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Chilling impact on vaccine-autism research



Richard Deth, professor of pharmacology, offers his response to the controversy surrounding a study linking a childhood vaccine to autism.

January 10, 2011

The British medical journal, BMJ, has published a report by an investigative journalist on the first study to link a childhood vaccine to autism and inflammatory bowel disease. The article in the BMJ called the study an "elaborate fraud," and claimed that the "appearance of a link with autism was manufactured at a London medical school."

Dr. Andrew Wakefield linked the measles, mumps, and rubella (MMR) vaccine to autism in a study published in the medical journal *Lancet* more than 10 years ago. *Lancet* retracted the study last year after the British General Medical Council found that Wakefield had acted "dishonestly and irresponsibly" in his research.

Richard Deth is a professor of pharmacology in the **Bouvé College of Health Sciences** and the **School of Pharmacy at Northeastern University**. His research suggests that vaccines containing aluminum and/or the mercury-based preservative thimerosal could contribute to the development of autism in children who lack the genetic capability to excrete neurotoxic metals. The MMR vaccine does not contain aluminum or thimerosal.

Deth, who is currently attending a vaccine safety conference with Wakefield and other scientists, clinicians and legal experts, offers his response to the controversy.

What are your thoughts on the BMJ report?

I think it's very unusual, but at the same time revealing, that the BMJ chose to publish this story. Investigative journalist Brian Deer has been on a mission to discredit Wakefield for years. His report is not a scientific article, but rather an opinion piece that doesn't focus on the scientific finding of whether or not autistic children have inflammation in their gastrointestinal tract, which I believe is the crux of the original paper. That paper never set out to prove an explicit link between autism and the MMR vaccine. Nobody studying 12 subjects could conceive of proving a link. Wakefield found that subjects had gastrointestinal inflammation and at least some of parents reported that they thought this occurred after their children received the MMR vaccine.

Our recent research has identified an amino acid transporter that may be involved in gastrointestinal inflammation and might also contribute to the neuronal inflammation that others have found in the brains of autistic children. A connection between the gut and the brain in autism makes sense to me.

What is the link between vaccines and autism?

Vaccines provoke an immune response to an antigen derived from a virus or bacteria. They can also contain agents, called adjuvants, such as aluminum, which augment the antibody response and can provoke inflammation throughout the body, as well as preservatives such as mercury, in the form of thimerosal.

Aluminum and mercury can enter the brain and remain for years, where they provoke neuroinflammation. Inflammation during childhood can interfere with the normal mechanisms by which gene expression is controlled, leading to neurodevelopmental disorders such as autism.

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While the MMR vaccine does not contain aluminum or mercury, simultaneous exposure to these three viruses induces inflammation, which contributes to the cumulative effect of vaccines on children.

It's common for children to receive several vaccines in a single doctor's visit. As a result, they receive a tremendous dose of aluminum, well beyond limits set by the U.S. Food and Drug Administration. This increases the chance of excessive inflammation and a metabolic condition known as oxidative stress, which can disrupt development and/or precipitate regressive autism. Studies of autistic children show that they have inflammation and oxidative stress.

Why haven't other studies shown a link between the MMR vaccine and autism?

Most vaccine safety studies have been epidemiological in nature. They examine large population-based datasets rather than individual autistic subjects. The latter type of study has revealed the central role of oxidative stress and inflammation, which could not be identified in epidemiological studies.

Epidemiological studies are intrinsically unable to uncover causal mechanisms, even if an association was found. In my view, MMR vaccination is only a partial contributor, while other vaccines contribute to the total risk of autism. Vaccines are certainly not the only agents contributing to autism, but it's likely that the major cause is some kind of environmental exposure, as opposed to a genetic abnormality.

In light of this, should parents have their children vaccinated against MMR and other diseases?

Yes. I support vaccination and safer vaccines that don't contain aluminum or mercury.

Britain stripped Andrew Wakefield of his right to practice medicine. Was this justified?

No, not in my opinion. The ethical issues he was found guilty of were not of sufficient magnitude to justify this penalty. Moreover, doubt remains about whether there was significant and willful misconduct.

The British General Medical Council and Brian Deer have conspired to make an example of Wakefield for daring to suggest that vaccination may cause disease in some individuals.

Wakefield's identification of gastrointestinal inflammation in autism will remain an important scientific contribution. The magnitude of the effort to discredit him betrays a strong fear that his suggestion of a link to vaccination may be correct. It amounts to a public pillorying that frightens others from investigating this controversial but important issue.