



Pesticide Exposure Linked to ADHD in Children

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Children exposed in utero to organophosphate (OP) pesticides were more likely to develop attention disorders by preschool, according to a study published online in *Environmental Health Perspectives*. This study adds to a growing body of evidence that OP pesticides, designed to attack the nervous systems of insects, adversely affect the human brain.

The Mexican-American mothers participating in the study conducted through the University of California-Berkeley were recruited during pregnancy by the Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS). Researchers chose women from the Salinas Valley of California because it is an area of intensive agriculture where more than 235 000 kg of pesticides are applied annually.

To test if the women absorbed pesticides and then passed them onto their children, the researchers analyzed 6 OP metabolites in urine samples collected from the mothers during pregnancy and from their children several times after birth. The presence of these metabolites indicated exposure to OP pesticides used in the region. The children's behavior was assessed at the ages of 3.5 years (n = 331) and 5 years (n = 323) using reports from the mothers and standardized psychological tests.

The results indicated that as the concentration of OP metabolites in the urine of pregnant women increased, so did the likelihood that their children's test scores would be consistent with a clinical diagnosis of attention deficit hyperactivity disorder (ADHD). The association was stronger at age 5 years and more pronounced in boys than in girls. Prenatal exposures had a greater association than did exposures after birth: a 10-fold increase in levels of measured pesticide metabolites in the mother's urine during pregnancy correlated to about a 500% increase in the likelihood of attention issues in their 5-year-olds, whereas a 10-fold increase in levels of metabolites in the children's urine at 5 years of age corresponded to a 30% higher likelihood.

Studies like this one are the subject of a new database designed to track published epidemiologic and real-world exposure studies. The Pesticide-Induced Diseases Database currently contains 383 entries of epidemiologic and laboratory exposure studies and is the brainchild of the national environmental and public health group Beyond Pesticides. To view the database, go to www.beyondpesticides.org/health/.