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**Epidemiology**

**Carbaryl exposure and incident cancer in the Agricultural Health Study**

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agriculture • carbamates • carbaryl • insecticides • neoplasms • occupational exposure

**ABSTRACT**

Carbaryl is a carbamate insecticide with a broad spectrum of uses in agricultural, commercial and household settings. It has previously been linked with non-Hodgkin lymphoma (NHL) but studies of cancer risk in humans are limited. We examined occupational carbaryl use and risk of all cancers in the Agricultural Health Study, a prospective study of a cohort of pesticide applicators in North Carolina and Iowa. This analysis included 21,416 subjects (1,291 cases) enrolled from 1993-1997 and followed for cancer incidence through 2003. Pesticide exposure and other data were collected using self-administered questionnaires. Poisson regression was used to calculate rate ratios (RRs) and 95% confidence intervals (CIs) while controlling for potential confounders. Carbaryl was not associated with cancer risk overall. Relative to subjects who never used carbaryl, melanoma risk was elevated with >175 lifetime exposure-days (RR = 4.11; 95%CI, 1.33-12.75; *p*-trend = 0.07), >10 years of use (RR = 3.19; 95%CI, 1.28-7.92; *p*-trend = 0.04), or ≥10 days of use per year (RR = 5.50; 95%CI, 2.19-13.84; *p*-trend < 0.001). Risk remained after adjusting for sunlight exposure. Although not significant, there appeared to be a trend of decreasing prostate cancer risk with increasing level of exposure. A small increase in NHL risk was observed using some, but not all, exposure measures. No associations were observed with other examined cancer sites. Because the observed results were not hypothesized *a priori* and because of limited study of their biological plausibility, they should be interpreted with caution. © 2007 Wiley-Liss, Inc.

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