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Parental Exposure to Pesticides and Childhood Brain Cancer: United States Atlantic Coast Childhood Brain Cancer Study

ABSTRACT

http://www.ehponline.org/docs/2009/0800209/abstract.pdf

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doi: 10.1289/ehp.0800209 (available at http://dx.doi.org/)
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BACKGROUND:
The etiology of childhood brain cancer remains largely unknown. However, previous studies have yielded suggestive associations with parental pesticide use.

OBJECTIVES:
We aimed to evaluate parental exposure to pesticides at home and on the job in relation to the occurrence of brain cancer in children.

METHODS:
We included one-to-one matched 526 case-control pairs. Brain cancer cases were diagnosed at (less than)10 years of age and were identified from statewide cancer registries of four Atlantic Coast states of the United States. Controls were selected by random digit dialing. We conducted computer-assisted telephone interviews with mothers. Using information on residential pesticide use and jobs held by fathers during the 2-year period before the child's birth, we assessed potential exposure to insecticides, herbicides, and fungicides. For each job, two raters independently classified the probability and intensity of exposure; 421 pairs were available for final analysis. We calculated odds ratios (OR) and 95% confidence intervals (CI) using conditional logistic regression, after adjustment for maternal education.

RESULTS:
A significant risk of astrocytoma was associated with exposures to herbicides from residential use (OR = 1.9; 95% CI = 1.2?3.0)). Combining parental exposures to herbicides from both residential and occupational sources, the elevated risk remained significant (OR=1.8; 95% CI=1.1–3.1). Little association with primitive neuroectodermal tumors (PNET) was observed for any of the pesticide classes or exposure sources considered.

CONCLUSIONS:

Our observation is consistent with a previous literature reporting suggestive associations between parental exposure to pesticides and risk of astrocytoma in offspring but not PNET. However, these findings should be viewed in light of limitations in exposure assessment and effective sample size.