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Intake of phthalate-tainted foods and microalbuminuria in children: The 2011 Taiwan food scandal

A major threat to public health involving phthalate-tainted foodstuffs occurred in Taiwan in 2011. Phthalates, mainly di-(2-ethylhexyl) phthalate (DEHP), were intentionally added to several categories of food commonly consumed by children. We investigated the relationship between intake of the phthalate-tainted foods and renal function in children. Children aged ≤ 10 years with possible phthalate exposure were enrolled between August 2012 and January 2013. Questionnaires were used to collect details of exposure to phthalate-tainted foodstuffs, and blood and urine samples were collected for clinical biochemical workups. The clinical biomarkers of renal injury, including urinary microalbumin, N-acetyl-beta-D-glucosaminidase (NAG), and $\beta 2$ -microglobulin, were measured. Exposure was categorized based on recommended tolerable daily intake level defined by the U.S. Environmental Protection Agency (0.02 mg/kg/day) and the European Food Safety Authority (0.05 mg/kg/day). We analyzed intake and renal function of 184 children whose intake of DEHP-tainted foods was known. Higher exposure to DEHP-tainted foods was significantly associated with increased risk for microalbuminuria (> 3.5 mg/mmol creatinine) ($P = 0.02$). Children in the high exposure group (daily DEHP intake (DDI) > 0.05 mg/kg/day) had 10.395 times the risk of microalbuminuria than the low exposure group (DDI ≤ 0.02 and > 0 mg/kg/day) and no exposure groups (95% CI = 1.096-98.580, $P = 0.04$) combined after adjustment. We conclude intake of DEHP from phthalate-tainted foods is a potential risk factor for microalbuminuria, a marker of glomerular injury in children. In this talk, I will also present the course of this incident and government response and management of the crisis.

Biography

Ming-Tsang Wu has completed his MD from Chung Shan Medical University in Taiwan and PhD from Harvard School of Public Health in the USA. He is a full professor in the Department of Public Health and the Director in Research Center for Environmental Medicine, Kaohsiung Medicine University, Taiwan. His major research interest is on the interactive effects of environmental and occupational exposures, genetic factors, and biomarkers on the health outcomes.

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