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BRIEF COMMUNICATION

A Prospective Study of Periodontal Disease and Pancreatic Cancer in US Male Health Professionals

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Two previous cohort studies reported positive associations between tooth loss or periodontitis and pancreatic cancer risk. Data on periodontal disease were obtained at baseline and every other year thereafter in a cohort of 51 529 male health professionals aged 40–75 years. A total of 216 patients were diagnosed with incident pancreatic cancer during 16 years of follow-up. Multivariable relative risks (RRs) and 95% confidence intervals (CIs) were estimated using Cox proportional hazards models controlling for potential confounders, including detailed smoking history. All statistical tests were two-sided. Compared with no periodontal disease, history of periodontal disease was associated with increased pancreatic cancer risk (overall, multivariable RR = 1.64, 95% CI = 1.19 to 2.26; $P = .002$; crude incidence rates: 61 versus 25 per 100 000 person-years; among never smokers, multivariable RR = 2.09, 95% CI = 1.18 to 3.71; $P = .01$; crude incidence rates: 61 versus 19 per 100 000 person-years). In contrast, baseline number of natural teeth and cumulative tooth loss during follow-up were not strongly associated with pancreatic cancer.

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The association between periodontal disease and increased risk of pancreatic cancer may occur through plausible biologic mechanisms, but confirmation of this association is necessary.

CONTEXT AND CAVEATS

Prior knowledge

Tooth loss or periodontal disease, inflammation of the gums caused by bacterial infection that leads to tooth loss, was shown to be associated with increased risk of pancreatic cancer in two studies. In one study, all subjects were smokers, and in the other, no adjustment was made for smoking, a known risk factor for pancreatic cancer.

Study design

Questionnaire-based prospective study of pancreatic cancer incidence and history of periodontal disease among male health professionals that includes adjustment for smoking status.

Contribution

History of periodontal disease was independently associated with an increased risk of pancreatic cancer overall and in never smokers; recent tooth loss was associated with additional increased risk.

Implications

The association may be due to systemic inflammation and/or increased levels of carcinogenic compounds generated by bacteria in the oral cavity of individuals with periodontal disease.

Limitations

History of periodontal disease was self-reported and may be subject to measurement error.

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