Cadmium levels in urine and mortality among U.S. adults.

BACKGROUND: Cadmium exposure has been associated with increased all-cause, cancer, and cardiovascular disease mortality. However, studies investigating this association have included participants with considerably higher levels of cadmium than those found in the general population.

OBJECTIVE: We aimed to evaluate the association of creatinine-corrected urinary cadmium levels with all-cause and cause-specific mortality in the U.S. general population.

METHODS: We analyzed the relationship between cadmium measured in 13,958 adults who participated in the Third National Health and Nutrition Examination Survey in 1988-1994 and were followed through 31 December 2000, and all-cause, cancer, cardiovascular disease, and coronary heart disease mortality.

RESULTS: The geometric mean levels of urinary cadmium per gram of urinary creatinine in study participants were 0.28 and 0.40 microg/g for men and women, respectively (p < 0.001). After multivariable adjustment, including smoking, a major source of cadmium exposure in nonoccupationally exposed populations, the hazard ratios [95% confidence interval (CI)] for all-cause, cancer, cardiovascular disease, and coronary heart disease mortality associated with a 2-fold higher creatinine-corrected urinary cadmium were, respectively, 1.28 (95% CI, 1.15-1.43), 1.55 (95% CI, 1.21-1.98), 1.21 (95% CI, 1.07-1.36), and 1.36 (95% CI, 1.11-1.66) for men and 1.06 (95% CI, 0.96-1.16), 1.07 (95% CI, 0.85-1.35), 0.93 (95% CI, 0.84-1.04), and 0.82...
(95% CI, 0.76-0.89) for women.

**CONCLUSIONS:** Environmental cadmium exposure was associated with an increased risk of all-cause, cancer, and cardiovascular disease mortality among men, but not among women. Additional efforts are warranted to fully explain gender differences on the impact of environmental cadmium exposure.

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