Dental x-rays and risk of meningioma.

Claus EB, Calvocoressi L, Bondy ML, Schildkraut JM, Wiemels JL, Wrensch M.

Department of Epidemiology and Public Health, Yale University School of Medicine, New Haven, Connecticut; Department of Neurosurgery, Brigham and Women's Hospital, Boston, Massachusetts. elizabeth.claus@yale.edu.

Abstract

BACKGROUND: Ionizing radiation is a consistently identified and potentially modifiable risk factor for meningioma, which is the most frequently reported primary brain tumor in the United States. The objective of this study was to examine the association between dental x-rays—the most common artificial source of ionizing radiation—and the risk of intracranial meningioma.

METHODS: This population-based case-control study included 1433 patients who had intracranial meningioma diagnosed at ages 20 to 79 years and were residents of the states of Connecticut, Massachusetts, North Carolina, the San Francisco Bay Area, and 8 counties in Houston, Texas between May 1, 2006 and April 28, 2011 (cases). A control group of 1350 individuals was frequency matched on age, sex, and geography (controls). The main outcome measure for the study was the association between a diagnosis of intracranial meningioma and self-reported bitewing, full-mouth, and panorex dental x-rays.

RESULTS: Over a lifetime, cases were more than twice as likely as controls (odds ratio [OR], 2.0; 95% confidence interval [CI], 1.4-2.9) to report having ever had a bitewing examination. Regardless of the age at which the films were obtained, individuals who reported receiving bitewing films on a yearly basis or with greater frequency had an elevated risk for ages <10 years (OR, 1.4; 95% CI, 1.0-1.8), ages 10 to 19 years (OR, 1.6; 95% CI, 1.2-2.0), ages 20 to 49 years (OR, 1.9; 95% CI, 1.4-2.6), and ages ≥40 years (OR, 1.5; 95% CI, 1.1-2.0). An increased risk of meningioma also was associated with panorex films taken at a young age or on a yearly basis or with greater frequency, and individuals who reported receiving such films at ages <10 years had a 4.9 times increased risk (95% CI, 1.8-13.2) of meningioma. No association was appreciated for tumor location above or below the tentorium.

CONCLUSIONS: Exposure to some dental x-rays performed in the past, when radiation exposure was greater than in the current era, appears to be associated with an increased risk of intracranial meningioma. As with all sources of artificial ionizing radiation, considered use of this modifiable risk factor may be of benefit to patients.

Cancer 2012; © 2012 American Cancer Society.

PMID: 22492363 [PubMed - as supplied by publisher]