Pesticides and Atopic and Nonatopic Asthma among Farm Women in the Agricultural Health Study

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Rationale: Risk factors for asthma among farm women are understudied.

Objectives: We evaluated pesticide and other occupational exposures as risk factors for adult-onset asthma.

Methods: Studying 25,814 farm women in the Agricultural Health Study, we used self-reported history of doctor-diagnosed asthma with or without eczema and/or hay fever to create two case groups: patients with atopic asthma and those with nonatopic asthma. We assessed disease-exposure associations with polytomous logistic regression.

Measurements and Main Results: At enrollment (1993–1997), 702 women (2.7%) reported a doctor's diagnosis of asthma after age 19 years (282 atopic, 420 nonatopic). Growing up on a farm (61% of all farm women) was protective for atopic asthma (odds ratio [OR], 0.55; 95% confidence interval [CI], 0.43–0.70) and, to a lesser extent, for nonatopic asthma (OR, 0.83; 95% CI, 0.68–1.02; P value for difference = 0.008). Pesticide use was almost exclusively associated with atopic asthma. Any use of pesticides on the farm was associated only with atopic asthma (OR, 1.46; 95% CI, 1.14–1.87). This association with pesticides was strongest among women who had grown up on a farm. Women who grew up on farms and did not apply pesticides had the lowest overall risk of atopic asthma (OR, 0.41; 95% CI, 0.27–0.62) compared with women who neither grew up on farms nor applied pesticides. A total of 7 of 16 insecticides, 2 of 11 herbicides, and 1 of 4 fungicides were significantly associated with atopic asthma; only permethrin use on crops was associated with nonatopic asthma.

Conclusions: These findings suggest that pesticides may contribute to atopic asthma, but not nonatopic asthma, among farm women.

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