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Latest News

## Vaccine additive linked to brain damage in children

Mercury-based preservative tied to autism, ADHD, U.S. resaeachers say

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OTTAWA -- After assuring parents that additives in vaccines don't cause brain damage, scientists have found what they believe could be a "smoking gun" linking these additives to autism and attention-deficit hyperactivity disorder in children.

In a study that was rushed to print on-line today, two months ahead of its scheduled publication in the journal *Molecular Psychiatry*, U.S. researchers have discovered an apparent link between thimerosal, a controversial mercury-based preservative once commonly used in childhood vaccines, to an increased risk of neurological disorders such as autism and ADHD.



As of March 2001, all vaccines for routine immunization of children in Canada have been available without thimerosal.

CREDIT: Canadian Press

While most vaccines distributed in Canada have been thimerosal-free since the early 1960s, the preservative was used in the annual flu shot that doctors recommended this year for even healthy children.

In tests on human brain cells, researchers found two natural chemicals -- one compound that stimulates cell growth and also dopamine, which transmits nerve signals -- are both key to a process in the brain called methylation. Methylation helps DNA work properly and is crucial to the normal development of the brain.

The team found thimerosal, ethanol and the metals lead and mercury all interfere with methylation. What's more, thimerosal did so at doses 100 times lower than a child would receive after a single shot with a thimerosal-containing vaccine.

"It was by far the most potent," said investigator Dr. Richard Deth, a professor of pharmacology at Northeastern University in Boston.

He said the study, which also involved researchers from Johns Hopkins University, the University of Nebraska and Tufts University in Boston, could account for the rising rates of autism since the early 1980s, when more thimerosal-containing shots were added to a child's vaccine schedule

A recent review of vaccine-related "adverse events" in the U.S. found a "significant correlation" between shots containing thimerosal and autism, the researchers report.

But one of Canada's leading experts in vaccination says large studies have repeatedly failed to find any association between brain damage and vaccines that do, or don't, contain thimerosal.

"What [the researchers] are doing in the test tube may or may not have any relationship to what happens in the body," added Dr. Ronald Gold, professor emeritus of pediatrics at the University of Toronto and author of *Your Child's Best Shot: A Parent's Guide to Vaccination*. He says there's no evidence that the low doses of thimerosal researchers tested would even cross a child's blood-brain barrier.

Dr. Perry Kendall, B.C.'s chief health officer, was also skeptical of the study, although he said he had not yet had a chance to read it.

He said there have been several studies that make weak links between autism and vaccines, but none has been definitive.

"I think that the link between thimerosal and autism has been studied quite extensively to date," he said. "And I don't think there's any convincing evidence on the population basis that vaccination is underlying the increase in autism."

Kendall said he was not aware, however, of any other studies that make a link between vaccines and ADHD.

In B.C., thimerosal is still used in the hepatitis B vaccine that is given to Grade six students, as well as the annual flu shot, he said.

Before the early '90s, most causes of autism were believed to have a strong genetic component, and symptoms surfaced soon after the child was born.

But, a newer, and more common form of the disease is known as regressive autism, in which children appear to be developing normally, but then suddenly regress. "They lose functions they had before, such as early speech," Deth says. "Parental anecdotes and clinical reports have suggested it happened during periods of high vaccine exposure."

"Up to now, people have said the cause, or causes of autism, are unknown.

Our work isn't final in any sense at all, but it seems to point to this biochemistry as a potential, or even primary cause, of autism."

Thimerosal had been used to prevent the growth of bacteria or fungi in multi-dose units of vaccines for diseases such as hepatitis and diphtheria, pertussis (whooping cough) and tetanus, or DPT.

As of March 2001, all vaccines for routine immunization of children in Canada have been available without thimerosal. But the annual flu shot, which is given to children over six months of age -- contains the preservative. And thimerosal is still found in larger, multi-dose vaccines shipped to Third World countries.

Dr. Laszlo Palkonyay, medical-scientific adviser for Quebec-based flu vaccine maker Shire Biologics, said a study published in the journal *Pediatrics* last September, which was based on a registry of all psychiatric admissions in Denmark between 1971 and 2000, found no trend toward an increase in autism rates during the period thimerosal was used in vaccines in that country. In fact, he said the incidence of autism increased after the preservative was removed from vaccines in 1990.