Phthalate metabolites in urine and asthma, allergic rhinoconjunctivitis and atopic dermatitis in preschool children

Phthalate esters are among the most ubiquitous of indoor pollutants and have been associated with various adverse health effects. In the present study we assessed the cross-sectional association between eight different phthalate metabolites in urine and allergic disease in young children. As part of the Danish Indoor Environment and Children’s Health study, urine samples were collected from 440 children aged 3-5 years, of whom 222 were healthy controls, 68 were clinically diagnosed with asthma, 76 with rhinoconjunctivitis and 81 with atopic dermatitis (disease subgroups are not mutually exclusive; some children had more than one disease). There were no statistically significant differences in the urine concentrations of phthalate metabolites between cases and healthy controls with the exception of MnBP and MECPP, which were higher in healthy controls compared with the asthma case group. In the crude analysis MnBP and MiBP were negatively associated with asthma. In the analysis adjusted for multiple factors, only a weak positive association between MEP in urine and atopic dermatitis was found; there were no positive associations between any phthalate metabolites in urine and either asthma or rhinoconjunctivitis. These findings appear to contradict earlier studies. Differences may be due to higher exposures to certain phthalates (e.g., BBzP) via non-dietary pathways in earlier studies, phthalates serving as surrogates for an agent associated with asthma (e.g., PVC flooring) in previous studies but not the present study or altered cleaning habits and the use of “allergy friendly” products by parents of children with allergic disease in the current study in contrast to studies conducted earlier.

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