

# Iatrogenic exposure to mercury after hepatitis B vaccination in preterm infants

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Thimerosal, a derivative of mercury, is used as a preservative in hepatitis B vaccines. We measured total mercury levels before and after the administration of this vaccine in 15 preterm and 5 term infants. Comparison of pre- and post-vaccination mercury levels showed a significant increase in both preterm and term infants after vaccination. Additionally, post-vaccination mercury levels were significantly higher in preterm infants as compared with term infants. Because mercury is known to be a potential neurotoxin to infants, further study of its pharmacodynamics is warranted. (*J Pediatr* 2000;136:679-81)

The mercury content of drugs and vaccines is being scrutinized, given the potential effects of exposure to mercury through diet and the environment.<sup>1-3</sup> Thimerosal, an organic mercury compound, is used for the enhancement of product stability in several drugs and vaccines. Most neonates received hepatitis B vaccine, which contained thimerosal. The recommended dose of pediatric hepatitis B vaccine contained

thimerosal 1:20,000, or 0.25 ppm (12.5 µg of mercury). At our institution the hepatitis B vaccine (at the time of this study) was given within the first week of life, regardless of the mother's hepatitis status. To our knowledge, and according to both manufacturers of the vaccine, no study has examined total mercury levels in newborn infants after inoculation with hepatitis B vaccine. The goal of this study was to evaluate

iatrogenic exposure to mercury in preterm infants receiving their initial dose of hepatitis B vaccine in comparison with term infants.

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## METHODS

The study protocol was approved by the Emory Institutional Review Board, and informed written consent was obtained from a parent or guardian for every newborn infant (n = 23) enrolled in the study from Grady Health System's Neonatal Intensive Care Unit between August 1997 and March 1998. All intravenous fluids and medications administered were mercury-free. The inclusion criteria included a birth weight of ≤1000 g, 5-minute Apgar score of 7 or greater, mother who was seronegative for hepatitis B, and hepatitis B vaccine inoculation in the first week of life after consent had been obtained. The control group was composed of 5 term infants whose inclusion criteria differed only by weight of ≥3500 g. Control subjects were not selected from the normal nursery because healthy babies would have been discharged before the post-vaccination levels could be obtained. In the group of 18

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