Handling pesticides associated with greater asthma risk in farm women

New research on farm women has shown that contact with some commonly used pesticides in farm work may increase their risk of allergic asthma.

“Farm women are an understudied occupational group,” said Jane Hoppin, Sc.D., of the National Institute of Environmental Health Sciences and lead author of the study. “More than half the women in our study applied pesticides, but there is very little known about the risks.”

The study was published in the first issue for January of the American Journal of Respiratory and Critical Care Medicine, published by the American Thoracic Society.

The researchers assessed pesticide and other occupational exposures as risk factors for adult-onset asthma in more than 25,000 farmwomen in North Carolina and Iowa. They used self-reports of doctor-diagnosed adult asthma, and divided the women into groups of allergic (atopic) or non-allergic (non-atopic) asthma based on a history of eczema and/or hay fever.

They found an average increase of 50 percent in the prevalence of allergic asthma in all farm women who applied or mixed pesticides. Remarkably, although the association with pesticides was higher among women who grew up on farms, these women still had a lower overall risk of having allergic asthma compared to than those who did not grow up on farms, due to a protective effect that remains poorly understood.

"Growing up on a farm is such a huge protective effect it's pretty hard to overwhelm it," said Dr. Hoppin. "[But] about 40 percent of women who work on farms don't report spending their childhoods there. It is likely that the association with pesticides is masked in the general population due to a higher baseline rate of asthma."

Dr. Hoppin also found that most pesticides were associated only with allergic asthma, even though non-allergic asthma is generally more common in adults. “Asthma is a very heterogeneous disease,” said Dr. Hoppin. “This finding suggests that some of the agricultural risk factors for allergic and non-allergic asthma may differ.”

Some legal but rarely used compounds, such as parathion, were associated with almost a three-fold increase in allergic asthma. But even some commonly used pesticides were associated with a marked increase in allergic asthma prevalence. Malathion, for example, a widely used insecticide, was associated with a 60 percent increased prevalence of allergic asthma.

Of all the compounds examined, only permethrin, a commonly used insecticide that is used in consumer items such as insect-resistant clothing to anti-malaria bed-nets, was associated with both allergic and non-allergic asthma.

This is the first study to examine pesticides and asthma in farm women, and it points the way for future research to clarify the relationship. “At the end of the day, you have to remember that we’re looking at cross-sectional data, thus we cannot establish a temporal association between pesticide use and asthma,” cautions Dr. Hoppin. “There is a difference in asthma prevalence between women who did and did not use pesticides but whether it is causal or not remains to be seen.”

Dr. Hoppin and her colleagues are in the midst of planning a large scale prospective study that will better

evaluate the links between pesticide exposures and asthma. “We want to characterize the clinical aspects of this disease, as well as lifetime exposures to agents that may either protect against asthma or increase risk,” said Dr. Hoppin. “We hope to start the study in 2008.”

Source: American Thoracic Society

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