Neurodevelopmental Disorders Following Thimerosal-Containing Childhood Immunizations: A Follow-Up Analysis

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The authors previously published the first epidemiological study from the United States associating thimerosal from childhood vaccines with neurodevelopmental disorders (NDs) based upon assessment of the Vaccine Adverse Event Reporting System (VAERS). A number of years have gone by since their previous analysis of the VAERS. The present study was undertaken to determine whether the previously observed effect between thimerosal-containing childhood vaccines and NDs are still apparent in the VAERS as children have had a chance to further mature and potentially be diagnosed with additional NDs. In the present study, a cohort of children receiving thimerosal-containing diphtheria-tetanus-acellular pertussis (DTaP) vaccines in comparison to a cohort of children receiving thimerosal-free DTaP vaccines administered from 1997 through 2000 based upon an assessment of adverse events reported to the VAERS were evaluated. It was determined that there were significantly increased odds ratios (ORs) for autism (OR = 1.8, $p < .05$), mental retardation (OR = 2.6, $p < .002$), speech disorder (OR = 2.1, $p < .02$), personality disorders (OR = 2.6, $p < .01$), and thinking abnormality (OR = 8.2, $p < .01$) adverse events reported to the VAERS following thimerosal-containing DTaP vaccines in comparison to thimerosal-free DTaP vaccines. Potential confounders and reporting biases were found to be minimal in this assessment of the VAERS. It was observed, even though the media has reported a potential association between autism and thimerosal exposure, that the other NDs analyzed in this assessment of the VAERS had significantly higher ORs than autism following thimerosal-containing DTaP vaccines in comparison to thimerosal-free DTaP vaccines. The present study provides additional epidemiological evidence supporting previous epidemiological, clinical and experimental evidence that administration of thimerosal-containing vaccines in the United States resulted in a significant number of children developing NDs.

Received 16 July 2004; accepted 21 October 2004.

Potential conflict of interest: David Geier has been a consultant in cases involving vaccines before the no-fault National Vaccine Injury Compensation Program (NVICP) and in civil litigation. Dr. Mark Geier has been a consultant and an expert witness in cases involving vaccines before the no-fault NVICP and in civil litigation.

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International Journal of Toxicology, 23:369–376, 2004

ISSN: 1091-5818 print / 1092-874X online
DOI: 10.1080/10915810490902038

Keywords Autistic Spectrum Disorders, Ethylmercury, Merthiolate, Thiomersal, VAERS

We previously published the first epidemiological evidence from the United States showing an association between thimerosal-containing childhood vaccines and neurodevelopmental disorders (Geier and Geier 2003a). Specifically, it was determined that there was from a two- to sixfold statistically significantly increased reporting rate of neurodevelopmental disorders, depending on the specific symptom or disorder, to the Vaccine Adverse Event Reporting System (VAERS) database following thimerosal-containing diphtheria-tetanus-acellular pertussis (DTaP) (administered from 1992 to 2000) in comparison to thimerosal-free DTaP vaccine (administered from 1997 to 2000), whereas control adverse events were reported similarly following both vaccines under study.

In light of the fact that a number of years have gone by, the present study was undertaken to determine whether the previously observed effect between thimerosal-containing childhood vaccines and neurodevelopmental disorders are still apparent in the VAERS database as children have had a chance to further mature and potentially be diagnosed with a neurodevelopmental disorder. The results of the present analysis should allow one to be able to determine whether the previous observations represented a transient artifact, or whether the previous results are indeed robust, representing a true effect of thimerosal-containing childhood vaccines on neurodevelopmental disorders.

MATERIALS AND METHODS

The VAERS database is an epidemiological database that has been maintained by the Centers for Disease Control and Prevention (CDC) since 1990. Specific vaccine-adverse events following vaccination are required to be reported to this database as mandated by law. The VAERS Working Group of the CDC has previously reported that less than 5% of the total adverse events submitted to VAERS are reported by parents. The VAERS Working Group of the CDC and the Food and Drug Administration (FDA) analyze and publish epidemiologic studies based