

More evidence that allergies may help in fighting brain tumors

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A study published online Oct. 18 in the *Journal of the National Cancer Institute* provides some new but qualified support for the idea that the immune system's response to allergies may reduce the risk of developing deadly brain tumors.

People with somewhat elevated blood levels of immunoglobulin E (IgE), antibodies that carry out the body's immune response to [allergens](#), were significantly less likely to develop [gliomas](#), and those who did survived somewhat longer, than those with clinically normal IgE levels, according to the study by a team of researchers at Brown University and several other institutions in the United States and Europe.

"These results suggest that there is something different about the immune response to [tumor cells](#) in people with allergies," said corresponding author Dominique Michaud, associate professor of epidemiology in the Public Health Program at Brown University. "In terms of fighting the cancer or preventing it from growing, people who have allergies might be protected. They might be able to better to fight the cancer."

Questions answered, questions raised

The new study employed a methodology that addresses questions raised by previous studies that have also reported similar associations between IgE, or [allergy symptoms](#), and brain tumors. Instead of asking people who have or have not been diagnosed with brain tumors to describe their

allergy history or to take IgE tests, the study delved into the detailed records of tens of thousands of people who participated in four broad-based health studies: the Physicians' [Health Study](#), the Nurses' Health Study, the Women's Health Study, and the Health Professionals Follow-up Study.

Such "prospective" analysis of samples collected from patients before they were diagnosed or treated for brain tumors, allowed the researchers to measure the association between IgE and brain cancer risk without worry that the IgE levels were affected by the course of the disease and treatments for it.

"This is really the first study to look at total IgE levels collected prior to disease," Michaud said. "This is important in being able to determine whether this is a causal effect."

Although the pool of patients in the four studies was large, the actual number of relevant cases was small. Only 169 people with stored plasma subsequently developed brain tumors. They were matched with 520 control subjects (otherwise similar people who did not develop tumors). The small numbers blunted some of the study's results.

For example, the researchers found a statistically significant reduction in glioma risk among people with borderline elevated IgE levels (in a range of 25,000 to 100,000 units per liter), but not for people with even higher levels of IgE. Michaud acknowledged that further research would be needed to explain why the protective effect couldn't be measured in people with the highest IgE levels.

Ultimately, Michaud said, by strengthening the evidence that allergic [immune response](#) may affect [brain tumors](#), the study may encourage cancer researchers to focus on the biological mechanisms underlying this association and provide insight into the disease and its treatment.

Provided by Brown University

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