cancer Study, Kuakini Medical Center, Honolulu, Hawaii 96817

The recent letter by McLaughlin *et al.* (1) reported results from a large cohort study of United States veterans. They observed a statistically significant 40% excess risk of stomach cancer among current cigarette smokers, as well as an 82% increase in risk among heavier cigarette smokers. In contrast, in our cohort study we did not observe a dose-response relationship, even though current smokers had an elevated relative risk of 2.7 for gastric cancer (2). As pointed out in our paper and by McLaughlin *et al.*, past studies have reported either a dose-response trend with smoking (3–5), a positive association with no dose-response trend (6–8), or no association at all (9–11).

In this instance, it may be instructive to study the status of former cigarette smokers. Lung and urinary bladder cancer have been strongly and consistently linked to cigarette smoking. Past smokers, as a group, appear to retain an increased risk for these cancers, even though the risk diminishes the longer the interval since smoking had stopped (12, 13). Of the stomach cancer studies cited, only five specifically reported findings of past or former cigarette smokers (1, 2, 6, 9, 11). The results are summarized in Table 1. Contrary to what might be expected if cigarette smoking were etiologically related to stomach cancer, none of the listed studies showed a statistically significant positive association.

There has been an increase in lung and bladder cancer incidence rates in the United States over the past 15 years (14), most likely related to cigarette smoking. It would be of interest to see whether there will be a corresponding increase in stomach cancer rates in future years, although factors which have contributed to the decline of stomach cancer over the past 50 years (15) may offset the effects of cigarette smoking.

Even though epidemiological evidence to date does not strongly indicate that cigarette smoking is directly related to stomach cancer, we agree with McLaughlin *et al.* that there is still a suggestion that cigarette smoking may be causally related to this disease and further studies are needed. Mainstream and sidestream tobacco smoke are known to contain *N*-nitroso compounds (16), which are suspected carcinogens for gastric cancer (17).

Table 1 *Relative risks of stomach cancer among former cigarette smokers*

Authors (Ref.)	Relative risk	95% confidence interval
McLaughlin *et al.* (1)	1.02	0.86–1.21
Nomura *et al.* (2)	1.0	0.6–1.7
Buiatti *et al.* (11)	0.9	0.7–1.1
Jedrychowski *et al.* (9)	0.79	0.79–2.13
Correa *et al.* (6)		
Whites	1.04	0.54–2.03
Blacks	1.85	0.81–4.22

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