



MEETING ABSTRACT

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Phthalate exposures in a Canadian birth cohort at three months of age: the CHILD study

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Background

Exposure to phthalates has been associated with the development of wheeze and asthma. While infants may be exposed via multiple routes, the sources of infant exposure aren't fully understood.

Methods

We employed the Canadian Healthy Infant Longitudinal Development (CHILD) Study, a multicentre, longitudinal, population-based birth cohort with 3,300 children to identify sources of phthalate exposures in infants. For the first 1,539 CHILD participants we examined associations between 6 urinary phthalate metabolites, measured at 3 months of age and corrected for specific gravity, with 90 variables characterizing the indoor environment, including furnishings, household care products and personal care products. Univariate, Bivariate, and Tobit regression were used for modeling. We also examined the relationship of urinary phthalates with socio-demographic characteristics and breastfeeding.

Results

Overall, there were 32 variables associated with higher concentrations and 20 inverse associations. We found higher urinary phthalates among children whose families used oven cleaners (Mono-n-butyl phthalate ($\beta=7\%$, 95%CI: 2-15%), Mono-benzyl phthalate ($\beta=15\%$, 5-26%), and Mono-ethyl phthalate (15%, 5-26%)) and air fresheners (Mono-n-butyl phthalate (4%, 2-10%), Mono-benzyl phthalate (10%, 5-15%), and Mono-ethyl phthalate (10%, 5-17%)), or who heated food in hard plastic (Mono-n-butyl phthalate (32%, 15-48%), Mono-2-ethyl-5-hydroxyhexyl phthalate (29%, 7-51%). Soft vinyl flooring was highly

correlated with Mono-benzyl phthalate (58%, 35-91%). Mono-2-ethylhexyl phthalate, Mono-2-ethyl-5-hydroxyhexyl phthalate, and Mono-2-ethyl-5-oxohexyl phthalate concentrations were lower in children who were breastfed. Household income was inversely associated with Mono-2-ethyl-5-oxohexyl phthalate concentrations.

Conclusions

Our analysis demonstrated higher levels of phthalate metabolites associated with use of household product and plastics. The identification of these exposures as possible contributors to phthalate body burden in three-month-old children is an important step in exposure categorization and supports efforts to reduce exposure.

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