

PERSISTENT ORGANIC POLLUTANTS AND OVERWEIGHT AT AGE 6.5 YEARS; DO SEX OR HIGH-FAT INTAKES OF THE CHILD MATTER?

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Background and Aims: Recent experimental evidence suggests prenatal exposure to endocrine-disrupting chemicals may increase postnatal obesity risk, and that these effects may vary by sex or be enhanced when animals are postnatally placed on a high-fat diet. Little is known about these associations in humans. We explored whether prenatal exposure to organochlorine compounds (OC) (PCBs, DDE, DDT) is associated with overweight at age 6.5 years and whether children's sex or fat intakes modify these associations.

Methods: We studied 344 children from a Spanish birth cohort established in 1997/98. OC concentrations were measured in cord blood. Overweight at 6.5 years was defined as a BMI z-score • the 85th percentile of the WHO reference. Using a food frequency questionnaire of children's diet in the past year, a high-fat intake was defined as above median fat intakes as a percentage of energy. We estimated relative risks using generalized linear models.

Results: Third tertile PCBs exposure was found to be associated with overweight in girls (RR^a=2.13, 95%CI=0.99, 2.57), but not clearly in boys (RR^a=1.43, 95%CI=0.82, 2.38; p-interaction=0.04). Children with higher-fat intakes had an increased risk of overweight related to third tertile PCBs exposure (RR^a=1.95, 95%CI=1.00, 3.82), but the interaction was not statistically significant (p-interaction=0.63). Second tertile DDE exposure was associated with overweight (RR^a=1.67, 95%CI=1.10, 2.55), with a somewhat stronger association in girls than boys (p-interaction=0.20). No effect modification by fat intake was observed for DDE (p-interaction=0.93). Second tertile DDT exposure was associated with overweight only in boys (RR^a=1.96, 95%CI=1.06, 3.62; p-interaction=0.25) and among children with higher-fat intakes (RR=2.31, 95%CI=1.16, 4.58; p-interaction=0.20). For none of the OC, linear dose-response relationships were observed.

Conclusions: Though no clear evidence was found for a dose-response relationship, prenatal PCBs, DDE and DDT concentrations might increase the risk of overweight at 6.5 years in a sex-specific and diet-dependent way.

Con formato: Izquierda