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Research Article

Biological half-life of cadmium in the urine of inhabitants after cessation of cadmium exposure

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Abstract

We investigated the biological half-life of the urinary cadmium concentration (U-Cd) based on a 24-year follow-up study after cessation of cadmium exposure in a cadmium-polluted area. Spot urine samples were obtained from all inhabitants in this area in 1979, 1986, 1991, 1999 and 2003. Biological half-life was calculated in the inhabitants whose U-Cd was more than 5 $\mu g\, l^{-1}$ (9 men and 12 women) or 5 $\mu g\, g^{-1}$ creatinine (9 men and 19 women) using a one-compartment model. The estimated half-life and 95% confidence intervals were 13.6 years (9.0–28.2 years) and 13.9 years (9.6–25.6 years) for unadjusted U-Cd in men and women, respectively. For creatinine-adjusted U-Cd, they were 14.2 years (11.2–19.4 years) and 23.5 years (17.7–35.0 years) in men and

women, respectively. The biological half-lives of U-Cd obtained in this study were identical with the values of total body burden determined by a different method.

Keywords::

Urinary cadmium | biological half-life | long-term follow-up study | risk assessment | human

Acknowledgment

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

Related Research Data

URINARY CADMIUM ELIMINATION AS A BIOMARKER OF EXPOSURE FOR EVALUATING A CADMIUM DIETARY EXPOSURE - BIOKINETICS MODEL
Source: Journal of Toxicology and Environmental Health Part A
The relation of individual cadmium concentration in urine with total cadmium intake in Kakehashi River basin, Japan
Source: Toxicology Letters
In vivo measurement of liver and kidney cadmium in workers exposed to this metal: Its significance with respect to cadmium in blood and urine
Source: Environmental Research
Cadmium Metabolism in Man
Source: Human Toxicology
Significance of Urinary Cadmium Concentration in a Japanese Population Environmentally Exposed to Cadmium
Source: Archives of Environmental Health An International Journal
A comparison between fecal cadmium and urinary β2-microglobulin, total protein, and

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