Krakow's children cohort and long-term follow-up of thimerosal exposure—design and statistics

James P. K. Rooney¹ · José G. Dórea²

Received: 28 March 2015 / Accepted: 13 May 2015 / Published online: 22 May 2015
© Springer-Verlag Berlin Heidelberg 2015

The study of Mrozek-Budzyn et al. [4] on cognitive development and ethylmercury (EtHg) exposure from thimerosal-containing vaccines (TCVs) reported “no negative association between neonatal and early infancy TCV exposure and mental development in children up to 9th year of age” [4]. Mrozek-Budzyn et al. [4] did not discuss the findings or their 2012 paper from the same cohort. We note the 2012 paper states that the full cohort of infants includes 505 children (196 were eligible for the 2012 analysis) [3]. However, the 2015 paper does not explain why only 318 infants were included out of the 505 children [4]. The authors state in their discussion that some exclusions were made based on maternal health/lifestyle/occupation [4], however, they should have detailed precise exclusion criteria and provided descriptive statistics of included versus excluded infants to allow readers to assess the data for selection bias.

In the results, Fig. 2 and Table 2 [4], the comparisons of the repeated neurodevelopmental (MDI and the WISC) tests although standardized, do not appear to include a “repeated measure analysis” that takes into

account autocorrelation of repeated measurements in the same individuals. Importantly, despite stating that “...the lead level in cord blood was significantly lower in the TCV-exposed group than in the non-exposed one....”, no results or discussion of the regression coefficients for lead is provided nor is it mentioned as a “controlled for” variable in Fig. 2 and Tables 2 and 3. This is a troubling omission given that negative correlations between lead exposure and IQ have been reported within the relevant blood lead concentration range [2]. Therefore, lead could well act as a “negative confounder”/interacting factor in this study and demands a thorough sensitivity analysis. Finally, results should be contextualized to the likely existence of multiple genetically sensitive subgroups among the population [1, 5].

References

1. Basu N, Goodrich JM, Head J (2014) Ecogenetics of mercury: from genetic polymorphisms and epigenetics to risk assessment and decision-making. *Environ Toxicol Chem* 33(6):1248–1258
2. Lucchini RG, Zoni S, Guazzetti S, Bontempi E, Micheletti S, Broberg K et al (2012) Inverse association of intellectual function with very low blood lead but not with manganese exposure in Italian adolescents. *Environ Res* 118:65–71
3. Mrozek-Budzyn D, Majewska R, Kieltyka A, Augustyniak M (2012) Neonatal exposure to thimerosal from vaccines and child development in the first 3 years of life. *Neurotoxicol Teratol* 34(6): 592–597
4. Mrozek-Budzyn D, Majewska R, Kieltyka A (2015) Early exposure to thimerosal-containing vaccines and children's cognitive development. A 9-year prospective birth cohort study in Poland. *Eur J Pediatr* 174(3):383–391
5. Woods JS, Heyer NJ, Russo JE, Martin MD, Farin FM (2014) Genetic polymorphisms affecting susceptibility to mercury neurotoxicity in children: summary findings from the Casa Pia Children's Amalgam Clinical Trial. *Neurotoxicology* 44C:288–302

Communicated by Peter de Winter

This is a correspondence to <http://dx.doi.org/10.1007/s00431-014-2412-5>

✉ José G. Dórea
jg.dorea@gmail.com

¹ Academic Unit of Neurology, Trinity Biomedical Sciences Institute, Trinity College Dublin, Dublin, Ireland

² University of Brasília, 70919-970 Brasília, DF, Brazil