

Personal Care Product Use and Endocrine Disrupting Chemicals in Urban Minority Children

Susan Teitelbaum¹, Mary Wolff¹, Marissa Hauptman¹, Maida Galvez¹, Barbara Brenner¹,

¹Mount Sinai School of Medicine, New York, NY

Background: Concern about the effects of endocrine disruptors on early child development has increased as information about widespread use and biological activity becomes available. Urinary phthalate concentrations have been associated with personal care product (PCP) use. Parabens are often contained in PCPs; but associations with urinary paraben concentrations have not been examined.

Methods: In a cohort study of Hispanic and Black, New York City children ages 6 to 8 years old, parents/guardians were interviewed in-person about their child's environmental exposures and neighborhood characteristics. Child urine samples were analyzed by the CDC for phthalate and phenol metabolites; these were summed on a molar basis and then expressed as ug/L based on MEP, MEHP or propyl paraben. Biomarkers were compared across groups based on frequency of PCP use over the past year (<1, 1-4, or 5-7 days/week). Models were adjusted for age, race/ethnicity, gender, body size, SES, residence type and creatinine. Analyses include data from 406 girls and 102 boys.

Results: Products with the highest frequency of use over the past year were body lotion, shampoo, and chapstick (Mean: 5.5, 2.9, 2.6, days/week, respectively). Perfume use was significantly associated with higher monoethyl phthalate concentrations ($p<0.0001$; 147.1, 171.2, 257.8 ug/L by frequency category of use, respectively). Additionally, more frequent use of lotion was associated with higher paraben concentrations ($p=0.01$; 61.7, 108.8, and 116.4 ug/L by frequency category of use, respectively). Shampoo use was associated with low molecular weight phthalates ($p<0.01$). Product use and biomarker levels were also examined in relation to the children's neighborhood environment.

Conclusion: Phthalates and parabens have been widely detected in children and our findings indicate that PCPs may be sources of exposure. Therefore, reducing children's PCP use should be considered as a method for decreasing their exposure to these chemicals.

Acknowledgements: Supported by grants: K01 ES12645, W81XWH-04-1-0507, P01 ES009584, U01 ES012771, ES012645, R827039, RD831711, CA93447, GCRC- MO1-RR-00071, ATU 300014. The authors acknowledge the technical assistance of Antonia Calafat, Xiaoyun Ye, Manori Silva, Amber Bishop and Jack Reidy (CDC, Atlanta, GA) in measuring the urinary phenol concentrations.

Disclaimer: The findings and conclusions in this presentation are those of the authors and do not necessarily represent the official position of the CDC.