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Urinary phthalate metabolites concentrations and symptoms of depression in an elderly populationKyung-Shin Lee¹ and Nami Lee²¹Seoul National University, Republic of Korea²Seoul National University Hospital, Republic of Korea

Background: Animal studies have reported an association between phthalates and depression, although there is limited evidence from epidemiological studies. We investigated the association between phthalate exposure and symptoms of depression in an elderly population.

Methods: Repeated measures surveys up to 3 times were conducted during the study period (2012-2014) in the 535 elderly subjects. We measured the following urinary phthalate metabolite levels: Mono (2-ethyl-5-hydroxyhexyl) Phthalate (MEHHP), Mono (2-ethyl-5-oxohexyl) Phthalate (MEOHP), Mono-(2-ethyl-5-carboxypentyl) Phthalate (MECPP), Mono-n-butyl phthalate (MnBP) and Mono-Benzyl Phthalate (MBzP). MEHHP, MEOHP and MECPP are metabolites of Diethylhexyl Phthalates (DEHP). MnBP and MBzP are metabolites of dibutyl phthalate and butyl benzyl phthalate, respectively. The phthalate metabolite concentrations were evaluated to identify associations with the symptoms of depression using the Korean version of the Short Geriatric Depression Scale (SGDS-K). After factor analysis of the components of SGDS-K, we evaluated the association between phthalate exposure and SGDS-K subgroups to determine which symptoms of depression were affected by phthalate exposure.

Results: Concentrations of DEHP metabolites were positively associated with the risk of depressive symptoms in the elderly population (Odds ratio (95% confidence interval); 1.92 (1.17-3.13) for sum of three DEHP metabolites), while we found no significant association between depressive symptoms and either MnBP or MBzP. When we evaluated the associations between phthalate metabolite concentrations and the SGDS-K subgroup, we found that affective and spiritual symptoms were significantly associated with DEHP metabolite concentrations.

Conclusion: Our study suggests that DEHP exposure is associated with depressive symptoms, particularly, the affective and spiritual symptoms, among the elderly population.

Biography

Kyung-Shin Lee is a researcher for Institute of Environmental Medicine, Seoul National University Medical Research Center, Seoul, Republic of Korea and she holds a master's degree in public health from Seoul National University. She is interested in environmental and health effects.

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