

Preventable Incidence and Mortality of Carcinoma Associated With Lifestyle Factors Among White Adults in the United States.

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Author information

Abstract

IMPORTANCE: Lifestyle factors are important for cancer development. However, a recent study has been interpreted to suggest that random mutations during stem cell divisions are the major contributor to human cancer.

OBJECTIVE: To estimate the proportion of cases and deaths of carcinoma (all cancers except skin, brain, lymphatic, hematologic, and nonfatal prostate malignancies) among whites in the United States that can be potentially prevented by lifestyle modification.

DESIGN, SETTING, AND PARTICIPANTS: This prospective cohort study analyzes cancer and lifestyle data from the Nurses' Health Study, the Health Professionals Follow-up Study, and US national cancer statistics to evaluate associations between lifestyle and cancer incidence and mortality.

EXPOSURES: A healthy lifestyle pattern was defined as never or past smoking (pack-years <5), no or moderate alcohol drinking (≤ 1 drink/d for women, ≤ 2 drinks/d for men), BMI of at least 18.5 but lower than 27.5, and weekly aerobic physical activity of at least 75 vigorous-intensity or 150 moderate-intensity minutes. Participants meeting all 4 of these criteria made up the low-risk group; all others, the high-risk group.

MAIN OUTCOMES AND MEASURES: We calculated the population-attributable risk (PAR) by comparing incidence and mortality of total and major individual carcinomas between the low- and high-risk groups. We further assessed the PAR at the national scale by comparing the low-risk group with the US population.

RESULTS: A total of 89 571 women and 46 339 men from 2 cohorts were included in the study: 16 531 women and 11 731 men had a healthy lifestyle pattern (low-risk group), and the remaining 73 040 women and 34 608 men made up the high-risk group. Within the 2 cohorts, the PARs for incidence and mortality of total carcinoma were 25% and 48% in women, and 33% and 44% in men, respectively. For individual cancers, the respective PARs in women and men were 82% and 78% for lung, 29% and 20% for colon and rectum, 30% and 29% for pancreas, and 36% and 44% for bladder. Similar estimates were obtained for mortality. The PARs were 4% and 12% for breast cancer incidence and mortality, and 21% for fatal prostate cancer. Substantially higher PARs were obtained when the low-risk group was compared with the US population. For example, the PARs in women

and men were 41% and 63% for incidence of total carcinoma, and 60% and 59% for colorectal cancer, respectively.

CONCLUSIONS AND RELEVANCE: A substantial cancer burden may be prevented through lifestyle modification. Primary prevention should remain a priority for cancer control.

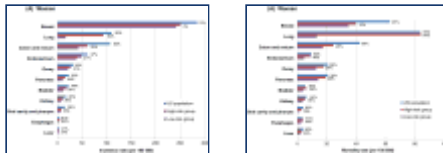
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