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Endocrine Disrupting Chemicals 7899

Mixture Of Urinary Concentrations Of Phenols And Phthalate Metabolites In Relation To Serum Levels Of Lipid Biomarkers Among Pregnant Women: Results From The EARTH Study

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Given the limited evidence on endocrine-disrupting chemicals (EDCs), evaluated as mixture, in relation to lipid biomarkers during pregnancy, we examined whether mixtures of urinary concentrations of bisphenol A (BPA), parabens and phthalate metabolites were associated with serum lipid levels among 175 pregnant women who enrolled in Environment and Reproductive Health (EARTH) Study from 2005 to 2017. The outcomes were assessed at one random timepoint pre women during pregnancy, including serum levels of total triglycerides, total cholesterol, high-density lipoprotein (HDL), non-HDL, and low-density lipoprotein (LDL). We grouped the chemical biomarkers [di(2-ethylhexyl) phthalate (DEHP) metabolites and BPA; other phthalate metabolites; parabens] assessed in urine collected at the same time and applied Bayesian Kernel Machine Regression (BKMR) and quantile g-computation to evaluate the associations while adjusting for confounders [urine specific gravity, age, pre-pregnancy body mass index (BMI), race, education level, infertility diagnosis, mode of conception, number of babies in this pregnancy and trimester]. In the adjusted BKMR models, we found no

associations between the overall chemical biomarker mixture and lipid levels for example total cholesterol [mean difference (95% CRI, credible interval) = 0.02 (-0.31, 0.34)] and LDL [mean difference (95% CRI) = 0.10 (-0.22, 0.43)] when comparing concentrations at the 75th to the 25th percentile. When stratified by BMI, we found suggestive positive relationships between the paraben group and total cholesterol and LDL among women with high BMI [mean difference (95% CRI) = 0.16 (-0.23, 0.55) and 0.16 (-0.25, 0.57)], but not among women with low BMI [mean difference (95% CRI) = -0.02 (-0.16, 0.12) and -0.02 (-0.15, 0.12)]. Among the paraben group, propylparaben was driving the associations among high BMI group [mean difference (95% CRI) = 0.25 (-0.26, 0.75) and 0.35 (-0.25, 0.95)], but not among low BMI group [mean difference (95% CRI) = 0.00 (-0.06, 0.07) and 0.00 (-0.07, 0.07)]. In addition, we found suggestive positive associations of DEHP metabolites and BPA group with total cholesterol, non-HDL and LDL among women with lower BMI, but none of the chemicals was identified as an important contributor to these associations. This study highlights that the associations between EDCs and cardiovascular biomarkers, such as circulating lipids, differ by BMI among pregnant women.

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