A meta-analysis of the evidence on the impact of prenatal and early infancy exposures to mercury on autism and attention deficit/hyperactivity disorder in the childhood.

Yoshimasu K, Kiyohara C, Takemura S, Nakai K.


Abstract
Although a measurable number of epidemiological studies have been conducted to clarify the associations between mercury exposure during embryo or early infancy and later incidences of autism spectrum disorders (ASD) or attention-deficit hyperactivity disorder (ADHD), the conclusion still remains unclear. Meta-analysis was conducted for two major exposure sources; i.e., thimerosal vaccines that contain ethylmercury (clinical exposure), and environmental sources, using relevant literature published before April 2014. While thimerosal exposures did not show any material associations with an increased risk of ASD or ADHD (the summary odds ratio (OR) 0.99, 95% confidence interval (CI) 0.80-1.24 for ASD; OR 0.91, 95% CI 0.70-1.13 for ADHD/ADD), significant associations were observed for environmental exposures in both ASD (OR 1.66, 95% CI 1.14-2.17) and ADHD (OR 1.60, 95% CI 1.10-2.33). The summary ORs were similar after excluding studies not adjusted for confounders. Moderate adverse effects were observed only between environmental inorganic or organic mercury exposures and ASD/ADHD. However, these results should be interpreted with caution since the number of epidemiological studies on this issue was limited and still at an early stage. Further studies focused on subjects with genetic vulnerabilities of developmental disorders are warranted for better understanding of the effects of such environmental exposures.