

Biomonitoring of metal exposure in children in a northern city of Japan

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Dear Editor

I recently read with interest the article by Ilmiawati et al. [1] published in *Environ Health Prev Med* on the exposure levels of mercury, cadmium, and lead in children of Asahikawa City, Hokkaido, Japan. This study raised some questions, which are listed below.

The authors describe their study as a “cross-sectional study”. According to the basic definition of epidemiological terminology, a cross-sectional study determines both exposure and disease outcome simultaneously for each subject [2]. However, this study investigated only exposure to metals, without any information on health effects. Therefore, this study cannot be called a cross-sectional study, but just a biomonitoring study.

This study was conducted only in Asahikawa City located in the inland areas of Hokkaido, an island at Japan’s northern extremity, with extremely cold weather. It is hard to understand why the authors consider the children from such a city as representative of Japan. In the first place, epidemiology is essentially a comparative

discipline, requiring studying different places or different groups of people, but this study showed only data from one place, without any comparison. That makes interpretation of the obtained results very difficult. Additional investigations of children from other areas, such as Tokyo, are recommended.

It is a surprise that there was a child whose urinary cadmium level was as high as 4.67 µg/g cr., being almost equal to the levels in rice farmers with excessive oral exposure to cadmium [3]. This was probably because urinary cadmium levels were measured by inductively coupled plasma mass spectrometry (ICP-MS). In general, urine contains lots of molybdenum, which interferes with the measurement of cadmium by ICP-MS [4, 5]. Therefore, the urinary cadmium levels of children reported in this study would be much higher than the true values. Their remeasurement by atomic absorption spectrometry or molybdenum-adjusted ICP-MS is necessary.

Yours sincerely,
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