Pesticide found in milk decades ago may be associated with signs of Parkinson's

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A pesticide used prior to the early 1980s and found in milk at that time may be associated with signs of Parkinson's disease in the brain, according to a study published in the December 9, 2015, online issue of *Neurology*, the medical journal of the American Academy of Neurology.

"The link between dairy products and Parkinson's disease has been found in other studies," said study author R. D. Abbott, PhD, with the Shiga University of Medical Science in Otsu, Japan. "Our study looked specifically at milk and the signs of Parkinson's in the brain."

For the study, 449 Japanese-American men with an average age of 54

who participated in the Honolulu-Asia Aging Study were followed for more than 30 years and until death, after which autopsies were performed. Tests looked at whether participants had lost brain cells in the substantia nigra area of the brain, which occurs in Parkinson's disease and can start decades before any symptoms begin. Researchers also measured in 116 brains the amount of residue of a pesticide called heptachlor epoxide. The pesticide was found at very high levels in the milk supply in the early 1980s in Hawaii, where it was used in the pineapple industry. It was used to kill insects and was removed from use in the US around that time. The pesticide may also be found in well water.

The study found that nonsmokers who drank more than two cups of milk per day had 40 percent fewer brain cells in that area of the brain than people who drank less than two cups of milk per day. For those who were smokers at any point, there was no association between milk intake and loss of brain cells. Previous studies have shown that people who smoke have a lower risk of developing Parkinson's disease.

Residues of heptachlor epoxide were found in 90 percent of people who drank the most milk, compared to 63 percent of those who did not drink any milk. Abbott noted that the researchers do not have evidence that the milk participants drank contained heptachlor epoxide. He also stated that the study does not show that the pesticide or milk intake cause Parkinson's disease; it only shows an association.

"There are several possible explanations for the association, including chance," said Honglei Chen, MD, PhD, with the National Institute of Environmental Health Sciences and a member of the American Academy of Neurology, who wrote a corresponding editorial. "Also, milk consumption was measured only once at the start of the study, and we have to assume that this measurement represented participants' dietary habits over time."

Chen noted that the study is an excellent example of how epidemiological studies can contribute to the search for causes of Parkinson's disease.

Provided by American Academy of Neurology