

EARLY LIFE BPA EXPOSURE AND OBESITY AND METABOLIC SYNDROME IN CHILDREN

Con formato: Derecha: 0 cm

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Background and Aims: Bisphenol A (BPA) is a widely used, endocrine disrupting compound detected in 93% of Americans. Prenatal and early postnatal BPA exposures are associated with increased weight gain in rats, but no published studies have examined early life exposure and obesity in children.

Methods: Participants were 313 children enrolled in the Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS), a longitudinal birth cohort study in northern California. We measured BPA concentrations in urine from mothers during pregnancy and children at 5 and 9 years of age. Children were examined at 9 years of age to measure height, weight, waist circumference, percent body fat, and blood pressure. Fasting blood was collected on a subset (n=119) of 9-year old children for measurements of glucose and lipids.

Results: Urinary BPA concentrations in pregnant mothers (median = 1.1 µg/L), and children at age 5 (median = 2.3 µg/L) and age 9 (median = 1.6 µg/L) were within U.S. national averages. Prenatal and age 5 BPA concentrations were unassociated with anthropometric measures at age 9. However, log₁₀-transformed BPA concentrations at age 9 were associated with increased BMI (• = 2.1 kg/m², 95% confidence interval (CI): 0.6, 3.6), waist circumference (• = 6.0 cm, 95% CI: 2.0, 10.2) and percent body fat (• = 4.3%, 95% CI: 0.4, 8.2) at age 9. Results were similar after adjustment for urinary creatinine and other covariates. Future analyses will examine associations with elements of metabolic syndrome, including blood pressure, glucose, and lipid levels.

Conclusions: Prenatal and early childhood exposures to BPA were not associated with BMI, waist circumference, and percent body fat at age 9 years, but concurrent BPA levels were. It is unknown whether BPA is causally related to obesity or whether the association is due to weight-related differences in storing or metabolizing BPA.