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## Neuropsychological Performance 10 Years After Immunization in Infancy With Thimerosal-Containing Vaccines

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**OBJECTIVE.** Thimerosal, a **mercury** compound used as a preservative in vaccines administered during infancy, has been suspected to affect neuropsychological development. We compared the neuropsychological performance, 10 years after vaccination, of 2 groups of children exposed randomly to different amounts of thimerosal through immunization.

**METHODS.** Children who were enrolled in an efficacy trial of pertussis vaccines in 1992–1993 were contacted in 2003. Two groups of children were identified, according to thimerosal content in vaccines assigned randomly in the first year of life (cumulative ethyl**mercury** intake of 62.5 or 137.5 µg), and were compared with respect to neuropsychological outcomes. Eleven standardized neuropsychological tests, for a total of 24 outcomes, were administered to children during school hours. Mean scores of neuropsychological tests in the domains of memory and learning, attention, executive functions, visuospatial functions, language, and motor skills were compared according to thimerosal exposure and gender. Standard regression coefficients obtained through multivariate linear regression analyses were used as a measure of effect.

**RESULTS.** Nearly 70% of the invited subjects participated in the neuropsychological assessment (N = 1403). Among the 24 neuropsychological outcomes that were evaluated, only 2 were significantly associated with thimerosal exposure. Girls with higher thimerosal intake had lower mean scores in the finger-tapping test with the dominant hand and in the Boston Naming Test.

**CONCLUSIONS.** Given the large number of statistical comparisons performed, the few associations found between thimerosal exposure and neuropsychological development might be attributable to chance. The associations found, although statistically significant, were based on small differences in mean test scores, and their clinical relevance remains to be determined.

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**Key Words:** thimerosal • ethylmercury compounds • developmental disabilities • immunization • child • randomized • controlled trial

**Abbreviations:** CI—confidence interval • DTaP—diphtheria-tetanus-acellular pertussis • SRC—standardized regression coefficient • WISC-R—Wechsler Intelligence Scale for Children-Revised • RR—risk ratio

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Accepted May 13, 2008.