Thimerosal increases autism risk six-fold (continued from page 1)

port that children receiving thimerosal-containing DTaP vaccine have markedly increased rates of autism, retardation, and speech disorders in comparison to those receiving the same vaccine in a thimerosal-free form. Analyzing data from the Vaccine Adverse Events Reporting System (VAERS), the researchers found that children who received the DTaP vaccine containing thimerosal have a six-fold increase in the risk of autism, a six-fold increase in the risk of being mentally retarded, and a two-fold increase in the risk of developing a speech disorder.

"The results of our analysis were extremely surprising," they say, noting that they were "initially highly skeptical" about a link between thimerosal and childhood neurodevelopmental disorders. The rate of acute adverse reactions such as vasculitis and seizures was similar for both the thimerosal-free and thimerosal-containing vaccines, which the researchers say indicates that thimerosal, and not potential manufacturing differences or reporting biases, is responsible for the observed increase in neurological disorders.

Geier and Geier found that autism occurred 17 times more often in males than in females after vaccination with thimerosal-containing DTaP, and that speech disorders were twice as common in thimerosal-exposed males as in females, while mental retardation occurred equally in both sexes after thimerosal-containing shots. Reactions to the thimerosal-containing vaccine occurred more often in older children, which the researchers say "potentially may be explained by the toxic buildup of mercury from successive doses of thimerosal-containing DTaP vaccines."

While the researchers note that additional studies are needed to confirm their findings, they urge manufacturers to end the use of thimerosal-containing vaccines, "for it is better to be safe than sorry."

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"Pediatric MMR vaccination safety," Mark R. Geier and David A. Geier, *International Pediatrics*, Vol. 18, No. 2, 2003, 108-113. Address: Mark or David Geier, Genetic Centers of America, 14 Redgate Ct., Silver Spring, MD 20905.

—and—

"Neurodevelopmental disorders after thimerosal-containing vaccines: a brief communication," Mark R. Geier and David A. Geier, *Journal of Experimental Biology and Medicine*, June 2003, Vol. 228, No. 6, 660-4. See address above.

Maternal response to virus may cause autistic symptoms

Maternal viral infections during pregnancy are a known cause of autism, and a new study suggests that the mother's response to the virus—not the virus itself—may be the culprit.

A previous study of mice by S. Hossein Fatemi and colleagues revealed that offspring of mice infected with influenza during pregnancy showed brain changes including thinnning of the neocortex and hippocampus, pyramidal cell atrophy, abnormally large head size, and abnormalities involving reelin and other proteins that play roles in brain cell development and migration.

In the current study, Limin Shi, Fatemi, and colleagues investigated the effects of maternal infection with influenza on the behavior of offspring. The mice whose mothers contracted influenza during pregnancy showed a number of unusual behaviors, including a deficit in exploratory behavior and markedly reduced social interaction. "These alterations in behavior likely reflect hyperanxiety in novel or stressful situations," the researchers say, "which is a prominent feature of autism."

The researchers also found that the "PPI" response was abnormal in mice born to infected mothers. (In tests of the "startle" response to a noise, the use of a prepulse—a noise too insignificant to cause a startle reaction—normally will diminish the response to a startling noise that follows, a phenomenon called "prepulse inhibition" or PPI.) Similar PPI deficits are seen in individuals with autism and schizophrenia, although they are not specific to these disorders. Additionally, when given drugs that alter PPI response, the flu-exposed mice reacted very differently from non-exposed mice, suggesting defects in dopamine and glutamate systems.

To determine whether the differences between the two groups of mice were due to the virus itself or to the mothers' reaction to the virus, the researchers provoked an antiviral-like immune response in pregnant mice without using a virus. Mice injected with the highest amounts of the substance that provoked an immune response gave birth to offspring that showed abnormal PPI responses similar to those of the offspring of flu-exposed mothers.

The researchers say that it is unlikely that the flu virus directly infects the fetal brain, and that their evidence indicates instead that "the maternal immune response is sufficient to cause changes in the behavior of adult offspring, at least for PPI."

They conclude, "maternal viral infection has a profound effect on the behavior of adult offspring, probably via an effect of the maternal immune response on the fetus."

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"Maternal influenza infection causes marked behavioral and pharmacological changes in the offspring," Limin Shi, S. Hossein Fatemi, Robert W. Sidwell, and Paul H. Patterson, *Journal of Neuroscience*, Vol. 23, No. 1, Jan. 1, 2003, 297-302. Address: P. H. Patterson, Division of Biology, 216-76, California Institute of Technology, Pasadena, CA 91125, php@caltech.edu.

Congress blasts FDA, CDC over thimerosal

(continued from page 1)

children to continue to be exposed to ethylmercury from vaccines for more than two additional years." Additionally, it castigates the Centers for Disease Control and Prevention (CDC), for refusing to even express a preference for thimerosal-free vaccines in 2001, despite the fact that such vaccines were available.

Among the recommendations made by the report:

- Congress should direct the National Institutes of Health to conduct research into the relationship between mercury exposure and autism, attention deficit disorders, Gulf War Syndrome, and Alzheimer's Disease. Many researchers believe the current epidemic of autism is due in large part to thimerosal-containing vaccines (see ARRI 17/1, 16/3, 16/2).
- Independent researchers should have access to the Vaccine Safety Datalink database so they can independently replicate vaccine studies funded by the CDC—studies that the report charges "have been of poor design, under-powered, and fatally flawed." The report's authors add, "The CDC's rush to support and promote such research is reflective of a philosophical conflict in looking fairly at emerging theories and clinical data related to adverse reactions from vaccinations."
- Congress should enact legislation prohibiting the use of federal funds to provide drugs or other products containing mercury, methylmercury, or ethylmercury, unless no reasonable alternative is available.
- The statue of limitations for filing claims under the Vaccine Injury Compensation Program should be changed from three to six years, and parents of children injured by vaccines since 1988 should have a one- to two-year window for filing claims.

In addition, the report recommends drastic reform of the government's process of overseeing vaccine safety, and calls on President George W. Bush to organize a White House conference on autism, in order to "mobilize a national effort to uncover the causes of the autism epidemic."

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"Mercury in Medicine—Taking Unnecessary Risks," Report of the Subcommittee on Human Rights and Wellness, Committee on Government Reform, United States House of Representatives, May 2003.

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