Mercury and autism: Accelerating Evidence?

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The cases of autism and neurodevelopmental disorders are unknown. Genetic and environmental risk factors seem to be involved. Because of an observed increase in autism in the last decade, which parallels cumulative mercury exposure, it was proposed that autism may be part caused by mercury. We review the evidence for this proposal. Several epidemiological studies failed to find a correlation between mercury exposure through thimerosal, a preservative used in vaccines, and the risk of autism. Recently, it was found that autistic children had a higher mercury exposure during pregnancy due to maternal dental amalgam and thimerosal-containing immunoglobulin shots. It was hypothesized that children with autism have a decreased detoxification capacity due to genetic polymorphism. In vivo, mercury and thimerosal in lewis found several days after vaccination inhibit methionine synthase (MS) by 30%. Normal function of MS is crucial in biochemical steps necessary for brain development, attention and production of acetylcholine, an important antioxidant and detoxifying agent. Replication doses of thimerosal leads to neurobehavioral deteriorations in autoimmune susceptible mice, increased oxidative stress and decreased intracellular levels of glutathione in vitro. Subsequently, autistic children have significantly decreased level of reduced glutathione. Promising treatments of autism involve detoxification of mercury, and supplementation of deficient metabolites.

Abbreviations
MTHFR = methylenetetrahydrofolate reductase
Hg = mercury
DMPS = dimercaptopropanol
DMS = sodium 2,3-dimercaptopropanol
ASD = autism spectrum disorders

Introduction
Acut spectrum disorders (ASD), first described in 1943 in eleven children born in the 1930s, have increased worldwide [1,3,4,4]. All forms of mercury are neurotoxic, especially during brain development [5,6]. Thus, some authors...