Interaction between paraoxonase 1 polymorphism and prenatal pesticide exposure on metabolic markers in children using a multiplex approach

Prenatal environmental exposures may influence the risk of cardio-metabolic diseases later in life. This study used a multiplex approach to investigate non-fasting serum levels of metabolic markers in a cohort of school-aged children for whom associations between prenatal pesticide exposure and body fat content and blood pressure were previously found to be dependent on paraoxonase1 (PON1) Q192R genotype. In children with the PON1 192 R-allele, leptin, glucagon, and plasminogen activator inhibitor-1 (PAI-1) were positively associated with prenatal pesticide exposure. For PON1 192 QQ-homozygote children none of the biomarkers were significantly affected by prenatal pesticide exposure. In children with the R-allele, leptin was associated with both body fat measures and prenatal pesticide exposure and seems to mediate body fat accumulation in exposed children. These findings support our previous results of an adverse cardio-metabolic risk profile associated with prenatal pesticide exposure in children with the PON1 192 R-allele.

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