Abstract

The human biomonitoring is today an important tool for monitoring of people exposition to environmental pollutants. Mercury and cadmium are long-term monitored biomarkers in the Czech population.

A developmental trend of mercury concentration level in urine and hair of children population as well as in urine and blood of adult population is investigated. These biomarkers were monitored in the years 1996 – 2011. Data originate from the NIPH (National Institute of Public Health) databases and from the international project COPHES/DEMOCOPHES.

Adult blood donors at age of 18 to 64 were the first monitored group, the second one were children at age of 6 to 12, which were selected based on an agreement with elementary schools or with the paediatricians’ cooperation.

Available data were statistically processed; trends are presented in graphs as a dependence of geometric means on the time (the year of the biological samples collection). Results show an unstable development of biomarkers levels in different matrixes. A moderate decreasing trend of cadmium level in urine of adults was observed. GM values for adults decreased from 0.43 μg/g creatinine in 2009 to 0.24 μg/g creatinine in 2009. For year 2011, data are available only for women (GM = 0.21 μg/g creatinine). The downward trend was also found in the blood cadmium levels, but only in non-smokers, there is an average level of cadmium in the blood decreased from 0.57 μg/l in 1996 to 0.29 μg/l in 2009. Concentration of cadmium in urine of children fluctuates within a monitored period. The same trends are observed for mercury in all matrixes for both monitored groups.

Mean levels of cadmium and mercury in various matrices has long been under significant health limit values for both children and adults.