Associations of prenatal and early childhood mercury exposure with autistic behaviors at 5 years of age: The Mothers and Children’s Environmental Health (MOCEH) study

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HIGHLIGHTS
• We explored the associations between blood mercury levels and autistic behaviors.
• This study involved an ongoing multicenter prospective birth cohort.
• Blood mercury levels were repeatedly measured from early pregnancy to 3 years.
• Autistic behaviors were assessed at 5 years with the Social Responsiveness Scale.
• Prenatal and early childhood mercury levels were associated with autistic behaviors.

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ABSTRACT
Background: Although mercury is an established neurotoxin, only few longitudinal studies have investigated the association between prenatal and early childhood mercury exposure and autistic behaviors.
Methods: We conducted a longitudinal cohort study using an ongoing prospective birth cohort initiated in 2006, wherein blood mercury levels were measured at early and late pregnancy; in cord blood; and at 2 and 3 years of age. We analyzed 458 mother-child pairs. Autistic behaviors were assessed using the Social Responsiveness Scale (SRS) at 5 years of age. Both continuous SRS T-scores and T-scores dichotomized by a score of ≥60 or <60 were used as outcomes.
Results: The geometric mean of mercury concentrations in cord blood was 5.52 μg/L. In adjusted models, a doubling of blood mercury levels at late pregnancy (β = 1.84, 95% confidence interval [CI]: 0.39, 3.29), in cord blood (β = 2.24, 95% CI: 0.22, 4.27), and at 2 years (β = 2.12, 95% CI: 0.54, 3.70) and 3 years (β = 2.80, 95% CI: 0.89, 4.72) of age was positively associated with the SRS T-scores. When the SRS T-scores were dichotomized, we...