

BELGIUM

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1. Urinary Cadmium and Lead Concentrations and Their Relation to Blood Pressure in a Population With Low Exposure

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The 24 hour urinary excretion of cadmium (U-Cd) and lead (U-Pb), and the excretion of beta-2-microglobulins and retinol binding protein concentration in spot urines, were determined in a random 4% sample of the population of a small Belgian town. Blood pressure and body weight were measured on two separate occasions. U-Cd averaged 2.4 nmol/24h in 46 youths, increased with age, and was significantly higher in 57 adult men as compared with 59 women (9.3 vs 7.2 nmol/24h; $P < 0.01$), U-Pb averaged 28 nmol/24h in youths and similarly increased with age: adult men excreted more lead than women (64.0 vs 40.0 nmol/24h; $P < 0.001$). Among men, manual workers excreted more cadmium (12.6 vs 7.5 nmol/24h; $P < 0.05$) but a similar amount of lead (62.0 vs 61.0 nmol/24h) compared with office workers. After adjusting for sex and age, U-Cd and U-Pb were not related to body weight and cigarette consumption. In simple regression analysis, U-Cd was positively correlated with both systolic ($r = + 0.30$; $P < 0.05$) and diastolic ($r = + 0.38$; $P < 0.01$) blood pressure in women. After adjusting for other contributing variables, however, a weak but negative relation became apparent between systolic pressure and U-Cd in women ($t = -2.21$; $P = 0.033$) and between diastolic pressure and U-Cd in men ($t = -2.04$; $P = 0.047$). In women urinary beta-2-microglobulin was related to diastolic pressure ($r = -0.44$; $P < 0.01$) and after adjusting for age to both systolic ($t = -2.75$; $P = 0.009$) and diastolic ($t = -3.07$; $P = 0.004$) pressure. In none of the sex-age groups did U-Pb and retinol binding protein contribute to the blood pressure variability.

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