

Malignant Versus Benign Tumors of the Sinonasal Cavity: A Case-Control Study on Occupational Etiology

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ABSTRACT

Case-control studies on malignant sinonasal tumors and occupational risk factors are generally weakened by non-occupational confounders and the selection of suitable controls. This study aimed to confirm the association between sinonasal malignant tumors and patients' occupations with consideration for sinonasal inverted papillomas (SNIPs) as a control group. Thirty-two patients affected by adenocarcinoma (ADC) and 21 non-adenocarcinoma epithelial tumors (NAETs) were compared to 65 patients diagnosed with SNIPs. All patients were recruited in the same clinical setting between 2004 and 2016. A questionnaire was used to collect information on non-occupational factors (age, sex, smoking, allergies, and chronic sinusitis) and occupations (wood- and leather-related occupations, textile industry, metal working). Odds ratios (OR) with 95% confidence intervals (CI) associated with selected occupations were obtained by a multinomial and exact logistic regression. Between the three groups of patients, SNIP patients were significantly younger than ADC patients ($p = 0.026$). The risk of NAET increased in woodworkers (OR = 9.42; CI = 1.94-45.6) and metal workers (OR = 5.65; CI = 1.12-28.6). The risk of ADC increased in wood (OR = 86.3; CI = 15.2-488) and leather workers (OR = 119.4; CI = 11.3-1258). On the exact logistic regression, the OR associated to the textile industry was 9.32 (95%CI = 1.10-Inf) for ADC, and 7.21 (95%CI = 0.55-Inf) for NAET. Comparing sinonasal malignant tumors with controls recruited from the same clinical setting allowed demonstrating an increased risk associated with multiple occupations. Well-matched samples of cases and controls reduced the confounding bias and increased the strength of the association.

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