Cancer Prevention Research

A Population-Based Case-Control Study of Marijuana Use and Head and Neck Squamous Cell Carcinoma

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Abstract

Cannabinoids, constituents of marijuana smoke, have been recognized to have potential antitumor properties. However, the epidemiologic evidence addressing the relationship between marijuana use and the induction of head and neck squamous cell carcinoma (HNSCC) is inconsistent and conflicting.

Cases (n = 434) were patients with incident HNSCC disease from nine medical facilities in the Greater Boston, MA area between December 1999 and December 2003. Controls (n = 547) were frequency matched to cases on age (±3 years), gender, and town of residence, randomly selected from Massachusetts town books. A questionnaire was adopted to collect information on lifetime

marijuana use (decade-specific exposures) and associations evaluated using unconditional logistic regression.

After adjusting for potential confounders (including smoking and alcohol drinking), 10 to 20 years of marijuana use was associated with a significantly reduced risk of HNSCC [odds ratio (OR)$_{10-<20 \text{ years versus never users}}$, 0.38; 95% confidence interval (CI), 0.22-0.67]. Among marijuana users moderate weekly use was associated with reduced risk (OR$_{0.5-<1.5 \text{ times versus } <0.5 \text{ time}}$, 0.52; 95% CI, 0.32-0.85). The magnitude of reduced risk was more pronounced for those who started use at an older age (OR$_{15-<20 \text{ years versus never users}}$, 0.53; 95% CI, 0.30-0.95; OR$_{\geq 20 \text{ years versus never users}}$, 0.39; 95% CI, 0.17-0.90; $P_{trend} < 0.001$). These inverse associations did not depend on human papillomavirus 16 antibody status. However, for the subjects who have the same level of smoking or alcohol drinking, we observed attenuated risk of HNSCC among those who use marijuana compared with those who do not.

Our study suggests that moderate marijuana use is associated with reduced risk of HNSCC.

Keywords

cannabis head and neck cancer prevention

Footnotes

- **Grant support:** NIH (CA078609, CA100679) and Flight Attendants Medical Research Institute.

  - Received March 13, 2009.
  - Revision received May 29, 2009.
  - Accepted June 8, 2009.

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Published OnlineFirst July 28, 2009; doi: 10.1158/1940-6207.CAPR-09-0048 *August 2009 2; 759*

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