

# Family study bolsters link between pesticides and Parkinson's

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For the first time, the association between Parkinson's disease and exposure to pesticides has been shown in patients with the neurological disorder compared with their unaffected relatives, according to a study in the online open access journal *BMC Neurology*.

Parkinson's disease is a common neurological disorder affecting about 1 million people in the USA. The disorder typically develops in later life resulting in symptoms such as tremors and muscle rigidity

Although variations in several genes have been identified that contribute to the disease, these rare genetic defects account for a small proportion of the overall prevalence of the disorder.

The majority of Parkinson's disease cases are thought to be due to an interaction between genetic and environmental factors.

"Previous studies have shown that individuals with Parkinson's disease are over twice as likely to report being exposed to pesticides as unaffected individuals" says the study's lead author, Dana Hancock, "but few studies have looked at this association in people from the same family or have assessed associations between specific classes of pesticides and Parkinson's disease."

The study of related individuals who share environmental and genetic backgrounds that might contribute to Parkinson's disease enables researchers to identify specific differences in exposures between individuals with and without the disease. The research team from Duke University Medical Center (Durham, NC) and the University of Miami Miller School of Medicine Morris K. Udall Parkinson Disease Research Center of Excellence (Miami, FL, USA) recruited 319 patients and over 200 relatives. They used telephone interviews to obtain histories of pesticide exposure, living or working on a farm, and well-

water drinking.

The authors detected an association between pesticide use and Parkinson's disease. Among these, the strongest were between the disorder and use of herbicides and insecticides, such as organochlorides and organophosphates. No association was found between Parkinson's disease and well-water drinking or living or working on a farm, which are two commonly used proxies for pesticide exposures.

Many studies have supported pesticides as a risk factor for PD, but "biological evidence is presently insufficient to conclude that pesticide exposure causes PD", says Hancock. "Further investigation of these specific pesticides and others may lead to identification of pertinent biological pathways influencing PD development." In addition future genetic studies of Parkinson's disease should consider the influence of pesticides, since exposure to pesticides may provide a trigger for the disease in genetically predisposed individuals.

Source: BioMed Central

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