Toxicological & Environmental Chemistry
Vol. 90, No. 5, September–October 2008, 997–1008

Taylor & Francis
Taylor & Francis Group

Hepatitis B triple series vaccine and developmental disability in US children aged 1–9 years

Carolyn Gallagher* and Melody Goodman

Graduate Program in Public Health, Stony Brook University Medical Center, Health Sciences Center, State University of New York at Stony Brook, Stony Brook, New York, USA

(Final version received 14 November 2007)

This study investigated the association between vaccination with the Hepatitis B triple series vaccine prior to 2000 and developmental disability in children aged 1–9 years ($n = 1824$), proxied by parental report that their child receives early intervention or special education services (EIS). National Health and Nutrition Examination Survey 1999–2000 data were analyzed and adjusted for survey design by Taylor Linearization using SAS version 9.1 software, with SAS callable SUDAAN version 9.0.1. The odds of receiving EIS were approximately nine times as great for vaccinated boys ($n = 46$) as for unvaccinated boys ($n = 7$), after adjustment for confounders. This study found statistically significant evidence to suggest that boys in United States who were vaccinated with the triple series Hepatitis B vaccine, during the time period in which vaccines were manufactured with thimerosal, were more susceptible to developmental disability than were unvaccinated boys.

Keywords: early intervention; special education services; developmental disability; Hepatitis B vaccine triple series

Introduction

Mercury (Hg) is a recognized neurodevelopmental toxicant (NRC 2000). Coal-fired power plants are a prime source of Hg emissions that aerosolize, travel through the atmosphere to waterways, are transformed by microorganisms into methyl Hg and consumed by fish, then magnify in the marine food chain (Trasande, Landrigan, and Schecter 2005). Pregnant women's consumption of seafood is the major route of *in utero* exposure to methyl Hg (Trasande, Landrigan, and Schecter 2005). Studies show an association between prenatal methyl Hg exposure and poor performance on cognitive tests (Grandjean et al. 1997). Researchers found that between 316,588 and 637,233 children each year have cord blood methyl Hg levels $>5.8\ \mu g\ L^{-1}$, a level associated with loss of IQ and a calculated corresponding loss of productivity equivalent to 8.7 billion dollars annually (Trasande, Landrigan, and Schecter 2005). Windam et al. (2006) reported an association between ambient air Hg levels and autism prevalence.

*Corresponding author. Email: 2crgallagher@optonline.net

ISSN 0277-2248 print/ISSN 1029-0486 online

DOI: 10.1080/02772240701806501
http://www.informaworld.com