URINARY AND BLOOD CADMIUM LEVELS IN RELATION TO TYPES OF FOOD AND WATER INTAKE AND SMOKING STATUS IN A THAI POPULATION RESIDING IN CADMIUM-CONTAMINATED AREAS IN MAE SOT

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Abstract. Human exposure to cadmium (Cd) produces a wide variety of toxic effects involving many organs and systems, but the kidney is the main organ affected among long-term Cd-exposed people. In the general population, the primary sources of Cd exposure are cigarette smoke and food (shellfish, offal and certain vegetables). The aims of the study were to investigate the association between urinary and blood Cd levels and personal habits relating to Cd intake (consumption of food stuff, water and tobacco smoking), levels of renal biomarkers in the urine or serum of 314 Thai subjects (85 males, 229 females) who resided in Cd-contaminated areas of Mae Sot District, Tak Province, Thailand. Based on the cut-off levels of 1 μg/g creatinine and 5 μg/l for urinary and blood Cd levels, respectively, nearly all subjects had urinary Cd levels lower than cut-off values for urine and blood (88.2 and 77.7%, respectively). Binary logistic backward stepwise regression analysis with five covariates (gender, residential areas, consumption of bamboo or chicken, and smoking status), and eight covariates (residential areas, consumption of beans, pork, fish or liver, types and sources of rice consumed and smoking status) best predicted urinary and blood Cd levels, respectively. For renal biomarkers, *N*-acetyl-β-glucosaminidase (NAG) best predicted both urinary and blood Cd with good accuracy. A larger sample size with equal distribution of subjects with low (< 2 μg/g creatinine) and high (> 2 μg/g creatinine) urinary Cd levels should be studied to obtain the regression equation that would best predict Cd body burden.

Keywords: cadmium, food intake, smoking personal habits

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