

# CONCENTRATIONS OF POLYFLUOROALKYL CHEMICALS DURING GESTATION AND SERUM LIPIDS AT AGE 7 IN GIRLS ENROLLED IN THE AVON LONGITUDINAL STUDY OF PARENTS AND CHILDREN

**Mildred Maisonet**, *National Center for Environmental Health, CDC ; Rollins School of Public Health, Emory University*

**Adrienne Holmes**, *National Center for Environmental Health, CDC*

**Antonia Calafat**, *National Center for Environmental Health, CDC*

**Michele Marcus**, *National Center for Environmental Health, CDC; Rollins School of Public Health, Emory University*

**Background and aims:** Polyfluoroalkyl chemicals (PFCs) are commercially synthesized chemicals used in consumer products. Exposure to PFCs is widespread and some PFCs may disrupt signaling processes involved in the control of lipid metabolism. We explored associations of maternal concentrations of perfluorooctane sulfonate (PFOS), perfluorooctanoate (PFOA), and perfluorohexane sulfonate (PFHxS) during gestation with serum lipid concentrations at age 7 in girls.

**Methods:** Analyses were conducted on a sample of 227 singleton girls and their mothers participating in the Avon Longitudinal Study of Parents and Children. PFC concentrations were measured in serum samples obtained from the mothers at pregnancy. Cholesterol, low density lipoprotein (LDL), high density lipoprotein (HDL) and triglycerides were measured in serum samples obtained from the girls at age 7. Linear regression models were used to estimate the average change in lipids levels for each 1-unit increase in the natural logarithm (Ln) of the PFCs after adjustment for covariates.

**Results:** PFOS (median 19.8 ng/mL), PFOA (median 3.7 ng/mL), and PFHxS (median 1.6 ng/mL) were detected in 100% of samples. A 1-Ln unit increase in PFOS was associated with a 9 mg/dL (95% confidence interval [CI]: 1,18) increase in cholesterol concentrations and with a similar increase in LDL concentrations (9 mg/dL; 95% CI: 2,16) in girls. A 1-Ln unit increase in PFOA was associated with a 9 mg/dL (CI: 3,16) increase in LDL concentrations. PFOS and PFOA concentrations were not associated with HDL or Triglycerides. PFHxS concentrations were not associated with any of the outcomes.

**Conclusions:** Gestational exposures to PFOS and PFOA may have a persistent influence in lipid metabolism during childhood.