

Periodontal Disease and Incident Cancer—Letter

Steven Lehrer¹, Peter H. Rheinstein², and Kenneth E. Rosenzweig¹

Nwizu and colleagues report that periodontal disease increases risk of total cancer among older women, especially for certain anatomic sites: breast, lung, esophagus, gallbladder, and melanoma. Stomach cancer risk was borderline (1). Data were from a prospective cohort of 65,869 women ages 54 to 86. We have corroborated these results using oral health data from The Behavioral Risk Factor Surveillance System (BRFSS) and U.S. state cancer statistics.

Female lung cancer incidence is from the American Cancer Society (2). Female melanoma incidence, esophageal cancer incidence, and stomach cancer incidence are from United States Cancer Statistics: 1999–2012 Archive Incidence, WONDER Online Database. Gallbladder cancer incidence is from Henley and colleagues' work (3). Percent adults age 65+ who have lost six or more teeth or all teeth due to tooth decay or gum disease are from BRFSS (Behavioral Risk Factor Surveillance System 2008), the U.S. Centers for Disease Control and Prevention survey, which tracks health risks in

the United States (www.cdc.gov/brfss). Cigarette smoking among adults by state is from the Centers for Disease Control and Prevention.

In 50 U.S. states and the District of Columbia, white women who had lost six or more teeth due to tooth decay or gum disease were at increased risk of melanoma ($r = 0.310$, $P < 0.027$). Loss of six or more teeth was significantly related to esophageal cancer ($r = 0.281$, $P = 0.046$). Loss of six or more teeth and gallbladder cancer were not significantly related ($r = 0.116$, $P = 0.416$), but gallbladder cancer was significantly related to loss of all teeth ($r = 0.284$, $P = 0.044$). Stomach cancer was not significantly related to loss of six or more teeth ($r = 0.085$, $P = 0.55$) or all teeth ($r = 0.104$, $P = 0.468$).

Women who had lost six or more teeth were at increased risk of lung cancer ($r = 0.603$, $P < 0.001$, Fig. 1). Because of the relationship of cigarette smoking to lung cancer, we performed multivariate regression. Lung cancer incidence as dependent variable was significantly associated with loss of six or more

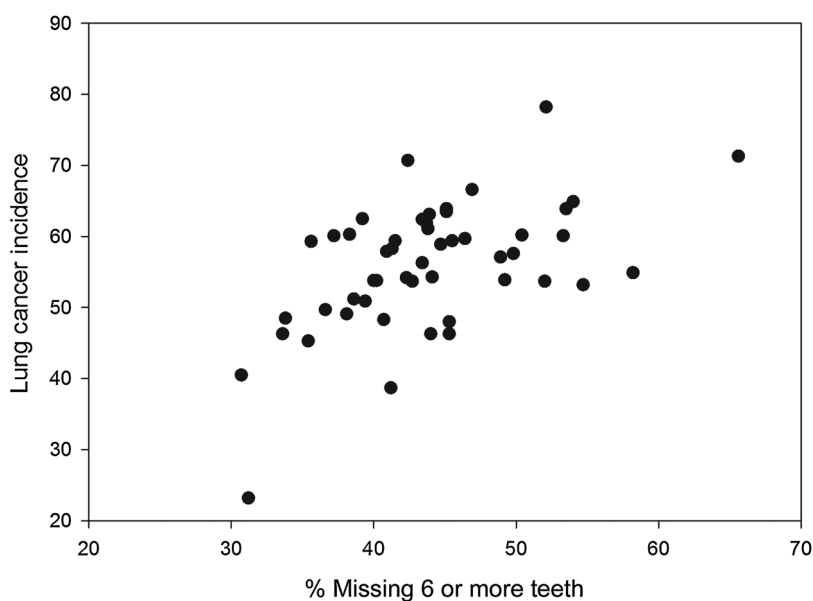


Figure 1.

Lung cancer incidence in women (cases/100,000) versus percent of adults age 65+ who have lost six or more teeth due to tooth decay or gum disease in 50 U.S. states and the District of Columbia. The relationship is significant ($r = 0.603$, $P < 0.001$).

¹Department of Radiation Oncology, Icahn School of Medicine at Mount Sinai, New York. ²Severn Health Solutions, Severna Park, Maryland.

Corresponding Author: Steven Lehrer, Mount Sinai School of Medicine, 1 Gustave L. Levy Place, New York, NY 10029. Phone: 212-765-7132; Fax: 212-245-9708; E-mail: steven.lehrer@mssm.edu

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teeth ($t = 2.062$, $P = 0.045$) and was unrelated to a borderline relationship to cigarette smoking ($t = 1.713$, $P = 0.093$). We previously demonstrated a relationship of periodontal disease to breast cancer in women (4).

One possible explanation for the observed relationship between dental disease, especially caries, and certain cancers is that both are driven by immune deficiencies, allowing the proliferation of cancer cells as well as bacterial infections leading to loss of teeth (5).

Disclosure of Potential Conflicts of Interest

No potential conflicts of interest were disclosed.

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